

Edited by Mario Sebastiani

KALECKI'S RELEVANCE TODAY

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Introduction

MARIO SEBASTIANI

Michał Kalecki's work is an *oeuvre* of rare versatility. It spans many different topics – from the analysis of the capitalist economy to that of socialist countries; from problems of development of backward areas to the questions which arise from a war economy. This wide range of interests is intersected by some constants which increase its complexity and richness even more. I am referring, of course, to Kalecki's effort to join the rigour of the theorist to the pragmatism of the practical economist, convinced that even the most advanced speculations must have a 'visible' return in aiding the comprehension of reality; I mean also Kalecki's deep-rooted conviction that the operation of the 'machine' is strongly influenced by its political, social and institutional setting; this fact, Kalecki argues, puts a definite limit to the extent of the conclusions that can legitimately be drawn from economic analysis.

In this sense, Kalecki can be justly considered an exponent of the great tradition of political economy – running from the classics to Marx, to Schumpeter, to Keynes – which combined a practical attitude towards real-life problems and the implications of economic policy with the conviction that such issues must be analysed within a general interpretative framework of the 'law of motion' of capitalist society, and a firm belief in the relativity inherent in such a law.

The diffusion of Kalecki's thought has been unwarrantedly slow – in socialist countries because of his heterodoxy, in capitalist countries because his contribution has remained stifled for a long time, either by the outcry raised by the debate over the *General Theory*, or because he was regarded as a 'leftist Keynesian'.

The widespread rediscovery of Kalecki which we are witnessing today is certainly due, at least in part, to the growing dissatisfaction with Keynes's theory. Whether it is justified or not, this dissatisfaction stems above all from the theoretical limits of the Keynesian model (emphasised by a debate which has been going on now for half

a century), as well as from the limits inherent in Keynesian policies (or what are claimed as such), visible in the difficulties that western economies experience today.

It has been asserted that these limits have their own roots on the one hand in Keynes's acceptance of the Marshall – Pigou background, and on the other in a too schematic a vision of society and of the economy. Keynes would thus have failed to perceive the complexity of modern systems, the structural problems, the proliferation of social figures, the fragmentary character of interests and the existence of conflicts which cannot be settled through macroeconomic policies. This interpretation of Keynes's work is probably too reductive, focused as it is on the *General Theory* (where he was forced drastically to simplify in order to clarify his major argument as much as possible), while a more extensive reading of his works would do greater justice to their richness and complexity.

In making these aspects more explicit, however, Kalecki takes several steps forward, and this appears to be the main reason for the increased current interest in his work. Indeed: (1) (as Kaldor observes in his contribution, Chapter 1) Kalecki was a 'deviationist' from Marx, whilst Keynes was a deviationist from Marshall; this fact has made the Kaleckian theory of effective demand free of the marginalist residues (though itself not free from flaws); (2) according to Kalecki, the entire working of the economy is deeply influenced by the distributive setting – a phenomenon pre-eminently prone to those factors of complexity which make modern systems so difficult to control.

In April 1986, on the initiative of the Istituto di Economia e Finanza of the University of Perugia, a symposium was held on Kalecki's work; this volume includes a selection of the studies presented there. The studies which were presented mirror the variety of the arguments treated by Kalecki, as well as the diversity of the scientific circles which are interested in his thought. The main purpose of the meeting was in fact to 'make the point' on a wide range of themes to which Kalecki had contributed, inviting for this task scholars of very different outlooks. I hope that this pluralism of arguments and opinions may be manifest in the essays collected here.

The structure of this book is that which seems to respond best to the logical sequence of the Kaleckian theory, where prices and income distribution precede the determination of the level of activity at any given time, and where the latter precedes a dynamic analysis through the interposition of the theory of investment. The arrange-

ment of the different contributions within this framework is obviously, however, somewhat arbitrary, in as much as they might at times have application to more than one section.

Part I – *Reminiscences and comparisons* – open with an introductory address by Lord Kaldor (Chapter 1). Here Kalecki's relations with the English circles at the time of the great Keynesian turmoil are recalled. Kaldor's appreciation for the Polish author shows through very clearly; it is an appreciation which derives from a substantial contiguity of opinions, but one which was, nevertheless, obscured by the official iconography through an excessive emphasis upon Kaldor's criticism of the concept of the degree of monopoly. (It is worth noting the fact that it was Kaldor who recommended Kalecki for the Nobel Prize.)¹

The other studies in Part I deal with the relationship between Kalecki's analysis and that of economists such as Joan Robinson and Keynes, whose scientific activity was very closely entwined with his.² Asimakopulos (Chapter 2) outlines the intellectual linkage – the 'give and take' – between Kalecki and Mrs Robinson. Though warning that the relationship was one of mutual influence, Asimakopulos is mainly concerned with the influence which the first exerted on the second, specially by helping Mrs Robinson to cast off the fetters of the theory of imperfect competition. The argument taken up by Patinkin (Chapter 3) is whether the core of the 'Keynesian revolution' – indicated in the multiplier of income – had been conceived by Kalecki at the same time of Keynes, as well as whether it occupies the same place in his theory as it does in that of Keynes. Patinkin's conclusion is quite negative, in as much as Kalecki's main point was not to take into consideration the forces which generate the under-employment equilibrium, but rather those which generate fluctuations in investment. Feiwel (Chapter 4) evaluates the most significant similarities and differences between Kalecki's and Keynes's analysis, and sketches their personal relations. Feiwel argues against Patinkin's conclusions and asserts Kalecki's simultaneous discovery of the theory of effective demand. Finally Sebastiani (Chapter 5) examines the different long-period conceptions of both Kalecki and Keynes, paying particular attention to the mechanism that makes unemployment a phenomenon deeply-rooted in the capitalist economy. Some contradictions are then analysed which, according to Kalecki and Keynes, might undermine the process of accumulation.

The studies included in Part II – *Microfoundations and the theory of distribution* – follow two themes: one (dealt with by Chilosì and by

Kriesler, Chapters 6 and 7) centres on the interrelationships between the micro and the macroeconomic level; the other (Jossa, Nell and Vianello, Chapters 8, 9 and 10) concerns the articulation of Kalecki's analysis between the short and the long period, and hence the role of the rate of profit.

For the first group, Chilosi evaluates the Kaleckian attempt to make the microeconomic equilibrium compatible with the macroeconomic one, and tries to establish under which conditions the operation could be considered successful. Kriesler investigates the controversial question of independence interrelationship between the micro and the macroeconomic level of analysis in Kalecki. He concludes that Kalecki's method, being framed in causal schemes with iterative solutions, shows remarkable analogies with those set up by the classical economists.

The contributions of the second group start by remarking that an adequate consideration of the rate of profit as a decisional variable is missing in Kalecki. As a consequence, Kalecki neglects to study the tendency of the rates of profit to level out over the long period. This flaw – it is Jossa's conclusion – makes Kalecki's theory 'a short run theory of doubtful validity which, if extended to cover also long periods, needs to be re-formulated in a way such as to account for the tendency of profit-rates to level out'. According to Nell, the need to complete the Kaleckian scheme with a theory of the rate of profit and of normal prices is made even more urgent by the necessity to confront the problem of normal productive capacity and that of choice of techniques. Vianello argues that the mere fact that Kalecki assumes the current profitability instead of the general rate of profit as the 'guiding star' of investment decisions, introduces elements of contradiction.

Part III – *Savings, investment and money* – is centred around the problem of capital accumulation as seen from different perspectives: the role of money (Kregel and Sardoni, Chapters 11 and 12) and of taxation (Paladini, Chapter 13), as well as the relationship between Keynes's theory of investment (Meacci, Chapter 14).

Kregel's starting point is the minor role that, according to many people, money would play in the Kaleckian framework. Kregel analyses in particular whether (and to what extent) the availability of finance may constitute a condition that makes investment autonomous from savings. Sardoni examines instead the linkage between the Kaleckian theory and the Marxian schemes of reproduction, with a particular reference to monetary aspects. His conclusion is that 'both

for Marx and Kalecki the “liquidity preference” of the capitalist class as a whole plays a crucial role in the process of economic growth’ and that ‘Marx’s and Kalecki’s views are, in this respect, very close to that of Keynes’. As for fiscal policy, Paladini analyses Kalecki’s various proposals for taxation, from the point of view of their consequences both for investment activity and for economic stabilisation. Finally Meacci examines both the criticism that Kalecki raised towards the Keynesian theory of investment and his positive contribution on the matter. Meacci’s thesis holds that the Kaleckian approach to investment in fact suffers the same ambiguities which Kalecki had criticised in Keynes.

The studies in Part IV – *Trend and business cycle* – deal on the one hand with some formal features of the Kalecki’s models of business cycle (Goodwin and Sordi, Chapters 15 and 16) and on the other with the capacity of the Kaleckian approach to offer an interpretative key to the dynamics of capitalist countries in the last decades (Sawyer, Chapter 17). The contribution of Steindl (Chapter 18) spans both fields, starting from what was debated in the previous studies.

Goodwin is concerned with the formal characteristics of Kalecki’s business cycle models, and argues in favour of a modification which allows the introduction of non-linear equations. Sordi takes into consideration the theory of investment underlying the model of the business cycle, and notes the doubtful compatibility between the microeconomic nature of the first and the macroeconomic nature of the second. Sawyer examines the validity of the Kaleckian theory to explain the recessive tendencies of capitalist economies. His main purpose is to verify whether (and to what extent) this theory may still be applicable to interpret the prolonged depression which allowed after 1973, all the more considering that it was set up in response to the conditions of the period between the two world wars. Steindl begins by commenting on the studies of Sawyer and Goodwin. To the first Steindl objects that the stagnation in the share of profits – experienced in the 1960 and 1970s, despite a considerable increase in industrial concentration – does not contradict Kalecki’s belief, since it can be attributed to the marked decrease in the degree of utilisation of capacity. To the view held by Goodwin, Steindl opposes the necessity of searching deeper into the effects of ‘random shocks’ on both the cycle and the trend.

Part V – *Socialism and planning* – contains Nuti’s study (Chapter 19), which analyses the Kaleckian approach to socialist planning, showing the originality of its tenets and its heterodoxy in respect to

the soviet model of planning. Nuti also points out the need to bring in amendments and specifications so as to widen its range of applicability.

M. S.

NOTES

1. I am grateful to A. P. Thirlwall for having told me about this episode.
2. Analysis of the relationships with Marx are to be found in the studies of Vianello (Chapter 10) and Sardoni (Chapter 12).

Part I
Reminiscences and
Comparisons

1 Personal Recollections on Michał Kalecki*

NICHOLAS KALDOR

Because of the nature of the occasion and the distance of time, I should like to begin with my personal recollections. I took my degree in Economics in 1930, and I was then awarded a student researchship at the London School of Economics (LSE). I was put on the staff two years later, lecturing on various aspects of economic theory.

LSE was a curious sort of place. There were weekly seminars; the main seminar was led by Lionel Robbins, who was a young professor at the time and was the head of the Economics Department. Every Wednesday, he held a seminar lasting two hours, for which the programme was settled for many weeks in advance, and on each occasion somebody read a paper. It was unusual in general, but it was usual on this occasion, for the members of the Economics Faculty (meaning the other professors, readers and lecturers) to attend the seminar.

It was in this capacity that Kalecki appeared on the scene in 1936, as a senior visitor holding a Fellowship from the Rockefeller Foundation. I had met him for the first time in Leyden, in 1933, and I met him again in Robbins's seminar.

Kalecki was an active member of the seminar from the very beginning. At the outset, he gave the impression of a little man with a loud and creaking voice, who spoke English completely unintelligibly. He spoke with a very strong and peculiar accent, and

* Lord Kaldor died September 1986 without completing the revision of this study. The revision has been therefore undertaken by F. Targetti and by A.P. Thirlwall, Lord Kaldor's literary executor, to whom the editor is greatly indebted.

nobody could follow what he meant. But he persisted in making frequent interventions, and gradually the situation changed.

At first, he was a source of annoyance to most people but then we gradually learnt to respect him, including Robbins, because gradually it emerged more clearly what he said, and his contributions were always relevant and appropriate for the occasion. And so he emerged, I would say, almost as an important figure. He did an awful lot of things; among them he made several written contributions to the *Review of Economic Studies*. He read papers in this and in other seminars, and I remember that his theory of employment and of the trade cycle made a considerable impression on me.

By the time Kalecki appeared, however, I had read Keynes's *General Theory* in America, and I was aware of the similarities, as indeed Kalecki and other people were also aware. What was common to Kalecki and Keynes was the idea that economic adjustments occur not through changes in prices but through changes in the level of output. This was a revolutionary new idea. Up to that time it was always assumed that disturbances were rectified by movements in prices, leaving the level of output unchanged. But both Keynes in the *General Theory* and Kalecki introduced the idea that certain economic changes lead to a new equilibrium through changes in output; an idea that Keynes, and Kahn before him, spelled out in greater detail through the concept of the multiplier. That is to say, if the equilibrium is disturbed, it is re-established in a succession of stages, these being the steps of the multiplier, which lead to a convergent series ending with a new equilibrium.

As far as I remember, Kalecki did not say much on how a new equilibrium is reached when the old equilibrium is over. Therefore, he was not much concerned with the multiplier or with the process of disequilibrium; his main contention was that the general level of effective demand depends on the savings-investment relationship. That is to say, a certain proportion of income is not spent on consumption but is saved, and that that itself has a deflationary influence.

Taken by itself, this means that if X is the amount of costs incurred (which is the same as the amount of income generated) and if a proportion of X (call it sX) is saved, and only $(1 - s)X$ is spent, then the amount that entrepreneurs get as a class is not X but $(1 - s)X$. So, if this were the whole story, they would always

make losses; and as they contract output they would make fresh losses, because the relationship of X to $(1 - s)X$ would not necessarily change, or not by very much.

In addition, there was the idea that the demand was fed from two sources – this was the novelty of the 1930s which nobody had thought of before. Up to the 1930s, we thought of the demand as of the other side of the coin of supply; therefore we believed that people earned incomes by supplying commodity, and that the costs incurred were turned into incomes.

But then the idea came that if people generated a given income, then the amount of the demand created would be less than that by the amount of savings, so that there would always be a current shortfall. However, to offset this there is investment, and this was the great novelty because up to that time we regarded the savings–investment market as in every way equivalent to any other, the only difference being that (say) in the bread market people demand by buying bread and supply by selling bread. In the savings–investment market you demand loans out of income, and you meet this by supplying loans; people who demand loans do so because they wish to incur expenditure not out of income but out of loans. So loan expenditures are determined by loans obtained in the loan market, which is the savings–investment market.

That was the doctrine on which I was brought up in the early 1930s. Of course, Ralph Hawtrey had emphasised, ever since his first book in 1911, that the savings–investment market had some peculiarities in that it got muddled up or mixed up with the monetary system, and as a result of this illicit relationship between savings–investment and the creation of money we got a supplementation of savings out of bank credits.

As a result of this, we get all the phenomena of investment, expansion, inflation, all the evil things we can think of, and we also get the trade cycle, because we have to take counter-measures and then we overshoot, and so on. The early trade cycle theories are all linked to this idea. But that was the only concession one made about the savings–investment market: that, as a result of its inherent connection with banking and finance, it got muddled up. Savings determined investment in the same, simple, direct way as the demand for bread determined the supply.

But then Keynes and Kalecki came along at more or less the same time. I think there is plenty of historical evidence to show that Kalecki came along first, but in any case they thought of the

same sort of things entirely independently. There is no question that Keynes did not hear of Kalecki until long after the appearance of the *General Theory*, and no question that Kalecki owed nothing to Keynes. The fact that Kalecki published articles in 1933 while the *General Theory* only appeared in 1936, or that Keynes wrote memoranda to the McMillan Committee in 1931 which already contained the same ideas as Kalecki had in 1933, is not important, except for the historians of economic thought.

The clear thing is that both Kalecki and Keynes were pioneers of a new economics – a new economics which has come to be called nowadays ‘macroeconomics’. The term was not known at that time: people did not worry about or did not think of notions like demand in the aggregate, supply in the aggregate, output in the aggregate. When we thought of demand, supply and production, we meant individual goods: we thought in general equilibrium terms, being concerned with the general composition of output between different goods and services. The general equilibrium theory of Walras and his followers never raised the question of what determined the total output in the state of general equilibrium. Indeed, the total production in the state of general equilibrium is clearly determined by exogenous factors: it is determined by the amount and different types of available resources; by the prevailing knowledge of technology, and by the efficiency with which the resources, in combination with these techniques, are employed by the entrepreneurs. But this was the only way one thought of the matter – one never thought that total output could be an economic variable or wondered how many people were employed: these aspects were regarded as something exogenous.

Did that mean that until the 1930s, when Keynes and Kalecki came along, people never thought of unemployment? Of course not. Unemployment was pretty heavy, particularly in England, at various times. But it was explained by a misallocation of resources or a misallocation of production, the correction of which involved – unhappily but only temporarily – unemployment. This idea was developed quite early in the 1930s, when I was already a graduate student, by the Austrian school of von Mises and von Hayek, but it was not so very far from Pigou and the Cambridge people. It was conceded that the relationship between investment goods and consumption goods could not correspond at times to the true consumer preferences between savings and consumption, the one tending to exceed the other, and that occasionally, in the process

of correction of the previous excess, it may have been the other way round.

The Great Depression concentrated a lot of people's minds on to the problems more deeply. The experience of the Great Depression was something much bigger than could be accommodated by the old-fashioned trade cycle theories. Keynes at that time was engaged in writing his *Treatise on Money*, which was intended to be, in the field of money, the counterpart of Marshall's *Principles of Economics*. He worked on his *Treatise* for many years in the 1920s, but when it appeared in the bookshops, somewhere in September or October 1930, not only had the economic situation undergone great changes, but even Keynes's views had undergone significant alteration.

At that time there was a Socialist government in England under Ramsay MacDonald, and Keynes was a member of various committees, the most important being the Economic Advisory Committee. It was in connection with his work in that Committee that Keynes wrote several memoranda, one of them containing the seeds of the ideas of the *General Theory*; that happened almost simultaneously with the appearance of the *Treatise on Money*, which contained none of these ideas. The central idea was that depressions occur because investment undergoes a diminution as a result of a collapse of expectations, and therefore falls below savings, what in turn cause a fall in output, and so on until savings match the new (lower) level of investment. This was the beginning of the *General Theory*.

Keynes, therefore, began to develop these ideas in 1931 and started to write the new book in 1933, not very long after having published the *Treatise*. The *General Theory*, published in 1936, brought about an economic revolution. It has been the most controversial book that has emerged during my lifetime. Keynes's ideas were so unorthodox that all the orthodox professors of Political Economy – not only Lionel Robbins but also people like A. C. Pigou (who was the Professor of Political Economy at Cambridge) – thought that he had gone mad and took tremendous exception to the book. The younger generation, on the other hand, welcomed it. I found it very refreshing; I read it, as I said, in America before I came back to England, and I was a convert to the *General Theory* by the autumn of 1936.

Kalecki was surprised that Keynes's ideas were regarded as so new, since he had these same ideas for some time. A lot of the

discussion in Robbins's seminar concerned Kalecki holding a thesis and somebody else saying that it was a view of Keynes; then Kalecki used to reply that he had held those ideas for a long time already. This emerged on repeated occasions, and there were indeed very strong similarities between Kalecki and Keynes.

In some ways, Kalecki was superior to Keynes. For one thing, Kalecki assumed imperfect competition and horizontal short-period supply curves, which is possible under imperfect competition but not possible otherwise. This assumption – the theory of imperfect competition – had broken upon the scene a few years earlier, in 1932 and 1933, but nobody connected it with general equilibrium theory or with monetary theory. But Kalecki did, and for him the fact that there was imperfect competition – and therefore that demand could expand without raising costs and without raising prices at all substantially – was very important. The assumption of imperfect competition distinguished him from Keynes who, as far as I know, assumed perfect competition in the *General Theory*, although he knew about imperfect competition theories since Joan Robinson's book was already published and he must have read it. Nevertheless he did not take it seriously, as he had a completely Marshallian background.

The difference between Keynes and Kalecki was mainly that the former was a deviationist from Marshall whereas the second was a deviationist from Marx. Kalecki's education in economics, such as it was, was from reading Marx, not from reading Marshall, while Keynes's was from studying Marshall. Despite the very great differences between Marshall and Marx, it is remarkable how close Kalecki and Keynes got to each other, and a lot of the differences in language and exposition is explicable by these differences of background.

Keynes, I know privately, did not take to Kalecki very much at first. But this negative attitude to Kalecki soon changed. Reading, for instance, Keynes's article on the relative movements of money and real wages, in the March 1939 *Economic Journal*, one finds it peppered with references to Kalecki, and the references were generally favourable. So Keynes's initial attitude to Kalecki, which was adverse for wrong and superficial reasons – such as appearance, language and tone of voice, and that kind of thing – soon changed as a result of reading what Kalecki was writing; and he became convinced by Kalecki's various arguments in connection with his own *General Theory*.

In London, Kalecki made a very considerable impression on the young economists like myself, though he was never really accepted by the older generation like Robbins. From London, he first went to Cambridge because Joan Robinson was very impressed by him. He was doing a research on costs and prices in the British industry, together with Chew and Tew, in a joint Oxford–Cambridge scheme. In those immediate prewar years there was in Cambridge also a pupil of mine, Erwin Rotbarth, a very good man who became a very good friend of Kalecki; they were ideologically very much on the same side. I remember that when Keynes wanted a research assistant and turned to me, I recommended Rotbarth, and he remained Keynes's research assistant until he joined up to fight the war.

During the war Kalecki got to Oxford, in the Oxford Institute of Statistics, where he made a very great impression. I may say that the difference (compared to Cambridge) may have been partly due to the fact that between 1936 and 1940 he really learned English. His ideas found there a very fertile ground, and he played an important role in the wartime *Bulletin* of the Oxford Institute of Statistics, a journal which was considered a quite important publication in criticising particular aspects of wartime economic policy.

After the war, Kalecki joined the United Nations, which were looking for people from countries like Poland, who could speak English like Englishmen or Americans, and who could understand economics as they were English or American economists. So Kalecki immediately got a job with the United Nations, where I came across him quite a lot. He worked there until he became so frustrated, for reasons related to the policies of the Western countries, that he resigned his job in 1954 and went back to Poland.

In Poland, I encountered him once, when he was in the Planning Commission. That was some years later, sometime in the later 1960s; I found him rather unhappy and he gave me the impression that his advice was not very much followed by the Polish government. He was considered a Socialist, and one always thought that going back to Poland would be just the right thing for him to do. However, the kind of Polish government that there was was apparently not what Kalecki thought a Socialist government should have been. That was my last encounter with him.

2 Kalecki and Robinson

A. ASIMAKOPOULOS*

INTRODUCTION

This is a preliminary treatment of the influence of Kalecki's theories on Joan Robinson's formulation of her economic models, and it is based almost entirely on her published writings. I have had no access to unpublished papers left by Kalecki or Robinson that may cast more light on the extent to which they influenced each other.

Robinson and Kalecki first met in 1936; there appears to have been a meeting of minds, and they subsequently had many discussions about economic theory and about each other's writings in draft and final form. There is probably no way that anyone can – even with full access to the unpublished papers – retrace the give and take of their discussions and isolate to what extent an idea first published by the one was influenced by discussions with the other.

Robinson recalled, in a review of Kalecki's book, *Selected Essays on the Dynamics of the Capitalist Economy: 1933–1970* that was published a year after his death, 'arguing with him, on and off, for many years' (Robinson, 1973, p. 90) about his attempt to reformulate his theories of investment decisions. Kalecki wanted to provide scope for inventions, or technical progress generally, to raise the prospects of profits for capitalist firms and thus their investment. Following Keynes and Marx, she regarded 'the desire of capitalists to expand their operations as an inherent characteristic of the system' (Robinson, 1973, p. 90) and pointed out that according to Kalecki's own theory if the rate of accumulation is con-

* I am grateful to G. C. Harcourt for comments on an earlier draft of this study. He is, of course, not responsible for any errors, or for the interpretations, in this paper.

stant then the rate of profit on capital will be constant. Robinson felt that Kalecki, in his 1968 'Trend and the Business Cycle' paper, 'compromised with me, pointing out that at any particular moment some go-ahead firms are installing equipment embodying the latest inventions in the hope of gaining a higher rate of profit than the average at the expense of their rivals. Thus it can both be true that inventions may stimulate investment and that the overall rate of profit may be constant over the long run' (Robinson, 1973, p. 90). She concluded, however, that 'this volume reminds me that I learned far more, over thirty-five years, from the arguments with Kalecki that I lost than from those that I won' (Robinson 1973, p. 91).

The procedure that will be followed here is to attribute to Kalecki those ideas or general approaches that he formulated first, and to indicate his 'influence' on Robinson insofar as she subsequently incorporated them into her writings.

II SUPPORT AND ACKNOWLEDGEMENT

Robinson was very supportive of Kalecki, she was very impressed by him from the time of their first meeting. She recalled, in her 1976 Michał Kalecki Memorial Lecture at Oxford, the first time she had heard from him. It was soon after her article 'Disguised Unemployment' appeared in the June 1936 issue of the *Economic Journal* that 'I received a letter, evidently from a foreigner visiting England, who said that he was interested in my article as it was close to some work of his own. I thought this very strange. Who could claim to be doing work that was close to this – the first fruits of the Keynesian revolution? When Michał Kalecki turned up, I was still more astonished. He cared little for party manners or small talk and plunged directly into the subject. He was perfectly familiar with our brand new ideas and he had invented for himself some of Keynes' fanciful concepts, such as the device of burying banknotes in bottles and setting off a boom in mining them. As we talked, I felt like a character in a Pirandello play. I could not tell whether it was I who was speaking or he. But he could challenge a weak point in Keynes' formulation and quickly subdued my feeble attempt to defend it' (Robinson, 1980, p. 186). Robinson's attachment to Kalecki is evident in the way she refers to him in a brief letter, dated 20 October 1936, she wrote to Keynes. Kalecki had given a paper (unfortunately its general contents are not revealed) at

Keynes's Political Economy Club, and Robinson concluded her letter with: 'Thank you so much for being kind to my Pole' (Keynes, 1973, p. 140).

Robinson tried to interest Keynes in Kalecki's writings. 'When Kalecki came to Cambridge in 1936, we told Keynes about him, but he was not much impressed. His own ideas were in full spate . . . and he had no patience with anyone else's. He picked on a phrase in the *Econometrica* paper that seemed to him too 'monetarist', though in fact it contained a point of view which he later came to himself'¹ (Robinson, 1980, p. 187). This reference to the *Econometrica* paper (Kalecki, 1935b) which Robinson clearly thought demonstrated that Kalecki had been working in advance of, and parallel to, the direction taken by Keynes and his followers, ties in with the letter that she wrote to Kalecki dated 16 September (Patinkin, 1982, pp. 94-6).² The letter was obviously written soon after they first met, as Robinson refers to the *Economic Journal* paper on 'Disguised Unemployment' that had led to Kalecki's first letter to her and their subsequent meeting. The intellectual excitement of this first meeting is evident in her second sentence: 'Meanwhile I cannot delay to tell you what a pleasure it is to me to be arguing with someone who is making an advance upon Keynes instead of endlessly disputing with people who have not understood the elementary points' (Patinkin, 1982, p. 94). She goes on to mention '[Y]our *Econometrica* article makes me ashamed. We ought to have welcomed you long ago as a kindred spirit' (Patinkin, 1982, p. 94).

Although the focus of this paper is on the influence of Kalecki on Robinson – an influence that was important – this is not to deny that Kalecki also gained from this relationship, and that it might have helped him in the formulation of his theoretical approach. An instance of this would be the changes that Kalecki made in the paper left with Robinson after he had received her comments in the 16 September letter. (There may also have been additional correspondence and discussion of the paper, since Robinson referred to her comments as 'only an interim report' (Patinkin, 1982, p. 95).) Robinson felt that Kalecki should not suggest at the beginning of his paper that he is making an attack on Keynes's system, and in the introduction to the published paper he wrote that it 'is closely allied to the Keynesian theory' (Kalecki, 1937, p. 77). She also found 'troublesome' Kalecki's definition of marginal prime cost, and noted that it would not, in general, be equal to marginal revenue in short-period equilibrium because of

his use of 'some vague margin' that corresponds to Keynes's user cost. In the published paper this notion is absent, and the equilibrium output of an enterprise is indicated in a straightforward manner by the intersection of marginal revenue and marginal prime cost curves (or rather by the intersection of marginal value-added and marginal labour-cost curves, with the cost of raw materials having been subtracted from revenues and prime costs) (Kalecki, 1937, p. 78). Robinson is critical of the use in the paper of the notion of 'marginal disutility of risk-bearing' and she suggested that 'the idea of a rising supply curve of risk-bearing for the individual is very useful, and you might supplement it by a further rise in the general supply curve due to individual differences in willingness to take risks' (Patinkin, 1982, p. 95). There is no mention of the idea criticised by Robinson in the published paper, and Kalecki's treatment of the relationship between 'risk' and the amount invested is consistent with Robinson's suggestions (Kalecki, 1937, pp. 84-5). There is also no reference in the published paper to the absence of a 'self-winding up' process in Keynes' system - a criticism that Robinson did not feel was justified - but only a criticism of Keynes's formulation of the inducement to invest (Kalecki, 1937, pp. 83-4). There is no acknowledgement to Robinson in Kalecki (1937), but one appears in the foreword to his 1939 book *Essays in the Theory of Economic Fluctuations*, which is based, in part, on the 1937 article. Kalecki notes that he is 'very much indebted to Mrs. Joan Robinson, whose comments have enabled me to make various improvements' (p. 7).

Joan Robinson appears to have been Kalecki's most important supporter in the Cambridge circle, and with the publication of *The Rate of Interest and Other Essays* in 1952, she pointed to 'Mr. Kalecki's discovery of the General Theory independently of Keynes' (Robinson, 1979, p. 129). However, the extent to which her own theoretical writings drew on Kalecki's work is often not clear to the general reader. Robinson's prefaces often contain acknowledgements to Kalecki, but unless the reader already knows Kalecki's work very well, the extent to which her own work was influenced by him would remain obscure. In her most important theoretical work, *The Accumulation of Capital*, she wrote in the Preface: 'My debt to Keynes, Wicksell and Marshall is the debt we all owe to our progenitors, and will be sufficiently obvious in the following pages. I have referred to them at particular points for the reader's convenience, not by way of acknowledgement of their

legacies. Michał Kalecki, though a contemporary, comes into the same category' (Robinson, 1956, p. vi). The extent of her debt to the first three economists named may have been sufficiently obvious to a careful and knowledgeable reader, because their writings were basic elements of the academic curricula, but the same would not be true of Kalecki's writings. There is thus some reason for trying to sort out the influence of Kalecki's general theoretical framework – a framework that in its macroeconomic essentials was unchanged from its first statement in his 1933 study of the business cycle – on Robinson's writings.

Robinson had indicated in the section on 'Acknowledgements and Disclaimers' in *The Rate of Interest and Other Essays*, that the determination of the relative extent to which she had learned from Kalecki and Keynes was 'impossible to achieve'. The part of this section on Kalecki may be worth quoting in full:

Mr. Kalecki's discovery of the General Theory independently of Keynes was a classic example of the coincidences of science. His version of the analysis led directly (which Keynes' did not) to a model of the trade cycle. Based upon the same conception of short-period equilibrium, his theory fitted naturally into Keynes' scheme, and became absorbed into it in the subsequent development of the General Theory. By now it is impossible to distinguish what one has learned from which.

I am chiefly conscious of a debt to Mr. Kalecki for his way of handling expectations as an average of past experience – a simple device which enables us to conceive of beliefs about the future which are going to be proved correct (in stable conditions) without being obliged to deprive those who hold them of Free Will.

My chief difference from Mr. Kalecki is in respect of his treatment of finance as the short-period bottleneck (Robinson, 1979, p. 129).

Robinson's debt to Kalecki, as her own comments in other publications make clear, goes beyond the explicit statement contained in the second paragraph of this quotation.

III INVESTMENT, SAVING AND DISTRIBUTION

Kalecki's 1933 study of the business cycle (Kalecki, 1971, Chapter 1) placed capitalists' expenditures in the forefront as determinants

of the level of economic activity and profits. Even though he does not refer to the necessary equality between investment and saving, this equality is implicit in his equation for profits that is derived from the national income identity and the assumption of no workers' saving. It was investment in the particular short period – which was taken as predetermined in real terms – that determined saving. Kalecki noted the similarity between his analysis and that of Keynes on this point in 1942, the first time that he appears to have made a claim in English for independent development of an essential element of the *General Theory*. 'The theory of profits presented here is closely allied to Mr. Keynes' theory of saving and investment. It has been, however, developed independently of Mr. Keynes in Kalecki [1935a, 1935b]' (Kalecki, 1942, p. 260n.). The independence of investment from past savings was based on the assumption – made explicitly only in Kalecki (1935a, 1935b) and later inserted in the English translation of part of the 1933 study (Kalecki, 1966, p.1) – that capitalists are able to obtain increased credit from the banking system. Kalecki assumed without using the term (that came only in his 1936 review of the *General Theory* (Targetti and Kinda-Hass, 1982) and in Kalecki (1937) after his exposure to the Cambridge approach), that his unit time period was characterised by short-period equilibrium. Actual investment in the period was equal to planned investment, and saving was not only necessarily equal to that investment, but was also in the desired relation to income. Capitalists' consumption in the period was assumed to be equal to the sum of a constant part and a part that was proportionate to gross profits in the period, with the extent of proportionality being 'small' (Kalecki, 1971, p.1). There are no time lags in Kalecki's equations for consumption – the full multiplier effects of any change in investment expenditures are completed within the short period – but in his written description of the consequences of an increase in investment expenditures there is recognition that the completion of the multiplier takes time: '*The aggregate production and the profit per unit of output will ultimately rise to such an extent as to assure an increment in real profits equal to that of production of investment goods and capitalists' consumption*' (Kalecki, 1971, p. 12, emphasis in original).

Robinson found Kalecki's way of presenting the 'Keynesian proposition that an increase in investment does not require a prior decision to increase saving' (Robinson, 1966, p. ix), more convincing than that put forth by Keynes (and his followers):

In the English version of the theory there was a lot of unnecessary confusion between the equality of savings and investment as an accounting identity (which requires appropriate definitions of the two quantities and the time period) and the substantive proposition that a decision to increase investment will generate a corresponding net increase in saving, while a decision to increase saving will not. The trouble arose because the careless language of Keynes and his popularisers (amongst whom I must plead guilty) gave an opening to opponents who delighted to interpret a mistaken formulation as a substantive error at the heart of the new theory.

Kalecki avoided all this pother because he started from the assumption that wage incomes are fully spent (with a negligible time-lag) on consumption, so that the gross overall surplus on the sale of consumer goods is equal to the wage bill of the investment sector *plus* the expenditure of capitalists for consumption. 'The workers spend what they get; the capitalists get what they spend.' An increase in investment increases profits to the corresponding extent (Robinson, 1966, p. ix).

Robinson adopted Kalecki's formulation, and it became an integral part of the way she set up her own models. She used the term 'Keynesian' as a catchall, in keeping with her 1952 view, noted above, that 'it is impossible to distinguish what one has learned from [Kalecki or Keynes]' (Robinson, 1969a, p. 129). For example, in a 1959 article on accumulation and the production function (reprinted in Robinson, 1960, pp. 132-44) she used 'Keynesian' to denote a model that could be more accurately described as 'Kaleckian'. In it, we find reference to 'a Keynesian manner' for the way in which, '[W]ith any given value of the stock of capital in existence . . . the rate of investment (in conjunction with the thriftiness conditions) determines the current rate of profit and influences expected rates' (Robinson, 1960, p. 133), but this relation is not only more clearly expressed in Kalecki's than in Keynes's writings, it first appeared in the former's work. There is then the 'Keynesian freedom of entrepreneurs to invest as they please' (Robinson, 1960, p. 134) that provided the basis for Kalecki's business cycle before the publication of the *General Theory*. Finally, in discussing the relative share of wages and profits in total net income, Robinson follows Kalecki in

assuming 'a two-class economy in which the workers' consumption is equal to their wages, while capitalists spend a lump sum, say b per annum, which is independent of income, plus a proportion $(1 - s)$ of what they properly regard as net profit' (Robinson, 1960, p. 138). There is no reference to Kalecki in this article.

The way in which she completely absorbed Kalecki's approach and made it her own is clearly seen in her 'A Model of Accumulation' (Robinson, 1962, pp. 22-87), her last major work on this subject. The references to Kalecki in this work are in connection with specific aspects of his writings on the trade cycle (Robinson, 1962, p. 64n., p. 67n., p. 87) and not in recognition that the general approach being used is Kalecki's. Workers' net saving is zero, while part of profits are saved. Robinson draws attention to the role of the dividend-distribution policy of firms in affecting the propensity to save out of profits. 'The normal proportion of total profits saved, then, depends upon two factors - the proportion of profits distributed by the firms and the proportion of their receipts that rentiers save' (Robinson, 1962, p. 39), an elaboration that still falls within Kalecki's general treatment. With this assumption about thriftiness conditions, and the independence of investment in the short period, there follows Kalecki's conclusion about the determination of profits in short-period equilibrium. 'When the proposition [saving is equal to investment] is treated as a statement of equilibrium conditions, it means that whatever the rate of investment may be, the level and the distribution of income must be such as to induce the firms and households, between them to wish to carry out savings at an equal rate . . . the level of prices relatively to money wages is such, in equilibrium conditions, as to provide sufficient profits to call forth a rate of saving equal to the rate of net investment' (Robinson, 1962, p. 40).³ Using her definition of 'Keynesian' models (in which category she includes her own) as those that 'are designed to project into the long period the central thesis of the *General Theory*, that firms are free, within wide limits, to accumulate as they please, and that the rate of saving of the economy as a whole accommodates itself to the rate of investment that they decree' (Robinson, 1962, pp. 82-3), it is clear that they could equally well be labelled 'Kaleckian' since this was an essential element of Kalecki's work prior to the *General Theory*. Robinson's model, which also employs Kalecki's saving assumptions, is thus more accurately described as 'Kaleckian'.

IV THE DOUBLE-SIDED RELATION BETWEEN PROFITS AND INVESTMENT

Kalecki, in the introduction to his *Selected Essays*, notes that his view on the distribution of national income 'already clearly formulated in the first papers, remains unchanged in all the relevant writings . . . However, there is a continuous search for new solutions in the theory of investment decisions' (Kalecki, 1971, p. viii). But there is one aspect of his theory of investment decisions that is unchanged in all his writings, and that is the positive effect of current profits on current investment decisions. His approach develops from the explicit recognition of the double-sided relationship between profits and investment. Investment expenditures in the current period are important determinants of current profits, while current profits influence in a positive manner current expectations of the future profitability of investment, and thus current investment decisions. Robinson made use of this relationship in the chapter on the trade cycle in her 1937 *Introduction to the Theory of Employment*. She acknowledged drawing on Kalecki (1937) in the original foreword to the book (Robinson, 1969b, p. xvii), as well as in the preface to the second edition where she wrote that by '[I]mporting some ideas from Michał Kalecki, I improved somewhat upon Keynes' treatment of the trade cycle' (Robinson, 1969b, p. xv). Here again she so absorbed Kalecki's approach that it is subsequently used without specific acknowledgement. It is the key part of her model of accumulation, and she uses it both to determine the rate of accumulation, and to define her entrepreneurial equilibrium or 'desired' rate of accumulation. She describes:

The central mechanism of our model is the desire of firms to accumulate, and we have assumed that it is influenced . . . by the expected rate of profit. The rate of investment that they are planning for the future is, therefore, higher the greater the rate of profit on investment (estimated on the basis of current prices). Valuing the existing stock of capital on the basis of the same rate of profit, we can then express their plans in terms of a rate of accumulation.

The double-sided relationship between the rate of profit and the rate of accumulation now appears. The accumulation going on in a particular situation determines the level of profits obtainable in

it, and thus (on the basis of the type of expectations which we have postulated) determines the rate of profit expected on investment. The rate of profit in turn influences the rate of accumulation. The rate of profit generated by a particular situation may be such as to induce a rate of accumulation greater or less than that which is actually taking place' (Robinson, 1962, p. 47).

Robinson then represented this double-sided relationship in a diagram, with a point of intersection between the two curves indicating a rate of accumulation which is generating just the expectation of profit that is required to cause it to be maintained. This rate of accumulation is called 'the *desired* rate of accumulation, in the sense that it is the rate which makes the firms satisfied with the situation in which they find themselves' (Robinson, 1962, p. 49).⁴ Kalecki would probably disapprove of the particular use made by Robinson of this double-sided relationship – a use that is inappropriate given Robinson's methodological position (Asimakopulos, 1984, p. 398). This position, with its emphasis on the short period, and its distrust of long-period equilibrium analyses, is probably similar to Kalecki's.

V PRICING POLICY AND PROFITS

Kalecki makes no explicit statement about the determination of prices in his 1933 study of the business cycle, at least in the portion that appeared in Kalecki (1971). The mention there of the variation in prices relative to wage costs as a positive function of total output (Kalecki, 1971, p. 13) is drawn from material originally published in Kalecki (1935a, p. 296). This variation is consistent with the assumption of competitive conditions by Keynes that results in the inverse relation between the level of employment and the real wage rate (Keynes, 1936, p. 17). There is also in Kalecki (1935a, pp. 300–1) some comparison of the effects on output when competitive or cartel-like conditions in product markets are assumed, given equal changes in capitalist expenditures. The fluctuations in output would be greater with cartels, as profit margins are more stable in the face of fluctuations in demand, and the equal changes in total profits require larger changes in the degree of utilisation of productive capacity. In Kalecki (1937), as we saw in

Section II above, marginal revenue and marginal cost curves are used to illustrate the short-period equilibrium output of a typical firm, so that he can be said to have been influenced here by Robinson's *The Economics of Imperfect Competition*. Kalecki's later approach to pricing, with the distinction between primary goods whose prices are 'demand-determined' and manufactured goods whose prices are 'cost-determined' is traced by him to a 1943 publication (Kalecki, 1971, p. vii).⁵

Robinson became dissatisfied with her treatment of pricing in *The Economics of Imperfect Competition*, and referred in a 1953 paper to that book as 'scholastic' and 'by no means a suitable basis for an analysis of the problems of prices, production and distribution which present themselves in reality' (Robinson, 1960, p. 222). In the preface to the second edition of this book she viewed manufactured goods prices as being cost-determined (see also Robinson, 1956, p. 186). 'Prices are formed by setting a gross margin, in terms of a percentage on prime costs, to cover overheads, amortisation and net profit' (Robinson, 1969b, p. vii). She was cautious about making any precise statement as to how the net profit component in the mark-up and the standard rate of output are determined. There is suspicion of what she termed the 'old "full cost" doctrine' because this 'argument was put forward in ideological terms to defend businessmen from the implication that they behave monopolistically' (Robinson, 1980, p. 189). Robinson was more receptive to Kalecki's approach – which certainly did not have this same 'ideological' overtone – but she felt 'that there must be some long-period element in the relation of prices to costs' (Robinson, 1980, p. 189), an element that was not fully allowed for by Kalecki's 'degree of monopoly'.

Robinson was particularly impressed by Kalecki's integration of price policy with the theory of effective demand, an integration that was already hinted at in Kalecki (1935a). 'It was Michal Kalecki rather than I who brought imperfect competition into touch with the theory of employment' (Robinson, 1969b, p. viii). The explicit integration of micro and macro elements became a feature of Robinson's work. For example, in presenting the determinants of equilibrium for her model of accumulation, she listed 'competitive conditions' and discussed their effects in a way that is dependent on Kalecki's theory of the determination of profits and the role of profit margins in influencing output rather than profits

(Robinson, 1962, p. 42).

The strict separation of the determination of profits from the setting of profit margins that Robinson obtained from Kalecki is dependent on the assumption of no workers' saving, and the assumption that all labour income is accounted for in prime costs. Robinson presents this separation as follows:

There are two elements in Kalecki's analysis of profits: the share of gross profit in the product of industry is determined by the level of gross margin, while the total flow of profits per annum depends upon the total flow of capitalists' expenditure on investment and consumption.

Combining these two theories, we find the very striking proposition that firms, considered as a whole, cannot increase their profits merely by raising prices. Raising profit margins reduces real wages and consequently employment in wage-good industries. The *share* of profit is increased but the total profits remain equal to the flow of capitalists' expenditure' (Robinson, 1980, p. 192, emphasis in original).

Once we leave the most simplified of Kalecki's models, and introduce the possibility of workers' saving and recognise that overhead costs consist, in part, of wages and salaries, then this separation no longer holds. The presence of the latter element means that higher investment expenditures, even with constant mark-ups, will result in an increased profit share, while a higher mark-up, given capitalists' expenditures in real terms, will increase profits in real terms because of its negative effects on workers' saving (Asimakopulos, 1975, pp. 331-2).

VI CONCLUSION

Robinson did not try to hide her intellectual debt to Kalecki. She praised his pathbreaking work, and made claims for its originality both in print (Robinson, 1952, 1964, 1966) and in conversation.⁶ Kalecki's general approach to macroeconomics, and his integration of micro and macro elements, was so congenial to her that it also became her approach. There is no intention in making this statement

of the pervasive influence of Kalecki's theoretical framework on her writings to slight in any way her own important contributions to economic theory. She looked at particular questions not examined by Kalecki, and developed his approach in ways that were her own. The spread of knowledge about Kalecki's work, and its further development, owes a great deal to Robinson.

NOTES

1. The reference here is probably to Kalecki's inclusion in that paper of a few paragraphs on the necessary role of increases in bank credit in making possible increases in the rate of investment. See Asimakopulos (1983) for a comparison of Kalecki and Keynes on finance.
2. Patinkin adds the year 1937 to this letter 'on the basis of Osiatyński's comments' (Patinkin, 1982, p. 94, n. 5). The material and tone of the letter makes it clear that it was written after their first meeting and that the year is 1936. Robinson refers to a book that she is working on in which the paper 'Disguised Unemployment' – whose publication in the *Economic Journal* gave Kalecki a point of reference for his first approach to Joan Robinson – is to appear, but her work on that book must have been completed by October 1936, the date of the Foreword to the book that eventually appeared in 1937 (Robinson, 1937a). Further, in a postscript to her letter, Robinson asks Kalecki for his opinion on her long-period theory of employment article, a request to which he apparently responded. Robinson added a new section to this article when it appeared in her book, and in that section (Section 5) she acknowledged assistance from Kalecki (Robinson, 1937a, p. v, p. 132n.). There is also reference in Robinson's letter to a paper that Kalecki had left with Robinson. The paper is identified in Patinkin (1982, p. 94) – on the basis of an identification he attributes to Osiatyński – as a draft of Chapter 6 in Kalecki (1939). With a 1936 date for the latter, it is much more likely that the paper referred to was a draft of Kalecki's 'A Theory of the Business Cycle' that was published in the *Review of Economic Studies* in February 1937, to which reference is made in the text. (After this note was written, I noticed in the 1984 paperback edition of Patinkin (1982) that the incorrect dating of the letter from Robinson to Kalecki had been drawn to his attention by Ingo Barents (Patinkin, 1984, p. 120). No changes were made in that edition, however, to the identification contained in Patinkin (1982) of the paper Kalecki had left with Robinson.)
3. Samuelson wrote that when compiling an anthology of readings 'I had not been able to identify in Professor Robinson's voluminous writings a clear statement of exactly what, outside steady states, her theory of income distribution is' (Samuelson, 1975, p. 46n.) He had overlooked this statement, one that makes clear that her theory of income distribution 'outside steady states' is Kalecki's.

4. Robinson's diagram shows two points of intersection between the two curves, illustrating the double-sided relationships between the rate of accumulation and the resulting rate of profit. She concludes that only one of these points represents a position of stable equilibrium, and uses the term 'the desired rate of accumulation' only with respect to that point. For a criticism of this procedure, and the way in which she expresses the double-sided relationship, that is based on her own methodological position, see Asimakopulos (1984, pp. 398-9).
5. For a review of the development of Kalecki's pricing theory from 1938, see Basile and Salvadori (1984-5).
6. A personal reminiscence may not be out of place at this point. Geoff Harcourt and I had a session with Robinson in the garden of her home in early July of 1973 in order to discuss her work. She told us that her approach to accumulation developed from two roots, Kalecki and Marx - presented in that order. From the latter she thought the most important item was the conception of a system, the capitalist rules of the game. With respect to Kalecki, she mentioned his theory of profits, the combination of imperfect competition and the theory of effective demand, as well as the two-way relationship between profits and accumulation.

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3 Michał Kalecki and the General Theory*

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In his well-known paper on the phenomenon of independent multiple scientific discoveries, Robert Merton (1961, p. 356) contended that this phenomenon constitutes the 'dominant pattern' in science: that indeed 'all scientific discoveries are in principle multiples'. An example of this contention from our own discipline which is frequently given – and which was, of course, one of the major concerns of the Perugia conference – is the alleged independent discovery of Michał Kalecki of the theory which John Maynard Keynes presented in his celebrated *General Theory of Employment Interest and Money* (1936). (For convenience, I shall refer to this theory as the General Theory.) It is this claim that I wish to examine. In doing so, I shall place great emphasis on what I shall call the 'central message' of a scientist's writings – the extent to which they show that he 'really meant it'. Indeed, for reasons that I explain in my book (1982 Chapter 4), I claim that a scientist should not be credited with having made a discovery unless it is part of his central message.

My first task must then be to describe Keynes's own central

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(In writing the chapter on which this study is based, I benefitted greatly from the detailed and provocative comments on an earlier draft of it by Jerzy Osiatyński (editor of the six-volume edition in Polish of Kalecki's *Dziela* (Works)) and Kazimierz Laski (formerly of the Central School of Planning and Statistics, Warsaw, where he worked closely with Kalecki during the 1960s; now at the Johannes Kepler University, Linz, Austria). Needless to say, neither of them is to be held responsible for its conclusions, with which they continue to disagree.) The work on this study has been supported by a grant from the Ford Foundation administered by the Maurice Falk Institute for Economic Research in Israel, as well as by National Science Foundation grants Soc 77-12212 and Soc 79-08281.

message: for obviously we cannot meaningfully discuss the possible multiple discovery of the General Theory unless we first specify what this contribution was. Clearly, the broader this specification, the greater the likelihood of finding the contribution anticipated. If we define the contribution as lying in the notion of aggregate demand coupled with the contention that aggregate demand can fall short of aggregate supply and thus generate unemployment, then – as Keynes himself noted in the *General Theory* (pp. 362–71) – the notion is to be found (albeit not fully developed) in the writings of Malthus in his famous debate with Ricardo more than a century before on the latter's contention that there could not exist a 'general glut on the market' (i.e., Say's law). Similarly, if we identify Keynes's contribution as lying in his emphasis on the crucial role of fluctuations in investment in generating business cycles in a capitalist economy, then this theme is to be found at least as far back as the business-cycle theories of Tugan-Baranovsky (who in turn was influenced by Marx) and Spiethoff at the turn of the century (Hansen, 1951, pp. 277–300). And if we see Keynes's contribution as lying in his advocacy of public works as a means of combating unemployment, then such policies had been advocated in Britain, Sweden, and other countries before the First World War (Winch, 1969, pp. 53–57; Ohlin, 1981, p. 191). More to the point, by the end of the 1920s in Britain, as the unemployment generated by the return to the gold standard in 1925 at prewar parity dragged on, most British economists (and Keynes in particular) were already advocating public works as a remedy, albeit without much success (Keynes and Henderson, 1929; Hutchison, 1953, pp. 409–23, 1968, pp. 277–9; Winch 1969, pp. 104–6, 145–97, 343). Furthermore, Keynes and Henderson (1929), loosely, and subsequently Richard Khan (1931), rigorously, had shown that by virtue of the increased output (and hence income which it generated), such investment in public works would also generate the increase in savings necessary to finance the initial increase in investment – thus refuting the 'Treasury view' that the increased public investment would simply reduce the amount of savings available for private investment, so that no net increase in investment expenditures (and hence employment) would take place.

What then was Keynes's central message? Like many other students of his writings, I consider it to be the theory of effective demand as an explanation of a state of 'unemployment equilibrium' in a capitalist economy. In Figure 3.1, this theory is presented diagrammatically under simplifying assumptions. Its essence is not only that the intersection of the aggregate demand curve $E = F(Y)$

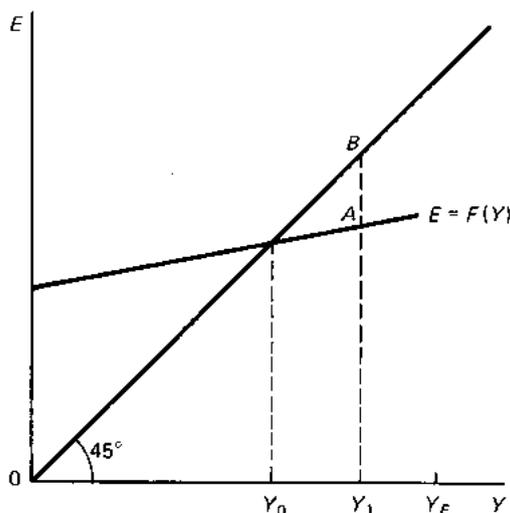


FIGURE 3.1

with the 45° line representing aggregate supply determines equilibrium real output Y at a level that may be below that of full employment Y_F ; not only that disequilibrium between aggregate demand and supply causes a change in output and not in the price level; but also (and this is the distinctively novel feature) that the change in output itself acts as an equilibrating force. That is, if the economy is at (say) the level of output Y_1 , characterised by an excess of supply (Y_1, B) over demand (Y_1, A), then the resulting decline in output (and hence income) will (because of Keynes's crucial assumption of a marginal propensity to spend that is less than unity) reduce supply more than demand, thus reduce the initial excess supply, and thus eventually bring the economy to equilibrium at Y_1 . Or, in terms of the savings = investment equilibrium condition (which can be shown to be equivalent to the foregoing demand = supply condition), the decline in income will decrease savings and thus eventually eliminate the excess of savings over investment that exists at Y_1 . This was Keynes's explanation of the seemingly endless state of mass unemployment from which the Western world was then suffering.

Needless to say, the actual exposition of the *General Theory* is far more detailed and complex. In it Keynes enlarges on the foregoing analysis of demand and supply in the commodity market and integrates it with a corresponding analysis of the money market. And the elaboration, refinement, and empirical testing of this new analytical framework constituted the research programme of macroeconomics

(to use Lakatos's (1970, pp. 132 ff.; 1978) term) for decades afterward. This was the nature of the 'Keynesian revolution'.

The foregoing diagrammatic analysis has long been a standard feature of introductory textbooks in economics.¹ But that it was far from obvious in the early 1930s is best illustrated by the fact that just a few years before the *General Theory*, in his *Treatise on Money* (1930, 1, pp. 159–60), Keynes himself had argued that a decline in output generated by an excess of savings over investment would not automatically bring the economy to a new equilibrium position but would continue until it was possibly brought to an end by an adventitious decrease in savings or increase in investment. In brief, there is no recognition in the *Treatise* of the fact that the decline in output (and hence income) itself generates an automatic decrease in savings that ultimately brings them into equilibrium with investment.

This is the interpretation of the *General Theory* that I shall use in examining the claim that Kalecki discovered it independently. There are, of course, other interpretations of the *General Theory*; and if one does not accept my interpretation, one obviously need not accept the conclusions that I draw from my examination.

As background to the discussion, let me first note that, in contrast with the Stockholm School (whose claims of independent discovery I have examined elsewhere (Patinkin, 1982, Chapter 2), and which was a school of individuals who provided intellectual stimulation for one another, a school with an illustrious historical tradition operating in the mainstream of economic thought), Kalecki was a single individual operating in a country, interwar Poland, which from the view point of economic theory (though not from that of other disciplines, such as, for example, mathematics and logic) was in the backwaters; an individual who, in economic matters, was himself further isolated intellectually by virtue of his being largely an autodidact (Feiwel, 1975, p. 49), and whose scientific career was not enhanced by the fact that he was a Jew in a highly anti-Semitic country. For these reasons, the achievements of Michał Kalecki, however we may evaluate them, are all the more impressive.

Having stressed these contrasts with the Stockholm School, let me note one point of similarity: namely that, like Ohlin, Kalecki advanced his claim to independent discovery of the General Theory shortly after the appearance of Keynes's book. This he did in a long review article which appeared in the fall of 1936 in *Ekonomista*, the professional journal of Poland's economists, published of course in Polish – which explains why his claim (unlike Ohlin's) did not at the time receive any attention in the English-speaking world.² A few

years later, the claim received some support from Oskar Lange (1939) in an article in a Polish encyclopedia. But Kalecki's claim did not find an echo in the English literature until a decade later in Austin Robinson's wonderful memoir of Keynes, in which Robinson says that 'Kalecki was independently approaching the same goal' (1947, p. 58). Kalecki's name, however, is barely mentioned in Schumpeter's *History of Economic Analysis* (1954, pp. 1143–4) – and this despite the fact that Schumpeter never missed an opportunity to suggest that someone was a co- or independent discoverer of the General Theory. Nor is Kalecki's name mentioned in Roy Harrod's *Life of Keynes* (1951).

The first unequivocal claim for Kalecki in the English literature was advanced at roughly the same time by Lawrence Klein in his 1951 review of Harrod's biography of Keynes and (albeit without details) by Joan Robinson (1952, p. 159). In his review, Klein (1951, pp. 447–8) implicitly criticised Harrod's failure to refer to Kalecki and claimed (on the basis of his re-examination of an article Kalecki had published in the 1935 *Econometrica* on which more in a moment) that Kalecki had created a system 'that contains everything of importance in the Keynesian system' and in some respects is superior to it. On the other hand, Klein himself had barely referred to Kalecki – and even then in a different context – in the original edition of his earlier well-known book, *The Keynesian Revolution* (1947, p. 179). Klein did, however, take advantage of the second edition of this book (1966, pp. 224–5) to add a chapter which, *inter alia*, reaffirmed his 1951 claims for Kalecki. Similarly, in his contribution to the 1964 *Kalecki Festschrift*, Klein (1964, p. 189) claimed that 'the basic ingredients of the Keynesian development were already available in Kalecki's model'.

From the 1964 *Festschrift* onward the cause of Kalecki has found increasing support in certain circles. In his *Festschrift*, Joan Robinson provided support for her 1952 statement and declared: '*The General Theory of Employment, Interest and Money* was published in January [sic] 1936. Meanwhile, without any contact either way, Michal Kalecki had found the same solution' (Robinson, 1964, p. 336). And shortly afterward she repeated this claim (as she was to do on several subsequent occasions) in her introduction (1966, p. ix) to a translation of some of Kalecki's essays which appeared under the title *Studies in the Theory of Business Cycles: 1933–1939* (1966). In his own foreword to this book, however, Kalecki himself made no reference to the relation between his work and the *General Theory*, just as he had not done so in his earlier publications in English.

When, however, three of these same essays were reprinted in few years later in his *Selected Essays on the Dynamics of the Capitalist Economy: 1933–1970* (Kalecki, 1971), Kalecki described them 'as papers published in 1933, 1934, and 1935 in Polish before Keynes' *General Theory* appeared, and containing, I believe, its essentials' (Kalecki, 1971, p. vii). And more recently, a biographer of Kalecki, George Feiwel, has in his book (1975, Chapter 2) spoken unequivocally of the 'Kalecki – Keynes Revolution', drawing support from the statement in Lawrence Klein's foreword to the book that 'Kalecki's greatest achievement, among many, was undoubtedly his complete anticipation of Keynes' *General Theory*' (Klein, 1975, p. v).

The main basis for this claim is Kalecki's Polish monograph *Próba teorii koniunktury* (An essay on the theory of the business cycle), which he published in 1933, well before his travels and contacts abroad. I am – thus – faced with the problem of being unable to study all the relevant literature in its original language. The problem is, however, much alleviated by two facts: first, the basic contents of Kalecki's 1933 'booklet' (as he, in the passage cited at the end of this paragraph, later termed it) were published before the *General Theory* in the form of two more accessible articles – namely, 'A Macrodynamic Theory of Business Cycles' which appeared in the July 1935 *Econometrica*, where it is described (p. 327) as having been first presented at the 1933 meeting of the Econometric Society in Leiden; and the 'Essai d'une théorie du mouvement cyclique des affaires' in the March – April 1935 *Revue d'Economie Politique* (Kalecki, 1935a). Second, some twenty-five years later, the essential part of the 1933 essay was translated into English by Kalecki's wife and published in his, *Studies in the Theory of Business Cycles: 1933–1939* (Kalecki, 1966) in a chapter entitled 'Outline of a Theory of the Business Cycle'. In his foreword to this book, Kalecki gave the following description of the relation between this chapter and his 1933 essay:

The *Outline of a Theory of the Business Cycle* is the first (and most essential) part of my booklet *An Essay on the Theory of [the] Business Cycle* which was published in 1933. I supplemented this study by a short passage concerning the problem of the money market taken from my *Essai d'une théorie du mouvement cyclique des affaires* published in the French quarterly *Revue d'Economie Politique*, March – April 1935. Apart from this nothing of importance has been added either to this or to other items (Kalecki, 1966, p. 1).

Let me then examine Kalecki's theory as presented in this translated essay, noting that it more or less corresponds to the two 1935 Kalecki articles mentioned in the preceding paragraph. I must emphasise that my purpose is the narrow one of examining the claim that Kalecki anticipated the General Theory; I am not undertaking an exposition of Kalecki's theory as such.

Kalecki's analytical framework reflects two major influences: Marxian theory on the one hand and national income accounting (of which Kalecki together with Ludwik Landau were pioneers in Poland) on the other. Kalecki's 1933 booklet thus begins in a Marxist manner by classifying the members of the economy as capitalists or workers, with the latter being assumed to consume their entire incomes, so that all saving is carried out by the capitalists. In the opening words of Kalecki's essay (in its translated form):

We shall consider a *closed* economic system, *devoid of trends*, i.e. one which returns to its original state after each cycle. In addition we shall make the following assumptions.

1. *Gross real profits*. By gross real profits, P we understand the aggregate real income of capitalists including depreciation per unit of time consisting of their consumption and saving

$$(1) \quad P = C + A$$

Thus C denotes all goods which are consumed by capitalists and A includes – since we abstract from workers savings or their 'capitalist' incomes – all goods which are used in the reproduction and expansion of fixed capital as well as the increase in inventories. In the future A will be referred to as gross accumulation.

The personal consumption of capitalists is relatively inelastic. Let us assume that C consists of a constant part B_0 and a part which is proportionate to gross profits:

$$(2) \quad C = B_0 + \lambda P$$

where λ is a small constant.

From equations (1) and (2) we obtain:

$$(a) \quad P = B_0 + \lambda P + A$$

$$(3) \quad (b) \quad P = \frac{B_0 + A}{1 - \lambda}$$

i.e. the gross real profits P are proportionate to the sum $B_0 + A$ of the constant part of capitalists' consumption B_0 and the gross accumulation A .

The gross accumulation A is according to the above equal to the sum of the production of investment goods and the increase in inventories. *For the sake of simplicity we assume that aggregate inventories remain constant throughout the trade cycle.*

It follows from the above assumptions that the real profits P are proportionate to $B_0 + A$, where B_0 denotes the constant part of the capitalists' consumption, and A the gross accumulation which is equal to the production of investment goods.³

Equation (3b) has a familiar look, and I shall return to this point later. Note that Kalecki assumes a closed economy without government savings (i.e., with a balanced budget) – the first explicitly and the second implicitly.⁴

In a precise manner – paying careful attention to the time-lags involved – Kalecki then proceeds to distinguish among 'three stages . . . in the investment activity': investment orders, I ; the resulting production of investment goods, A ; and, finally, the resulting delivery of investment goods, D – all per unit of time (Kalecki, 1966, p. 4). He also distinguishes carefully between these flows, on the one hand, and the stock capital K , on the other. These are related by the fact that the 'change [in K] during a given period is equal to the difference between deliveries of new equipment and the volume of productive assets going out of use'. The stock of capital is assumed to be at the same level at the end of the cycle as at the beginning, after some 'small fluctuations' in the course of the cycle. (In his 1935 *Econometrica* article (p. 340), Kalecki indicates how his analysis can readily be extended to a growing economy.) Kalecki then assumes that investment orders I depend on profitability (as represented by the ratio of profits P to the stock of capital K) and the cost of capital (as represented by the rate of interest i). He also makes (in present-day terminology) the homogeneity assumption that ' I is likely to increase in the same proportion as P and K ,' and accordingly writes his investment function as

$$(4) \quad \frac{I}{K} = f\left(\frac{P}{K}, i\right)$$

'where f is an increasing function of P/K and a diminishing function of i '. He then cites the 'known [fact] that the rate of interest rises in the

upswing and falls in the downswing' (Kalecki, 1966, p. 8) a fact on which he elaborates in the concluding part of his essay,⁵ in order to make the 'simplifying assumption' that i is an increasing function of P/K . This is explained in terms of the fact that 'the demand for money in circulation increases during the upswing [when P/K is also rising] and falls during the downswing [when P/K is falling]. The rise and fall in the rate of interest follows suit' (Kalecki, 1966, p. 15). (From the context it is clear that the reasoning here is closer to the traditional loanable-funds approach than to Keynes's liquidity-preference one.) This enables Kalecki to rewrite (4) as

$$(5) \quad \frac{I}{K} = F\left(\frac{P}{K}\right)$$

and he further assumes that i increases 'sufficiently slowly' relative to P/K for $F(\cdot)$ to be an increasing function of P/K . Substituting from (3b), he then obtains

$$(6) \quad \frac{I}{K} = \Phi\left(\frac{B_0 + A}{K}\right)$$

which he linearises as

$$(7) \quad \frac{I}{K} = m \frac{B_0 + A}{K} - n$$

where m is by assumption positive. Kalecki then states that he will 'now show that n must be positive' (Kalecki, 1966, p. 9); he does so, however, only under the additional assumption (for which he gives no economic justification) that $I < mB_0$. For in that case

$$(8) \quad n = \frac{mA + (mB_0 - I)}{K} > \frac{mA}{K} > 0$$

He then disregards the fact that this demonstration holds only under the indicated assumption and rewrites (7) as

$$(9) \quad I = m(B_0 + A) - nK$$

where both m and n are described as being positive, which equation is his desideratum.

In particular, by making use of the lags in this equation, Kalecki traces out 'the mechanism of the trade cycle' in the following terms: Assume that for some reason there is an increase in the production of investment goods, A , which by (9) causes a further increase in investment orders, I . But after a time the resulting increase in capital

stock K will, through the negative term nK , exert a depressing effect on I and eventually cause it to diminish. This starts off a downswing which is reversed only after investment orders have fallen below the level needed for replacement of depreciated capital, thus causing a decline in K , and hence (again through the term nK) an eventual upturn in I . I should emphasise that in his 1935 *Econometrica* article (in which the analysis is carried out by means of a differential equation) Kalecki (1935b, p. 335) no longer claims to 'show' that n is positive, but instead presents it as 'a necessary, though insufficient condition' for the existence of cyclical variations in investment. Unfortunately, Kalecki fails to repeat this fact – namely, that his analysis does not *prove* the existence of investment cycles, but instead *assumes* it by virtue of the crucial assumption of a positive n – in the 1966 translation of his essay.

In any event, from this cycle in the production of investment goods, Kalecki proceeds to the cycle in aggregate production. But he does not attempt to analyse the latter cycle in a rigorous fashion and instead suffices with the statement that, by equation (3), 'gross real profits P are . . . an increasing function of the gross accumulation A '; and that these profits can also be 'expressed as the product of the volume of the aggregate production [say, Y] and of profit per unit of output, $[P/Y]$ ', which ratio makes its first appearance at this point in Kalecki's analysis (1966, p. 13) – for up to this point Kalecki had carried out his analysis in terms of profitability as measured by the ratio of profits to capital stock, as in equation (4). In a footnote (corresponding to one in the original Polish essay (1933, p. 115, n. 8), but which for some reason does not appear at the corresponding point of the *Econometrica* paper (1935b, p. 322)), Kalecki goes on to assume 'that aggregate production and profit per unit of output rise or fall together, which is actually the case' (1966, p. 13, n. 4); hence an increase in investment and hence profits generates an increase in output as well. This enables Kalecki to reach the following conclusion, which is also the one reached in his 1935 *Econometrica* article (pp. 342–3):

The relation between changes in the gross accumulation which is equal to the production of investment goods, and those of the aggregate production materialises in the following way. When production of investment goods rises the aggregate production increases directly *pro tanto*, but in addition there is an increase due to the demand for the consumer goods on the part of the workers

newly engaged in the investment good industries. The consequent increase in employment in the consumer-good industries leads to a further rise in the demand for the consumer goods. The levels of aggregate production and of the profit per unit of output will ultimately rise to such an extent that the increment in real profits is equated to the increment of the production of investment goods.

The account of the process is not yet complete because changes in capitalists' consumption have not been taken into consideration. This consumption C is dependent to a certain degree on the aggregate profits P and will increase together with the gross accumulation A since from the equation (2) and (3) it follows that $C = (B_0 + \lambda A)/(1 - \lambda)$. The increase in capitalists' consumption exerts the same influence as that in the production of investment goods: the production of consumer goods for capitalists expands; this leads to an increase in employment and this raises again the demand for consumer goods for the workers which causes a further rise in production. *The aggregate production and the profit per unit of output will ultimately rise to such an extent as to assure an increment in real profits equal to that of production of investment goods and capitalists' consumption.*⁶

It is on these and similar passages that the claim for Kalecki as an independent, if not prior, discoverer of the General Theory has been based. In particular, the essence of the General Theory has been seen by most of Kalecki's advocates to lie in the proposition that it is the level of investment which determines the level of profits (and hence savings), and not the other way around.⁷ Others have gone further and have contended that the italicised sentence at the end of the preceding passage contains the essential point of the General Theory as I have described it: namely, the equilibrating of investment and savings (which for Kalecki is determined by profits) by means of changes in output.

To these claims I have several related reservations. First of all, the proposition that an increase in investment will increase output so as to generate a corresponding increase in savings (which for Kalecki are uniquely related to profits) is not one for which priority can be ascribed to Kalecki, but goes back in a general form at least to Keynes and Henderson's 1929 *Can Lloyd George Do It?* and in a rigorous one to Kahn's 1931 multiplier article (of which Kalecki was apparently unaware, as witnessed by the absence of any reference to Kahn in Kalecki's pre-*General Theory* writings).

Second, like Kahn, Kalecki seems to me in the preceding passage to be primarily concerned with demonstrating this proposition and not with analysing the determination of the equilibrium level of output. Kahn's major purpose was, as we have seen, to use this proposition to refute the Treasury view; and Kalecki's was to use it to rigorise the teachings of Marxian economics about what it regarded as two basic and associated features of a capitalist economy: the relation between investment and profits, and the generation of investment cycles. In this connection, let me note that in the first equation in his 1933 essay,

$$P = C + A$$

Kalecki uses the symbol A to represent both capitalists' savings and investment⁸ – surely an indication (to say the least) that his concern was not with the mechanism by which changes in output equilibrate the independently made savings and investment decisions of a capitalist economy. And this conclusion is only reinforced if one attempts to justify Kalecki's procedure by saying that it reflects his Marxist assumption that capitalists as a class are at one and the same time the savers and investors of the economy.

Third, as can be seen from the foregoing summary of Kalecki's theory, its central message is in any event concerned with the analysis not of output, but of investment. To avoid misunderstanding let me emphasise that this does not mean that Kalecki was not interested in the level of output and employment. He obviously was. Indeed, in a part of his 1933 *Próba teorii koniunktury* which was not included in the 1966 translation, Kalecki discussed the 'applications' of his theory and in this connection made a series of ad hoc assumptions which enabled him to conclude that

$$(10) \quad Y = q(B_0 + A) + rK$$

where Y represents output, and q and r are constants.⁹ But the very fact that Kalecki did not include this discussion in the 1966 translation of what he designated as the 'essential part' of his 1933 essay (above, p. 30) again shows that the central message of this essay was not the determination of output.

There are other indications that investment, and not output, is the subject of Kalecki's central message. Thus his original Polish booklet (1933, p. 98) begins with a reference to Aftalion's *Les crises périodiques de surproduction* (1913), whose main thesis was that business cycles are caused by the investment cycles generated by the process on which Kalecki elaborated. Again, the empirical estimates with which Kalecki

supplements the theoretical analysis of his 1935 *Econometrica* paper (pp. 337–40) refer only to the time path of investment. The major concern of Kalecki's paper with investment behaviour also manifests itself in the fact that the comment upon it by Frisch and Holme (1935) was devoted to the nature of the solution of the differential equation that Kalecki had developed to describe this behaviour. Similarly, the critique of Kalecki's 1935 paper presented in Tinbergen's survey that year of 'Quantitative Business Cycle Theory' concentrated on Kalecki's analysis of investment cycles as being generated by 'the production lag and the appearance of K ' in the investment function, the latter of which Tinbergen (1935, p. 269) found 'questionable.' Correspondingly, it was this analysis which concerned Kalecki in the reply (1936b) that he wrote to these two criticisms.

My final reservation is that the subject of the central message of Kalecki's 1933 booklet is in any event cycles and not a state of continued low-level employment. His main conclusions are summarised graphically in the form of sinusoidal curves, in which booms succeed depressions with smooth regularity (1933, pp. 113, 152; 1966, p. 12). He does not attempt to explain the existence of 'unemployment equilibrium'; correspondingly – and with this I return to my main point – there is little if any reference in Kalecki's 1933 essay on the business cycle to the mechanism by which changes in output equilibrate aggregate demand and supply (or, equivalently, savings and investment) at a less-than-full employment level. Nor, let me emphasise, does such a feedback mechanism play a role in the dynamic analysis on which Kalecki bases his theory of the cycle.

This last and crucial point can be demonstrated (and my second reservation thus reaffirmed) by a step-by-step examination of the way Kalecki derives his equation (9), which equation generates his investment cycle (above, p. 33). Though Kalecki does not seem to be aware of it, equation (3a) on p. 31 above is an equilibrium condition: one that determines that level of profits, P , which will enable capitalists to fulfill their plans for both consumption (hence savings) and investment, A . Correspondingly, the solution of (3a), namely

$$(3b) \quad P = \frac{B_0 + A}{1 - \lambda}$$

is (in current terminology) a reduced-form equation which specifies the equilibrium level of P corresponding to any given level of A . (Note that like the corresponding reduced-form equation of the simple Keynesian model – and this is the reason for its aforementioned (p. 32) familiar look – equation (3b) involves a multiplier,

which in this case is the reciprocal of 1 minus the marginal propensity to consume of capitalists.) Hence when Kalecki substitutes from (3b) into (5) in order to obtain (6) and ultimately (9), he is implicitly assuming that at every point of time in his investment cycle, planned savings and investment per unit of time have – in some unspecified manner – been equilibrated. And this assumption also characterises Kalecki's analysis of the corresponding cycle in output.¹⁰

I must however add that Kalecki does in effect discuss the Keynesian equilibrating mechanism in a 1935 article published in a Polish semigovernmental weekly magazine devoted to economic commentary and reports, *Polska Gospodaroza* (Economic Poland).¹¹ This paper, which was translated many years later under the title 'The Mechanism of the Business Upswing' (Kalecki, 1966, pp. 2, 26–33), contains the following passage, so strikingly similar to certain passages (e.g., pp. 27, 261) in Keynes' *General Theory*:

A reduction of wages is being recommended as a way to overcome the depression. Now, one of the main features of the capitalist system is the fact that what is to the advantage of a single entrepreneur does not necessarily benefit all entrepreneurs as a class. If one entrepreneur reduces wages he is able *ceteris paribus* to expand production; but once all entrepreneurs do the same thing – the result will be entirely different.

Let us assume that wages have been in fact generally reduced, and likewise taxes as a counterpart of cuts in civil servants' salaries. Now the entrepreneurs owing to the 'improved' price – wage relation utilize their equipment to capacity and in consequence unemployment vanishes. Has depression been thus overcome? By no means, as the goods produced have still to be sold. Now, production has risen considerably and as a result of an increase in the price – wage relation the part of production equivalent to profits (including depreciation) of the capitalists (entrepreneurs and rentiers) has grown even more. A precondition for an equilibrium at this new higher level is that this part of production which is not consumed by workers or by civil servants should be acquired by capitalists for their increased profits; in other words, the capitalists must spend immediately all their additional profits on consumption or investment. It is, however, most unlikely that this should in fact happen. Capitalists' consumption changes in general but little in the course of the business cycle. It is true that increased profitability stimulates investment but this stimulus will not work

right away since the entrepreneurs will temporize until they are convinced that the higher profitability is going to last. Therefore the immediate effect of increased profits will be an accumulation of money reserves in the hands of entrepreneurs and in the banks. Then, however, the goods which are the equivalent of the increased profits will remain unsold. The accumulating stocks will sound the alarm for a new price reduction of goods which do not find any outlet. Thus the effect of the cost reduction will be cancelled. On balance only a price reduction will have occurred, offsetting the advantage of the cost reduction of the entrepreneurs since unemployment going hand in hand with under-utilization of equipment will reappear.¹²

But as I have already noted, this theme of 'unemployment equilibrium' receives little if any attention in Kalecki's professional writings during the pre-*General Theory* period. And, lest I be misunderstood, let me emphasise that my point here is not that this theme appears in Kalecki's non-professional writings, but that it appears *only* there. It is also significant that when in his review article of the *General Theory*, Kalecki put forth his claims for priority, he did so entirely on the basis of his 1933 *Próba* and made no mention whatsoever of this 1935 article.

Let me now summarise. In his primary concern with quantities as against prices; in his concentration on national income magnitudes and functional relations among them; and in his corresponding emphasis on analysing the relationship between investment and other macroeconomic variables, Kalecki came significantly closer to the General Theory than did the Stockholm School, and this was particularly true of his semipopular 1935 paper 'The Mechanism of the Business Upswing'. At the same time, I cannot accept such claims as those of Klein that Kalecki's writings before 1936 'created a system that contains everything of importance in the Keynesian system' (1951, p. 447) and that Kalecki should be credited with 'the complete anticipation of Keynes' General Theory' (Klein, 1975, p. v). Nor can I accept Joan Robinson's contention (1964, p. 336) that Kalecki 'found the same solution' as Keynes and that he should be credited with 'the independent discovery of what is known as Keynes' theory' (Robinson, 1977, p. 187). For one thing, Kalecki's theory lacks the integrated character of Keynes's *General Theory* (above, pp. 27-28). It fails to integrate value theory with monetary theory and is indeed devoid of the marginal analysis on which the former is based. And

though Kalecki's theory adverts to the simultaneous developments in the money market, it does not present a systematic analysis of the latter and accordingly fails to present an integrated analysis of the commodity and money markets. But my main reason for not considering Kalecki's theory to be an independent development of the General Theory is the one I have already emphasised: namely, that Kalecki's central message has to do not with the forces that generate equilibrium at low levels of output, but with the forces that generate cycles of investment; more specifically, not with the feedback mechanism that equilibrates planned saving and investment via declines in output, but with the cyclical behavior of investment on the implicit assumption that there always exists equality between planned savings and investment.

This is not to deny (and to that extent I agree with Klein and Robinson) that Kalecki's theory enables us to make certain improvements on Keynes's. Thus if on the one hand Kalecki's theory of investment is not (like Keynes *à la* Fisher) based on the marginal analysis of discounted streams, it on the other hand introduces the stock of capital as a possibly relevant variable – a point which is of particular significance for econometric studies (Klein, 1964, p. 190). Again, Kalecki's theory indicates one of the ways of extending the Keynesian system so as to provide a theory of the business cycle.

Nor do I deny that Keynes – with his worldwide reputation, and situated at what was then *the* centre of learning in economics – was in an ideal position to communicate his message to the profession as a whole. This fact has been emphasised by, for example, those who have attempted to explain Kalecki's failure to achieve recognition for the discovery of the General Theory by saying that in the early and mid-1930s he was an obscure Polish economist writing in his own language (Feiwel, 1975, pp. 23–4, 29). But this cannot be the only reason. For as I have already noted at the 1933 meetings of the Econometric Society in Leiden, Kalecki had the opportunity of presenting to the profession a paper on what he presumably regarded as the essential points of his 1933 Polish essay, and this paper even drew the attention of two of the then leading macroeconomists of the world, Jan Tinbergen and Ragnar Frisch. But both of these experts perceived the central message of Kalecki's paper to be (as he himself perceived it) not a theory of unemployment equilibrium, but a theory of the investment cycle. That was the theme that ran through their heads when they left the hall.

Keynes once made a remark about 'original works which a fresh

scientific mind, not perverted by having read too much of the orthodox stuff, is able to produce from time to time in a half-formed subject like economics' (*Treatise*, I, p. 209, n. 1), and I would unhesitatingly place Kalecki's work of 1933–5 in this category. I would, however, add that Kalecki also paid a price for his intellectual isolation – and perhaps part of this price was to come so close to the General Theory and yet not achieve it.

NOTES

1. In view of the objections in certain quarters to Figure 3.1 as a representation of Keynes's thought, let me note that in his *How to Pay for the War* (1940, pp. 416–17), Keynes analysed the inflationary gap that was then being generated in Britain by wartime spending, in terms that are a verbal counterpart of this diagram.
2. For a recent English translation, see Targetti and Kinda-Hass (1982).
3. Kalecki, 1966, pp. 3–4, with the omission of one footnote, irrelevant for our purposes; emphasis in original.
4. By virtue of the assumption that total savings equal private (capitalists') savings. In a later version of his theory, Kalecki (1939, p. 117) makes both these assumptions explicit.
5. As Kalecki indicates in the passage from the foreword to his 1966 book cited on p. 30 above, this part was added to the translation of his 1933 booklet from his 1935 French article (pp. 297–8).
6. Kalecki, 1966, pp. 13–14, emphasis in original.
7. Cf., for example, Joan Robinson (1966, pp. viii–ix).
8. See the second and third paragraphs of the passage reproduced on p. 31 above. I am indebted to my colleague Yoram Mayshar for this observation.
9. *Próba teorii koniunktury* (1933, pp. 142–55, esp. pp. 150–2). I am indebted to both Osiatyński and Laski for bringing this part of the essay to my attention, and to Barbara Kaminski for translating it.
10. Only later did Kalecki (1943, p. 60) realise that his equation (3b) involves a multiplier.
11. The masthead of this magazine stated that it was published with the support of the Ministry of Industry and Trade as well as the Ministry of Finance and other government ministries. For this clarification of the nature of *Polska Gospodarcza* I am indebted to Alexander Erlich, who has likened this magazine to the business section of the *New York Times*.
12. Kalecki (1935c) (1966) pp. 26–7.

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4 The Legacies of Kalecki and Keynes

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The important question is not about priority, but about the content of the theories. In several respects, Kalecki's version is more robust than Keynes. (Joan Robinson, 1979, p. 187).

Economists have recently celebrated the centenary of Keynes's birth and the golden jubilee of his monumental *General Theory*. Somewhat earlier (in 1983 to be precise) we should have celebrated the golden jubilee of Kalecki's *Próba teorii koniunktury*, though a comparatively smaller number of economists were aware of that anniversary. It is fitting that this volume bring the latter event to the consciousness of a wider public, and Professor Sebastiani is to be congratulated for undertaking this task.

In the early 1930s, outside any world centre of learning and without any formal education in economics, Michał Kalecki independently discovered the most essential ingredients that went into the making of what came to be known as the Keynesian revolution. In addition to integrating the theory of aggregate output, price, and distribution, Kalecki's system was dynamic. Indeed, Kalecki's theory of dynamics and fluctuations and the partition of national income between profits and wages is more general than the Keynesian system, and more relevant to the contemporary scene. Kalecki avoided the distinction between micro and macro theories. He constructed his macroeconomic model on the basis of a more realistic theory of the firm that incorporated imperfect competition and income distribution as integral parts of his analysis. He elucidated the dynamic properties of the economic process and dealt with an open economy.

I THE KEYNESIAN REVOLUTION AND ITS AFTERMATH

In the book that was the Magna Carta of the Keynesian revolution, Keynes (1936, p. 249) depicted his contemporary capitalist economy:

In particular, it is an outstanding characteristic of the economic system in which we live that, whilst it is subject to severe fluctuations in respect of output and employment, it is not violently unstable. Indeed it seems capable of remaining in a chronic condition of sub-normal activity for a considerable period without any marked tendency either towards recovery or towards complete collapse.

Whatever else needs to be said about the Keynesian revolution in macroeconomics and monetary theory and its various interpretations, it undermined the myth that full employment is the normal state of the economy. It focused on the seriousness of the macroeconomic failure of the system, on the sources of real disturbances, on the opportunities for improvement, on effective demand as a central problem, on the possibilities of underemployment equilibrium with involuntary unemployment, on the possibilities for economies to get stuck in unsatisfactory equilibrium, on prolonged periods of underemployment equilibrium or persisting disequilibrium, on the persistence of involuntary unemployment which conventional economic analysis found so awkward to accommodate, and on the fallacies of the classical saving – investment – interest rate mechanism and the doctrine of full employment via flexible wages and prices and of the classical policy prescriptions in general.

The Keynesian revolution means different things to different people. In the standard mainstream interpretation, it refers to the impact of the theory of the determination of the level of aggregate output and employment. It underscores the dependence and impact of the level of effective demand on the degree of utilisation of labour and capacity. It provides the analytical innovation of the consumption function. It focuses on expectations in an uncertain world in general and on marginal efficiency of investment and speculative liquidity preference in particular. It cogently distinguishes between the acts of saving and investment and the problems of offsets to saving. It emphasises, *inter alia*, the fluctuations in total investment demand (and its dependence on shifts in expected profitability, which in turn depends on fairly unpredictable dynamic factors and subjective psychology and is beneficially influenced by a reduction of uncertainty

about the future when the economy is steadily working in high gear) as a source of macroeconomic instability.

As Keynes (1936, p. viii) stressed in the preface, the writing of the *General Theory* has been for him 'a long struggle to escape from habitual modes of thought and expression'. The difficulty in comprehending the argument lies not in the novelty of the ideas, which in themselves are quite simple, but in escaping from the traditional ones 'which ramify, for those brought up as most of us have been, into every corner of our minds'.

In the opening page, Keynes (1936, p. 3) argued that the postulates of (neo)classical (Pigovian) theory are applicable merely to a special case only and not to the general case, as the postulates this theory assumes are a limiting point of the possible positions of equilibrium. In the preface to the 1939 French edition, Keynes noted that he called his book a 'general theory' because he was mainly concerned with the aggregate behaviour of the economic system. He argued that fundamental errors had been committed by extending to the aggregate conclusions correctly arrived at with reference to only an isolated part of the whole (see Kahn, 1984, p. 121).

Like many breakthroughs, the *General Theory* gave rise to different and often conflicting (but also in many respects overlapping) interpretations and spinoffs. Some of them derived strongly clashing implications due to differences in underlying philosophies and descent from different intellectual family trees (say, Walrasian or Marshallian). In fact, one group may even question whether the other is 'Keynesian' at all. Even among similar versions there is an abundance of variants. Aside from Kalecki's independent theory, the most representative variants are: 'Hicksian-Walrasianism' (*IS-LM*) prior to Hicks's 'réincarnation' as a 'born again Keynesian', the American neoclassical Keynesians, 'Cambridge-on-the-Cam' Keynesians', their 'cousins' the American post-Keynesians, and the general disequilibrium theorists. Such a listing begs more questions than it answers.

The controversial attempts to reconcile Keynesian and neoclassical streams of thought was undertaken in part by 'converts' to Keynes's message (or by those who, like Pigou, recanted) who yet remained under the influence of the neoclassical teaching on which they were brought up. In the US, Samuelson was largely instrumental in constructing and propagating the so-called grand neoclassical synthesis. In a sense, the germ of the synthesis can be found in this controversial passage of the *General-Theory*:

If our central controls succeed in establishing an aggregate volume of output corresponding to full employment as nearly as is practicable, the classical theory comes into its own again from this point onwards. If we suppose the volume of output to be given, *i.e.* to be determined by forces outside the classical scheme of thought, then there is no objection to be raised against the classical analysis of the manner in which private self-interest will determine what in particular is produced, in what proportions the factors of production will be combined to produce it, and how the value of the final product will be distributed between them (Keynes, 1936, pp. 378–9).

In view of the unsettled nature of the subject, the shifting conceptions in time, and its dominance over postwar American mainstream economics, it is advisable to glean the essence of the synthesis from Samuelson's words. In the early 1950s he described the synthesis as something of a 'compromise doctrine' that emerges from the marriage of classical, neoclassical, and Keynesian analysis:

A legitimate and convenient name for this common core is, I suggest, 'neoclassical'. Neoclassical analysis permits a fully stable *underemployment* equilibrium only on the assumption of either frictions or a peculiar concatenation of wealth-liquidity-interest elasticities; and this is in a sense of negation of the more dramatic claims of the Keynesian revolution. On the other hand, this neoclassical doctrine is a far cry from the old notion that unemployment is simply the consequence of imposing too high real wages along a sloping aggregate marginal productivity demand schedule for labor: it goes far beyond the primitive notions that by definition of a Walrasian system, equilibrium must be at full employment; and beyond the view that the same analysis which demonstrates a drop in price will equate supply and demand in any small partial equilibrium market will also suffice to prove that a drop in general wages must clear the labor market. It rejects the question-begging gobbledygook of Say's law of market (Samuelson, 1966, p. 1581).

But what has become of Keynes? Joan Robinson (1979, pp. 172–3), the critic of modern economics, strongly disagreed with the mainstream merger of Keynesian and neoclassical economics:

After the war, Keynes' theory was accepted as a new orthodoxy without the old one being rethought. In modern text-books, the

pendulum still swings, *tending* towards its equilibrium point. Market forces allocate given factors of production between alternative uses, investment is a sacrifice of present consumption, and the rate of interest measures society's discount of the future. All the slogans are repeated unchanged.

How has this trick been worked? First of all, simplifications in Keynes' own exposition, which were necessary at the first stage of the argument, have been used to smooth the meaning out of it. Keynes sometimes talked of total output at full employment as though it was a simple quantity. Obviously, the maximum output that can be produced in a given situation depends on the productive capacity in existence of plant and equipment for labour to be employed with, and productive capacity exists in concrete forms available for producing particular kinds of output. The notion of 'the level of investment that will ensure full employment' presupposes the existence of productive capacity for investment and consumption goods in the right proportions.

Moreover, it presupposes a particular ratio of consumption to investment. But the level of consumption from a given total income depends upon its distribution between consumers, and this depends on the distribution of wealth among households, the ratio of profits to wages, relative prices of commodities and the system of taxation.

All this is ignored in the vulgarized version of Keynes' theory. At any moment, the text-book argument runs, there is a certain amount of saving per annum that would occur at full employment. Let the government see to it that there is enough investment to absorb that amount and then all will be well.

So we return to the classical world where accumulation is determined by saving and the old theory slips back into place. But here there is a difficulty. Investment every year is to be just enough to absorb the year's savings. What about the new equipment that it creates? Will that be just enough to employ the labour then available, when investment is absorbing saving next year? The long-period aspect of investment, that it creates capital goods, must be considered as well as the short-period aspect, that it keeps up effective demand.

As is well known, it is particularly the neoclassical synthesis version of the Keynesian revolution that has come under strong attack on the

analytical plane in the last two decades, though it has had its opponents all along. However, there are more fundamental sociopolitical forces at work that fuel the criticism of the Keynesian revolution and the welfare state. This is a large subject, beyond the scope of this study. Whatever the differences between Kalecki and Keynes (the main theme of the subsequent sections of this study), one should stress that there is a basic common view of the economic world. Although the routes they travelled were different, and their respective theories are constructed of different elements, both Kalecki and Keynes can be considered as the architects of the modern theory of effective demand. The common legacy of Kalecki and Keynes can be particularly sharply detected against the backdrop of relatively recent anti-Keynesian writings of the so-called 'monetarist counter-revolution', in its Friedmanian, Lucasian, or other guises.

There has been, of course, a major transformation in the capitalist economy since Kalecki and Keynes produced their fundamental analysis in the 1930s. Indeed, some of the changes are the result of the Keynesian revolution itself. There have been major developments in economic analysis and measurement. While Kalecki and Keynes (and an entire generation of disciples that followed them) were concerned with pragmatic macroeconomics, the trend today seems to be towards deriving macro theory from the choice theoretic approach of neoclassical micro theory. This trend is a throwback to economics as it was before Kalecki and Keynes, with one major advance – namely, the use of a sophisticated mathematical analytical apparatus and greater focus in formation of expectations. Within the confines of available space, the main body of this study attempts to show the rich legacies of Kalecki and Keynes. I subscribe to the view that Kalecki and Keynes are not to be treated as rival inventors, rather they should be viewed as complementary co-discoverers of the modern theory of effective demand, although some of the elements of their respective systems are incompatible. In my opinion, the entire question of Kalecki's priority of publication or anticipation of Keynes (recently revived by a distinguished participant at the Perugia conference) is an academic one, perhaps of great importance to the actors themselves and their immediate entourage. It is a subordinate issue to the distinct legacies of Kalecki and Keynes, and particularly to the intrinsic superiority (in some respects) of Kalecki's approach and to his essential originality. All this raises the question of the legitimacy of taking Keynes as a standard to which Kalecki is to be

compared. By showing in certain significant respects the superiority of Kalecki's system over Keynes's, I am hoping to show that it is just as legitimate to take Kalecki as the standard of comparison.

II KALECKI AND KEYNES: ENCOUNTERS

In 1936, Kalecki travelled from Poland to Sweden on a Rockefeller Foundation Fellowship to make contact with the Swedish economists who were working along similar lines. It is there that he first read the (just published) *General Theory*. Later he admitted that it was an eerie feeling, reading his own thoughts expressed by someone else. As Joan Robinson later attested, the fact that two men, miles apart in space, political outlook, education, and social circumstances had come to the same conclusions 'was a great comfort' to Keynes's entourage:

Surrounded by blank misunderstanding, there were moments when we almost began to wonder if it was we who were mad or the others. In the serious sciences, original work is *discovery* – finding connections that were always there, waiting to be seen. That this could happen in economics was a reassurance that what we had discovered was really there (Robinson, 1965, 1975, p. 95).

Thereafter Kalecki travelled to England and made contact with Keynes's entourage (in particular Joan Robinson, Richard Kahn and Piero Sraffa). Joan remembers (1979, p. 186) that soon after the publication of her 'Disguised Unemployment' (1936) she 'received a letter, evidently from a foreigner visiting England, who said that he was interested in my article as it was close to some work of his own. I thought this very strange. Who could claim to be doing work that was close to this – the first fruits of the Keynesian revolution? When Michał Kalecki turned up, I was still more astonished. He cared little for party manners or small talk and plunged directly into the subject. He was perfectly familiar with our brand new ideas and he had invented for himself some of Keynes's fanciful concepts, such as the device of burying bank notes in bottles and setting off a boom in mining them. As we talked, I felt like a character in a Pirandello play, I could not tell whether it was I who was speaking or he. But he could challenge a weak point in Keynes's formulation and quickly subdued my feeble attempt to defend it'.

Kalecki must have drawn Joan's attention to his 1935 *Econometrica* article for in a letter to him (dated 16 September 1936) she confessed shame with regard to that article. She admitted that the Cambridge Circus should have long ago greeted Kalecki as a kindred spirit. Unfortunately for her mathematics was an unsurmountable obstacle and she could never follow the argument in all its complexity. Doubtless, she said to him, all this noise about Keynes must have been somewhat vexing to Kalecki when so little attention was paid to his own contribution (Kalecki, 1979, p. 516).

Reminiscing about those times, in an Oxford Kalecki Memorial Lecture Joan pointed out (1979, p. 187) that while she wrote in 1933 her so-to-speak interim report on how far the Keynesians had got by that time (1951, 1978, pp. 52–8) and comparing it with Kalecki (1933 and 1935) 'it is now evident that Kalecki had got much further'.

In the fall of 1936, Kalecki met Keynes. Joan Robinson (who as a woman was not a member of the Political Economy Club, founded by Keynes in 1909, which met in his rooms at King's College on alternate Mondays) was especially invited to introduce Kalecki, who gave a talk in October 1936 – a session presided over by Keynes.

How much or how little Keynes was told about Kalecki and his work, the reasons behind that, and whether Keynes was willing to listen will forever remain a mystery. Kalecki himself did not bring the fact of the priority of his publication to Keynes's attention. Shortly before his death, Kalecki admitted to me that he did not regret not having done it himself. He considered that it was up to Keynes's disciples to have brought the matter of Kalecki's priority of publication to Keynes's attention. Mrs Ada Kalecki (Kalecki's widow) remembers that though neither Joan Robinson nor any other member of the Circus told Keynes of Kalecki's priority of publication, they were supposed to do so in connection with Kalecki's writing of *Economic Fluctuations*, for which they were going to ask Keynes to write a foreword. During that time Keynes fell ill and presumably the people close to him did not want to upset him. Kalecki acknowledged that Keynes's worldwide reputation and academic and intellectual standing probably contributed significantly to the propagation and acceptance of the Keynesian revolution. But being human, Kalecki undoubtedly resented being relegated to the ranks of Keynes's interpreters. Any creative work is a part of its author, and we all seek some form of recognition for what we do.

As Joan Robinson (1979, p. 187) remembers it:

When Kalecki came to Cambridge in 1936, we told Keynes about him, but he was not much impressed. His own ideas were in full spate (he was thinking about rewriting the *General Theory* in a completely different way) and he had not patience with anyone else's. He picked on a phrase in the *Econometrica* paper that seemed to him too 'monetarist', though in fact it contained a point of view which he later came to himself. Keynes did not sympathize with Kalecki's political presuppositions and by background and temperament they could not have been further apart. I commented on this once, saying 'oil and vinegar would not mix'. Some critic objected that they are mixed every day, but that needs constant stirring. Neither of these two characters was easy to stir. However, Keynes took the trouble to get a research project set up to provide Kalecki with a job. (This was just before the war and nothing much came of it.)

Although Michał behaved in public with a kind of scholarly dignity which is nowadays all too rare, he was naturally disappointed at lack of recognition. He said to me once: 'In the economics profession, no one notices the difference between good work and rubbish'.

Harry Johnson – another 'outsider' who did not feel well accepted in the Cambridge of the 1950s, and whose interpretation may, for that reason, be unfavourably slanted – sheds further light on the Keynes – Kalecki relationship. He relates a story (1978, p. 159) whose validity he himself questions 'that Keynes could have found a position for Kalecki in Cambridge (as he had done earlier for Sraffa), but chose not to do so, on the grounds that Kalecki's personality was too different from the conventional for Cambridge to swallow'. And Johnson continues:

The irony is that, through Joan Robinson, Kalecki rather than Keynes shaped postwar Cambridge's 'Keynesian economics'. There is another ironical possibility, that had Kalecki been kept in Cambridge, he would have developed an economics far more relevant to, and capable of handling, Britain's postwar economic difficulties than 'Keynesian economics' as it developed at Cambridge, and more specifically at the Institute of Statistics at Oxford. My reason for thinking this is that, on the one occasion on which I met him in Cambridge (he being *en route* back to Poland), Kalecki

delivered a lecture on inflation that employed a simple quantity theory of money together with expectations about the future trend of prices – and which met with a reception from his former admirers so hostile that he was discouraged from publishing it (Johnson, 1978, p. 159).

Kalecki's contacts with Keynes were never very extensive. Some of the surviving correspondence between the two deals primarily with some articles that Kalecki submitted to Keynes in his capacity as editor of *The Economic Journal*. The general tone of Kalecki's letters is deferential; that of Keynes is usually critical, at times harshly so, but Kalecki's responses to the criticism strongly defend his point of view. One of the first such encounters (Keynes, 1973a, pp. 789–98) concerned Kalecki's 'A Theory of Commodity, Income and Capital Taxation' which appeared in *The Economic Journal*, 47 (September 1937, pp. 444–50). From the first, Keynes criticised Kalecki for not stating his assumptions sufficiently clearly and for making them too unrealistic – a theme to which he would return in his subsequent dealings with his colleague.

Some four years later, Keynes received 'A Theorem on Technical Progress' by Kalecki for publication in *The Economic Journal*. Keynes had some very harsh things to say about this piece (and about Kalecki) and he said them to Joan Robinson who acted as intermediary and defender of Kalecki. In this correspondence between Keynes and Joan Robinson (Keynes, 1973a, pp. 829–36), Keynes again harped on Kalecki's 'fanciful' assumptions and his failure to state them clearly. Keynes revealed his disaffection for imperfect competition, his misunderstanding of Kalecki's dynamics, and his personal distaste for Kalecki. The article in question was rejected by Keynes and was published by the *Review of Economic Studies*, 8 (June 1941, pp. 178–84).

On 13 December 1941, Kalecki sent to Keynes for his consideration his article 'A Theory of Profits', which appeared in *The Economic Journal*, 52 (June–September 1942, pp. 258–67). The tenor of Keynes's critique was similar to that in the past (Keynes, 1973a, pp. 837–41), to wit, that Kalecki made assumptions that he did not explicitly state. However, we should note here that Keynes was very impressed by Kalecki's 'brilliant' explanation of Bowley's Law (see Feiwel, 1975, p. 467).

One of the first to give due credit to Kalecki was L. R. Klein – the author of *The Keynesian Revolution* – who in a review of Harrod's biography of Keynes pointed out that, 'after having re-examined

Kalecki's theory of the business cycle, I have decided that he actually created a system that contains everything of importance in the Keynesian system, in addition to other contributions' (Klein, 1951, p. 447).

Joan Robinson (1965, 1975, p. 95) has many times emphasised that 'Kalecki's claim to the priority of publication is indisputable'. But more than that, she has frequently underlined that 'in several respects, Kalecki's version is more robust than Keynes's' (Robinson, 1979, p. 187). In her Ely Lecture to the American Economic Association, she reminded us that:

Keynes himself was not very much interested in the theory of value and distribution. Kalecki produced a more coherent version of the General Theory, which brought imperfect competition into the analysis and emphasised the influence of investment on the share of profits. Kalecki's version was in some ways more truly a *general* theory than Keynes' (1973a, p. 97).

Reflecting on the 'striking and interesting differences' between Kalecki's and Keynes's theories, approaches, and presentation, Johansen (1978, p. 160) emphasised the basic fact 'that Kalecki developed, in some respects in a more advanced form, some of the basic elements of "Keynesian" macroeconomics before Keynes, while on the other hand Keynes's exposition had a much greater impact and still takes the central position in most expositions of macroeconomic theory'. On the question of Kalecki's priority of publication, Johansen (1978, p. 160) claimed that it is equally legitimate to turn the argument around 'and say that it was one of Keynes's greatest achievements to rediscover, independently, some of Kalecki's main macroeconomic ideas so shortly after Kalecki himself'. Harry Johnson (1978, pp. 158-9) also speaks of Kalecki's priority of publication 'in some respects theoretically superior to Keynes's *General Theory*', but Kalecki 'was unfortunate enough to publish in Polish, his native language, and doubly unfortunate in that, when he finally arrived in Cambridge, he proved to lack all the social and cultural graces necessary for acceptance in the British academic system and establishment - graces with which Keynes was superabundantly endowed'. And in a review of Kalecki (1971), Johnson noted:

The blurb ranks Kalecki with Keynes. Technically he was far superior, and his contributions during his period in England probably did more to shape the evolution of Keynesian theorizing over

the next decade than those of any other young Keynesian. On the other hand he lacked Keynes' personal and cultural advantages in the matter of self-advertisement and flair in presentation to the non-mathematically gifted, as well as Keynes' roots in the mainstream liberal traditions of economics.

Given Kalecki's importance in the formative years of Keynesian theorizing, the question naturally arises why his academic stock dropped so rapidly after the period of his major contributions. His disappearance from sight into the United National Secretariat, and then back to Poland, provides a large part of the explanation: without a professorship in a leading American or British university one is academically dead.

These accidents of personal and professional history should not be allowed to detract from appreciation of the greatness of the man's contribution, as presented in this book (1973, pp. 87–8).

III KALECKI AND KEYNES: ANALYTICAL DIFFERENCES

Keynes concentrated his attack on the macroeconomic failure of the system, but did not challenge the established price and distribution theories. Reflecting on the puzzle that the imperfect competition revolution had no bearing on the Keynesian revolution when both of them took place at about the same time and at the same place and both involved at least some of the same *dramatis personae* (Kahn, Robinson, and Sraffa), Tobin (1981, p. 207) notes:

Keynes's uncritical acceptance of the neoclassical competitive model. By assuming that firms are price takers in auction markets rather than price setters in monopolistic competition or oligopoly, he made it harder to sustain his vision of persistent disequilibrium, with failures of coordination, communication, and adjustment. Imperfect competition was the other revolution in economics in the 1930s; one of its sites was Keynes's Cambridge, and two of its agents, Joan Robinson and Sraffa, were in his group. Yet for some mysterious reason the two revolutions were never meshed.

One of the differences between Keynes and Kalecki is that the latter aimed at providing a macrodistribution theory on firmer foundations of a more plausible theory of the firm. He sought to bring the

strength of the forces of market imperfection, or degree of monopoly (a term he later regretted), in touch not only with the mode of behaviour and pricing policy of the firm and process of price formation in an industry, but to incorporate forces of market imperfection in this model of the economy as a whole, and to demonstrate that the intensity of the degree of monopoly is pertinent to the determination of distributive shares and thus closely tied in with the theory of effective demand and Kalecki's conception about the typical state of underutilisation of productive resources in modern capitalist economy:

The general discontent with the complacency of text-book economics found its main expression in Keynes' *General Theory*, and the theory of employment was, of course, far more important, both for analysis and for policy, than anything concerned with the theory of individual prices. Keynes himself was not much interested in price theory, but the two streams of thought were combined by Michał Kalecki (Robinson, 1960, 1975, p. 241).

To build a realistic theory, Kalecki explained how industrial prices are formed by mark-ups on costs and distinguished between 'cost-determined' and 'demand-determined' prices. The intensity of the 'degree of monopoly' (together with other distributional factors) is a key for the determination of macrodistribution. The distributional factors are essentially pertinent to effective demand and to fluctuations in aggregate output and utilisation of resources. Kalecki's theory of profits is based on the principle that wage-earners do not save, but spend what they get, and that entrepreneurs get what they spend. Entrepreneurs' profits are thus governed by their propensity to invest and consume, and not the other way round. His model not only describes a wider range of economic phenomena, but also presents the economic process in motion (i.e., how each successive sequence develops from the preceding ones). The model encompasses long-run dynamics, the capacity effects of investments, and some supply considerations. This model provides a starting point for understanding the contemporary problems of simultaneous occurrence of inflation and recession.

To build a realistic theory of distribution, Kalecki offered an explanation how prices in fact are formed by mark-up on prime costs. This use of mark-up to cover overheads is thus very important; though it involves monopoly power, it is not synonymous with it. Kalecki has devised a new way of tackling a formidable problem.

Propositions about reality are always great oversimplifications; further research and theorising usually expand the number of determinants. Kalecki's theory is a great oversimplification of reality, but its strength lies in clearing the path to the identification of crucial forces. Despite its classification as a monopoly theory of distribution, Kalecki's distribution theory is broader than this term implies.

Whatever the limitation in Kalecki's working out of the argument, he scored a breakthrough by introducing the degree of monopoly into his dynamic model. His pioneering integration of imperfect competition and macrodynamic strands of analysis is perhaps one of his most original contributions.

Kalecki's theory of distribution of the national product between wages and profits derives genealogically from the Ricardian tradition. His theory is not merely a deviation or departure from the neoclassical marginal productivity theory; he simply never started from it. As we have now seen, the model of perfect competition is generally foreign to his method of attacking economic problems. He argued that only by penetrating the real world of industrial and market structures (imperfect competition and oligopoly) can any plausible propositions about determinants of macrodistribution be advanced.

Since Kalecki's theory of profits is based on the principle that wage-earners do not save, but spend what they get, and that entrepreneurs get what they spend, capitalists' profits are thus governed by their propensity to invest and consume, and not the other way around. As a result of the rise in the degree of monopoly, the relative share of profits in income increases only by lowering the relative share of labour. The distribution determinants will affect not the real profits, that will remain the same, but rather the real wages and salaries, effective demand, employment and the level of utilisation of capacity. A rise in the degree of monopoly entails a rise in the profit – national income ratio, P/Y , but real total profits do not change.

At the outset, we should note Kalecki's distinct treatment of saving (consumption) propensities – so different from Keynes's. Kalecki's treatment is based on behaviour patterns of classes, rather than on a questionable 'fundamental psychological law'. In retrospect, Lord Kahn (1984, p. 134) admits that Keynes's 'treatment suffers from a defect that no distinction is drawn between saving out of profits and out of wages'.

The emphasis Kalecki placed on distribution of income between wages and profits (and the different propensities to save and consume associated with each class of income earners) had a major influence

on Joan Robinson's work, particularly in her *Accumulation of Capital*. In fact, Solow and Stiglitz (1968, p. 537), referring to what they call the 'Cambridge theory of distribution' ('argued, in slightly different ways, by Nicholas Kaldor, . . . Joan Robinson, and Luigi Pasinetti'), point out that 'in that theory the distribution of income is made to depend primarily or exclusively on the different propensities to spend and save wage income and profits'.

While Kalecki assumed a two-class society, he noted complications arising out of different propensities to consume within each class. Within the capitalist class he distinguished the entrepreneur from the rentier – later richly elaborated by Joan Robinson (1956, 1966). (Noteworthy of one of Pasinetti's contributions (1961–2, 1974) was an extension of Kaldor's model into one where workers save and own capital incorporating returns on the accumulated value of workers' savings. Pasinetti shows that if the rate of return is the same on workers' and capitalists' savings, the ultimate growth path of the economy will depend on the capitalists propensity to save, postulating a constant capital–output ratio and some other assumptions. If the workers' propensity to save increases, the overall savings ratio will increase in the short run, but in the end it will result in a decline in the relative share of capitalists' income in aggregate income, thus offsetting the initial impact. Pasinetti (1961–2, 1974, pp. 112–3) claims that whatever the worker's propensity to save, the essential thrust of the Cambridge (Kaleckian) model of distribution holds – only the capitalists' propensity to save is relevant).

As a result of the rise in the degree of monopoly, the relative share of profits in income increases only by lowering the relative share of labour. The real wage depends on the degree of monopoly. The distribution determinants will affect not the real profits, which will remain the same, but rather the real wages and salaries, effective demand, national income, employment, and the level of utilisation of capacity. A rise in the degree of monopoly entails rise in the P/Y ratio, but real total profits do not change, since they continue to be determined by past investment decisions. With an unchanged amount of investment there is the same total amount of profits (savings). While profits remain unyielding, the real wages and salaries and the real national product will decline partly because of a fall in effective demand for wage goods, with a consequent fall in output and employment in the sector producing consumption goods for workers. Forces will thus set in to contract aggregate output and income, which will adjust itself just so much that the higher percentage share of profits in

output renders an unchanged absolute amount of profits. Here the salient point is that shifts in the distribution of income take place not by way of a change (increase) in profits, but through a mechanism of variations (decline) in national output (income). The clue is that with a given level of output and income, an increase in the 'degree of monopoly', and thus a shift from wages to profits, will produce a rise in underutilisation of productive capacity.

It is important to contrast this with Keynes's explanation of his theory of national income determination (in a piece written in 1937 in reply to criticisms by Taussig, Leontief, Dennis Robertson, and Viner):

The theory can be summed up by saying that, given the psychology of the public, the level of output and employment as a whole depends on the amount of investment. I put it in this way, not because this is the only factor on which aggregate output depends, but because it is usual in a complex system to regard as the *causa causans* that factor which is most prone to sudden and wide fluctuation. More comprehensively, aggregate output depends on the propensity to hoard, on the policy of the monetary authority as it affects the quantity of money, on the state of confidence concerning the prospective yield of capital assets, on the propensity to spend and on the social factors which influence the level of the money wage. Out of these several factors it is those which determine the rate of investment which are most unreliable, since it is they which are influenced by our views of the future about which we know so little (Keynes, 1973c, p. 122).

Keynes's approach to the process of determination of national income has now permeated economic textbooks (or is being criticised as the orthodoxy). As we have seen, Kalecki introduced a very different interpretation and analysis of the process by which a rise in investment generates an increase in savings. He did not approach the theory of effective demand by the Kahn–Keynes route of the multiplier, which makes his version to some extent less appealing or less rich, but no less forceful. He did go straight to the pure (non-monetary) theory of the business cycle (on which Keynes seems to have been very weak) and his original treatment of the capital–stock adjustment mechanism now constitutes a basis for many business-cycle models. (Whatever the relative merits of either approaches, they should not be evaluated independently of the confusion about

the equality of savings and investment that arose as Keynesian ideas were integrated into the mainstream.)

Kalecki's pioneering and distinct theory of cyclical fluctuations belongs to the family of maintained (periodic swinging motions that neither peter out nor explode), macrodynamic, mathematical, (econometric) models of the economic system.

Mathematical or econometric theories of business cycles tend to focus attention on systematic oscillations that spring from the internal structure of the economic mechanism, and attempt to explain how the fluctuating process is produced from the response of the economic mechanism to changes in exogenous variables – i.e., how the economic mechanism responds and adapts itself to the random succession of changes in data. With very few exceptions, all satisfactory explanations are neither purely exogenous nor purely endogenous (Samuelson, 1947, pp. 340 ff.).

In Kalecki's original model (in a closed economy, without government demand), investment determines the level of economic activity. Indeed, 'a happy feature of Kalecki's system is the fact that he places capital goods production in the center. A very remarkable feature is that the very small number of variables included is sufficient to get a closed system' (Tinbergen, 1935, pp. 269–70). Fluctuations in investment engender the corresponding fluctuations in aggregate economic activity. It is the volatile fluctuations in investment that generally dominate the ups and downs in economic activity. The accent is on the acute variability of investment, which varies relatively more than consumption – that is, aggregate output (income, expenditure) and consumption show smaller relative fluctuations than investment activity. Kalecki essentially approached the problem by establishing two basic relations based on: (1) the impact of effective demand generated by investment upon profit and national income; and (2) the determinants of investment decision. If fluctuations in investment cause fluctuations in economic activity, what determines investment? This is the thorny question that preoccupied Kalecki most of his life. Briefly, in his original presentation, the decision to invest is considered an increasing function of national income (real profit accruing to profit-earners) and a decreasing one of the volume of stock of capital of some time ago.

The preliminary mechanism of business fluctuations can be explained in terms of the mutual interaction of the two principal determinants that induce investment: (1) the stimulating effect of higher income on investment; and (2) the depressing effect of growth

of productive capacity in view of the distinctive relation between investment and the stock of capital (investment decisions once converted into the form of actual investments enlarge the stock of productive capital), and vice versa. 'We see that the question, "What causes periodical crises?" could be answered shortly: the fact that investment is not only produced but also producing'. Investment viewed in its income-generating capacity 'is the source of prosperity, and every increase of it improves business and stimulates a further rise of investment'. Simultaneously, however, additional capital equipment adds to productive capacity and as soon as it is put into operation it competes with the stock of equipment of older vintage. 'The tragedy of investment is that it causes crisis because it is useful. Doubtless many people will consider this theory paradoxical. But it is not the theory which is paradoxical, but its subject – the capitalist economy (Kalecki, 1939, pp. 148–9; see Robinson, 1937, 1949, p. 92).

In his original model, Kalecki introduced fundamental and interesting dynamic features into his system, notably: (1) the time-lag between investment decisions (orders) and realisation, and (2) the determinants of investment decision relations. Indeed, among the most distinctive and remarkable features of Kalecki's model is that clear separation he makes between the decision and the actual implementation; the difference in timing between the initiation of investment, investment production, income generating expenditures spread out throughout the period of production, and commissioning capital goods; the magnified effective demand and the actual delivery of finished investment goods enlarging the stock of existing productive capital. Investment decisions, once they have been embodied in the form of actual investment, entail growth in the stock of productive capital (the capital-creating effect of investment). Once investments are so absorbed, they discourage further investments. Investment *decisions* in a given period, determined by certain factors operating in that period, are followed by actual investments with a time-lag – i.e., time elapses between the moment when decisions to invest are made and when decisions are completely executed. The length of time necessary for the realisation of these decisions depends on technical and organisational conditions prevailing at the time of execution of these decisions. Clearly, the rate of investment in the period must not be confused with the rate of investment decisions of that period; the actual investment at time (t) is the result of past investment decisions. There exists this relation between the rate of investment decisions and deliveries of finished capital goods: the rate

of the latter follows the former with a time-lag which is equal to the average period of construction (gestation). The time-lag helps us to understand the cumulative nature of expansionary and contractionary processes.

Investment decisions are necessarily forward looking. Kalecki introduced uncertainty and expectations into his argument, although he did not provide a theory of how expectations are formed. The Kaleckian system behaves as if a certain delay were involved in the functional relationship between investment and income. That is, national income is lagging behind investment, and investment behind investment decisions; past investment decisions determine the present national income, which influences current investment decisions which, in turn, determine future national income.

It should be emphasised that Kalecki's development of his theory of business cycles (over a period of more than thirty-five years), starting from his original 1933 contribution in Polish (1966), and the many revisions thereof as discussed in Feiwel (1975, Chapters 5 and 6), has undergone a number of significant alterations. Here we can do no more than highlight the reformulations and modification he made as he sought to bring the model closer to reality. Where his earlier writings were clearly influenced by the severity of the experience in the early 1930s, in the subsequent development of the argument, he made allowances for the relative weak impact of the capital destruction effect. He introduced a certain 'corrective' – a trend factor that shifts investment upward as the cycle continues. In a growing economy, investment fluctuates along the long-run trend line. Innovations raise the prospects of profit, thus stimulating investment and engendering an ascending trend. Innovation becomes another weighty factor in the determination of the investment function, together with the change in the rate of profit, the rate of change in the stock of capital and the 'internal' gross savings (depreciation and undistributed profits) of firms.

Kalecki aimed at developing a theory integrating growth and cyclical processes. He advanced an original, provocative, but somewhat sketchy theory of long-run development trends, the determinants both of trend and cycle. Innovation plays a cardinal role in transforming the static system subject to fluctuations (cyclical fluctuation around the zero level of capital accumulation) into one subject to growth trend. Kalecki emphasised that he failed to see why the business-cycle approach should be abolished in studying the process of economic development. He now approached the growth rate as a

given time as a phenomenon deeply rooted in past economic, social, and technological development of the system where as throughout his work, *the current state is the result of the preceding developments and contributes, in turn, to the future long-run development of the economy*. The two basic relations in the approach to business cycles – (1) the impact of effective demand generated by investment on profits and national income, and (2) the determination of investment function by the level and the rate of change in income or expenditures – should be so formulated as to yield the trend *cum* business-cycle phenomenon. Such a task is incomparably more exacting than the pure business-cycle model. But the results of such inquiry are closer to the reality of the process of development. The approach of 'mechanistic' theory is based often on such indefensible assumptions as a constant long-run rate of utilisation of capacity. However, for Kalecki, the difficulty of the task should not be an excuse for disregarding this approach which seems to be the only one for a realistic analysis of the dynamics of a capitalist economy.

In Lord Kahn's retrospective on the *General Theory*, he emphasises that:

the major achievement of the *General Theory* is twofold. First, there is the conception of Effective Demand which, given the conditions of supply, determines the level of output and employment. Second, there is the determination of the rate of investment. While lower than the rate of consumption, this is the constituent of Effective Demand which is mainly responsible for fluctuations, and also for demand being often chronically unduly low – as well as, on occasion, unduly high (Kahn, 1984, p. 142).

It is in this manner that Kahn explains why 'the determination of the rate of investment is the subject to which . . . the bulk of the *General Theory* is devoted' (Kahn, 1984, p. 142).

In Keynes's treatment, the 'inducement-to-invest' function depends on the relation between the expected rate of profit on newly produced capital goods (called MEC) and the cost of securing funds. The inducement-to-invest function thus depends partly on the MEC and partly on the rate of interest (Keynes, 1936, pp. 135–254).

Keynes argued that the actual rate of current investment will be pushed to the point on the investment–demand schedule where the marginal efficiency of capital in general (to recall, defined in terms of the *expectation of prospective yields* of investment, allowing for risk)

and the *current* supply price of the capital asset is equal to the market rate of interest that must be paid to secure financing. As there exists at any time a variety of investment projects that can be arranged in descending order of their expected rate of return over cost (excluding interest, but allowing for risk), the actual rate of investment will be pushed at any time to the point where the spread between the prospective yield and rate of interest is reduced to nought. A fall in the rate of interest relatively to given MEC will cause a rise in the rate of investment. MEC for any given type of capital asset during any period of time will fall as the investment in it is increased (movement along the MEC curve).

Soon after the publication of the *General Theory*, Kalecki (1936) reviewed it in the leading economics journal in Poland (the organ of the Polish Economics Association). He hailed it as 'undoubtedly a turning point in the history of economics'. He viewed the book as divided into two essential parts: (1) determination of short-run equilibrium, restricted by given productive capacity and a given level of investment (per unit of time); and (2) determination of the size of investment. He considered that Keynes solved the first question quite satisfactorily, though he had some reservations about the lack of rigour and explicitness in exposition. Moreover, Kalecki questioned the route by which Keynes arrived at his solution and presented an alternative way of doing so – a way that was essentially his own, although he did not explicitly refer to his 1933 or 1935 publications. With reference to the second part, Kalecki questioned not the exposition but, more seriously, the analytical construct itself.

Kalecki (1936, pp. 18–26) saw serious deficiencies in the MEC concept. It says nothing about the investment *decisions* of the entrepreneur who calculates in *existing* market prices of investment goods in the state of 'disequilibrium'. It indicates only that, if the expected rate of profit, calculated on the basis of that price level, will not equal the rate of interest, a change of the level of investment will take place, transforming the existing situation into one where the expected rate of profit *equals* the rate of interest. One could say that Keynes's theory determines only the *ex post* level of investment, and says nothing of *ex ante* investment.

Furthermore, Kalecki argued, let us assume that initially the expected rate of profit was higher than the rate of interest, and that an increase of investment had taken place which had increased the prices of investment goods so that the expected rate of profit, computed at these new prices, and the *initially* anticipated revenue, was

equal to the interest rate. Kalecki noted that the increase of investment not only raises the prices of investment goods but that, according to Keynes, it is followed by a general rise in activity, increasing prices and production in all branches. Since, as Keynes remarked, the current situation is strongly overweighted in forming expectations about the future, the expectations will become more optimistic and again a difference between MEC and the rate of interest will appear. Equilibrium is thus not reached and the increase of investment continues (here occurs the Wicksellian cumulative effect).

Kalecki also objected to Keynes's concept (which tells us how large investment will be when a given 'disequilibrium' is transformed into 'equilibrium') on the grounds that the increase of investment is not at all a process that leads the system into 'equilibrium'.

Kalecki found it difficult to accept Keynes's solution of the investment problem as satisfactory. The cause of this lack of success is the essentially static approach to a problem that by its very nature is dynamic. Keynes accepted the state of expectations of returns as datum, and deduced therefrom a certain given level of investment, neglecting the influence that, in turn, the investments will have on expectations. It is here that Kalecki saw a clue for reaching a realistic theory of investment and provided pointers to his own position. The starting point of such a theory should be the solution of the problem of *ex ante* investment decisions. Let us assume, argued Kalecki that, at a certain point in time, we have a given state of expectations of future income; determined prices of investment goods; and, finally, a given rate of interest. How large then would be the intended investment of businessmen for a given period? Let us assume that this problem has been solved (impossible without introducing some special assumptions about the businessmen's psychology, or assumptions about the imperfections of the money market). A further development of the investment theory that Kalecki envisaged would be as follows: investment decisions, corresponding to the initial state, would not generally be equal to the existing level of investment. Therefore, in the following period the size of investment would be generally be different and, with it, the short-run equilibrium position would change. We have thus to deal with a different state of expectations from that in the initial period, different prices of investment goods, and a different rate of interest, from which a new level of investment decisions would result.

Notwithstanding his criticisms of Keynes's theory on the grounds that it neglects the dynamic aspects, Kalecki claimed that the first

part of Keynes's theory retained its intrinsic value. In the dynamic process investments are continually changing, but to each level of investment there will correspond a level of employment and production, determined according to the first part of Keynes's theory. Kalecki argued that Keynes did not explain precisely what influences the changes of investment, but he has analysed at great length the close relationship between these changes and the general movement of employment, production, and income.

In his fifty-year perspective on the *General Theory*, Kahn (1984, pp. 145, 148) agrees that, although the subject matter is the most important in the *General Theory*, Chapter 11 on the MEC is one of the most confused. Keynes also exaggerates the importance of the risk-free role of interest as an influence on the rate of investment. Kahn (1984, p. 159) argues that 'Keynes' insistence on the overwhelming importance of expectations, highly subject to risk and uncertainty, was one of his biggest contributions'. This is also the aspect that Joan Robinson has continually emphasised and that has imbued her post-*General Theory* work.

Kalecki brought into the argument that fact that there are distinct limits to the financing of investment at a given rate of interest – i.e., the problem of availability of finance. The outside finance that a firm can secure is largely determined by the amount of capital owned by the firm. Kalecki viewed the limitation of the size of the firm by the availability of entrepreneurial capital as going to the very heart of the capitalist system, which cannot be ignored in the theory of investment decisions. One of the important determinants of such decisions is the accumulation of firms' capital out of current profits (generated by investment in the past). Profit influences the investment–demand function not only by providing a motive, but also by providing the means to be able to perform such an act. Investment decisions are related to the firm's 'internal' accumulation of gross savings; these savings allow the firm to make new investments without facing the problems of the limited capital market or 'increasing risk' (see Kalecki, 1939, pp. 128, 95–106).

Thus, with a given expected rate of return, greater availability of credit (improved terms of borrowing) may raise the rate of investment decisions. If it does, and the new investment orders are placed, during the gestation period extra purchasing power is generated and propagated both owing to the primary effect of investment outlays and the multiplier effect. (On Keynes's position see Kahn, 1984, pp. 162–4.)

IV KALECKI AND KEYNES: ANTICIPATION OR SUPERIORITY?

It has always been my contention that the question of Kalecki's anticipation of Keynes is of lesser importance than that of the superiority in several crucial aspects of the Kaleckian construct over the Keynesian one. However, since the main theme of Don Patinkin's reflective and controversial *Anticipations of the General Theory?* is, as the title indicates, the question of anticipation, we shall pause here briefly to consider some of the questions raised by him as regards Kalecki's priority of publication. That much of the debate depends on the frame of reference used by Patinkin is indisputable. His standpoint is certainly coloured by his own (evolving) interpretation of the essence of the 'central message' of the *General Theory* – an interpretation that I dare to say is a narrow one. In a most scholarly fashion, Patinkin (1982, p. 81) admits to that: 'I must admit that my definition has sometimes been criticized as too narrow. This may be true'. One can understand that Patinkin takes Keynes's *General Theory* as a yardstick for measuring Kalecki's performance. To many of us, however (no matter how much we admire Keynes's historical achievement), it is just as legitimate and useful to take Kalecki's achievement as a yardstick to measure Keynes's performance, as Johansen (1978) has pointed out – a view also held by Joan Robinson among others.

If one confines oneself to the questionable comparison of the extent to which Kalecki anticipated the specific analytical innovation of the *General Theory* one can only repeat after Patinkin (p. 5) that there is no unanimity of answer to the question of what that innovation was: 'clearly the broader the specification of the innovative contribution of the *General Theory* the greater the likelihood of finding this contribution anticipated'. Patinkin expects to disarm his critics by allowing that a broader interpretation of the Keynesian message is acceptable. He points out, however, that via this route,

if it is enough to speak in general terms about aggregate demand and supply, then . . . Keynes' 1933 *Means to Prosperity*, Wicksell's 1906 *Lectures*, and perhaps even Malthus' writings almost a century before that constitute the *General Theory*. Alternatively, if the *General Theory* can be identified even with an imprecise description of the way a decrease in output decreases saving until it is brought to equality with investment, then Keynes' discovery of it should be dated with his 1931 Harris lecture . . . And if the

General Theory is the proposition that an increase in investment generates an equal amount of saving, then . . . this theory was first presented in an imprecise form by Keynes in his 1929 *Can Lloyd George Do It?* and was then rigorously developed by Richard Kahn in his celebrated 1931 multiplier article (Patinkin, 1982, p. 81).

Patinkin discards several broader interpretations of what constitutes the major contribution of the *General Theory* (see 1982, pp. 6–7). He considers the ‘central message’ of the *General Theory* to be the explanation of a state of unemployment equilibrium in a capitalist economy. More specifically, he illustrates his argument by the familiar 45° diagram (see p. 10). He contends that what he means by the theory of effective demand is ‘not only that intersection of the aggregate demand curve . . . with the 45° line determines equilibrium real output . . . at a level that may be below that of full employment . . . ; not only that disequilibrium between aggregate demand and supply causes a change in output and not price; but also (and this is the distinctively novel feature) that the change in output (and hence income) itself acts as an equilibrating force. That is, if the economy is in a state of excess aggregate supply . . . then the resulting decline in output, and hence income, will depress supply more than demand and thus eventually bring the economy to equilibrium’ (1982, p. 9). Patinkin admits that Keynes did not use this diagram which is adapted from a 1939 article by Samuelson (1966, p. 115). Neither did Keynes use Patinkin’s more formal interpretation of Keynes’s ‘central message’ – that ‘the theory of effective demand is concerned not only with the mathematical solution of the equilibrium equation . . . but with demonstrating the stability of this equilibrium as determined by the dynamic adjustment equation’ (Patinkin, 1982, p. 10).

By narrowing down to such an extent the central message of a theory, Patinkin reduces the possibility of multiple discoveries to almost nought, even in the natural sciences. Indeed, Patinkin’s central message is that multiple discoveries, if they do occur at all, are exceedingly rare. He cites, for example, the case of Joan Robinson and Chamberlin (1982, pp. 4 and 91–2) as one where an alleged multiple discovery was not one at all. However, though Chamberlin’s monopolistic competition differed in many respects from Joan Robinson’s imperfect competition, the reader of both could be forgiven for drawing similar conclusions and for generally treating them almost interchangeably.

Patinkin (1982, p. 14) argues that the primary concern of the

General Theory is the explanation of equilibrium at less than full employment. For him 'the central message of Kalecki's 1933 booklet is in any event cycles and not a state of continued low-level employment' (1982, p.70), and that Kalecki's 'central message is in any event concerned with the analysis not of output, but of investment'. As I have emphasised, Kalecki's approach to the theory of effective demand is through the theory of the business cycle, where investment and its variability play a central role. While one of Keynes's distinct contributions was the focus on the variability of investment as crucially affecting effective demand (and the *General Theory* is full of insights on the causes and consequences of this variability), it may be argued that even in his initial 1933 publication Kalecki went deeper into the determinants of this phenomenon. Kalecki addressed himself to the repercussions of fluctuations of investment on output; an elaboration of these arguments can be found in his analysis of policies to alleviate depression – what he called creating synthetic prosperity.

Indeed, it is legitimate to claim, as Asimakopulos (1983, p. 519) does, that Patinkin's interpretation of the theory of effective demand as explaining the factors determining the equilibrium level of employment and its stability at a given rate of investment is, at best, an incomplete statement of the *General Theory's* central message. But, as we shall presently see, the narrowness of Patinkin's interpretation of Keynes's central message does not depend only on Patinkin's neglect of the variability of investment.

Like many other scholars, Kalecki tended to deal with and emphasise one crucial point at a time. His 1933 essay does not focus on what Patinkin considers to be the central message of the *General Theory*, although certain passages in Kalecki's presentation could be interpreted as representing the crux of the notion. Patinkin does quote some of these passages (1982, pp. 67–8), though he disclaims that on the basis of them one could grant Kalecki independent and prior discovery of Patinkin's narrow conception of the essence of the *General Theory*.

Patinkin acknowledges that in a 1935 article (translated and republished as 'The Mechanism of the Business Upswing', in Kalecki, 1966, pp. 26–33) published in *Polska Gospodarcza*, Kalecki explained the Keynesian equilibrium mechanism (1982, p. 71). But Patinkin would not grant Kalecki independent and prior discovery of this narrow conception of the central message of the *General Theory*, primarily because Kalecki advanced his argument in a non-professional journal and above all because 'this theme of unemployment equilibrium receives little if any attention in Kalecki's profes-

sional writings during the pre-*General Theory* period' (p. 72). It cannot be overemphasised that Kalecki's writings are terse and laconic; he zeroed in on one subject at a time and seldom tackled the same subject unless it was to present a new approach (as in the case of the investment function). Patinkin eloquently presents the practice of repetition of the same theme, with different variations as in music, as a touchstone for finding the central message of a piece of scholarly writing. This was not Kalecki's style. Indeed, his writings are exemplary in their non-repetition, in the best tradition of editors' advice to neophyte writers.

Moreover, on the issues of independent discovery and anticipation, to get a complete picture of Kalecki's contributions until 1936, one should take into account the entire body of his work until that date, particularly including the articles published in non-academic journals, especially those he later selected for translation and inclusion in the 1966 edition. One should remember that Kalecki was then not an academic economist; he earned his living as a researcher and as an economic journalist. Publication in *Polska Gospodarcza* provided him with a supplement to his relatively meagre income. He also wrote for different independent socialist periodicals, which provided him with an outlet for his political views.

At this juncture, it bears repeating that, unlike Keynes, Kalecki was not trained in the economic orthodoxies prevailing in the 1930s in the major seats of Western academia. The narrowness of Keynes's training and attitudes to economics need not detain us here; however, the approach in and focus of the *General Theory* has to be understood in the light of the tradition from which Keynes came, the particular brand of orthodoxy he was trying to escape, and the mould in which his readers' minds were cast. On the other hand, Kalecki, as we know, was a neophyte in economics who by 1930 had been exposed primarily to Rosa Luxemburg, Tugan-Baranovsky, and Marx. It should be remembered that that tradition stressed the business-cycle approach and the strategic role of the volatility of investment. It seems to me that, under these circumstances, it is a misunderstanding to analyse Kalecki's pre-1936 writings through the prism of neoclassical equilibrium analysis. True, Kalecki does not explicitly use the concept of 'equilibrium' in his 1933 essay, yet it is present implicitly as is a concept of the multiplier somewhat different from Kahn's. The latter is particularly elaborated in Kalecki's policy articles, especially in his illuminating paper on foreign trade (re-printed in (1966, pp. 16-25)).

If one were to insist on the dubious necessity of finding Keynes's

short-period underemployment equilibrium in Kalecki (1933) one could go the route of reconstructing national income flow in both Keynes and Kalecki, deriving basically the same theory of effective demand, differences in specifications of workers' and capitalists' propensities to save and consume notwithstanding (see Osiatyński, 1985, pp. 100–2).

As Kalecki himself noted in his 1936 review of the *General Theory*, Keynes's book represents a revolutionary landmark in the history of economics, but the approach is static. Kalecki's approach is dynamic; he considers an evolving system that consists of a cumulative series of short periods that succeed each other. Whatever the achievements and shortcomings of his dynamic approach, Kalecki's pre-1936 writings take us several steps beyond Keynes. On a purely analytical plane, one could perhaps argue that the *General Theory* represents to some extent a special case of Kalecki's more general construct. Patinkin himself can be interpreted to lend support to this statement when he says that 'Kalecki's theory indicates one of the ways of extending the Keynesian system so as to provide a theory of the business cycle' (1982, p. 78). In the sense that Kalecki's construct is more general, Joan Robinson's generalisation of the general theory draws on Kalecki's work.

Patinkin claims that Kalecki's theory 'fails to integrate value theory with monetary theory and is indeed devoid of the marginal analysis on which the former is based' (1982, p. 77). Kalecki is, indeed, weak in monetary theory, though his discussions are replete with interesting insights on money, and particularly on finance. However, one can hardly accept Patinkin's equation of price theory with marginal analysis. Indeed, reliance on orthodox price theory was a weak link in the *General Theory*, one that has spawned a huge body of literature on microfoundations. As we have attempted to show, Kalecki's theory features monopolistic price formation dovetailed with the rest of his construct. His integrated micro-macro approach is one of the most persuasive and fruitful attributes of his theory.

If the institutional framework of a social system fundamentally conditions the system's economic dynamics – a view Kalecki stressed strongly in his last lecture in Cambridge in 1969, and one that permeated his analysis from the start – the explanation of the functioning of the modern monopoly capitalism requires a realistic perception of market power. Kalecki considered perfect competition as a dangerous myth. He used it as an analytical device in combatting opponents, for example when discussing wage cuts as a route to

restoring prosperity or when analysing the class struggle and income distribution. One thus cannot sufficiently stress that Kalecki's overall perception of contemporary capitalism differed essentially from Keynes's, if for no other reason than because of their divergent views on the competitive process, price formation, and distributional conflicts. One should also note that there has been an essential transformation in the character of the capitalist economy since Kalecki and Keynes wrote – a transformation more along the lines of Kalecki's perception than Keynes's. Of course, some of this transformation is directly traceable to the Keynesian revolution and to policies derived more directly from Keynes than from Kalecki. Also, Kalecki lived through a good part of this period of transformation which his postwar analyses reflect.

Both Kalecki's and Keynes's writings reflect the traumatic problems of the Great Depression, although they came to their similar conclusions via different routes and analytical apparatuses and even though the general economic and social conditions they experienced were somewhat different. However, Patinkin seems to misunderstand Kalecki's concern for unemployment (probably due to his lack of a reading knowledge of Polish – not a necessary equipment for an economist). He writes:

The phenomenon for which a desperate world in the early 1930s was searching for an explanation was that of the bewildering and seemingly endless depression that was creating untold misery and threatening its political stability. This was the problem to whose solution Keynes – in contrast with the Stockholm School and Kalecki – devoted his central message (1982, p. 88).

Whatever inspiration Kalecki derived from Rosa Luxemburg, Tugan-Baranovsky, and the Marxian schemes of reproduction, one must emphasise that before he wrote his 1933 essay he undertook painstaking analysis of various industries, markets, world business conditions, and national income studies. His theoretical writings are thus partly generalisation of inductive reasoning. In fact, one of Kalecki's strong points is his construction of a rigorous mathematical model on the basis of carefully observed real phenomena. It is, indeed, a misunderstanding to say that unemployment was not a central theme of Kalecki's work. If I may interject a personal recollection at this point, I remember that when I was studying Kalecki's writings of the 1930s in preparation for writing my 1975 book, I had the overwhelm-

ing impression that he was *obsessed* with unemployment, in the best meaning of the term.

More importantly, however, many of us do not agree that the central message of the *General Theory* is underemployment equilibrium. At best, it is only an effective tool to demonstrate the fundamental and critical role of aggregate effective demand in limiting production and underutilisation of resources and capacity. The absence of a powerful and effective endogenous mechanism to generate and sustain near-full utilisation of productive potential and the need for government intervention to restore and maintain such near-full utilisation appears to me to be the central message of Keynes. To put it differently, at least in the macroeconomic sense the system is subject to a major pernicious and conspicuous market failure – a failure that can be repaired by an alternative mix of policies. In the main, Kalecki's central message is the same. His analytical methods and policy conclusions differ from Keynes's – in many ways, they are superior – but in general they are complementary rather than substitutes – a subject that is the 'central message' of this study.

One can appreciate that scholars coming from different traditions might prefer Keynes's treatment over Kalecki's or vice versa. Patakin (1982, p. 78) even grants that 'Kalecki's theory enables us to make certain improvements on Keynes'. Similarly Kaleckians should generally admit that the *General Theory* enables us to make certain improvements on Kalecki's construct. However important the question of independent discovery and anticipation may be for doctrinal history and the vested interests of followers, it is far more important to strive to achieve a new synthesis by integrating what is best in Kalecki and Keynes with the positive achievements in the more than half century since they wrote.

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5 Long-Period Perspectives on Unemployment in Kalecki and in Keynes

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It is widely recognised that the theory of effective demand, both in Keynes and in Kalecki, springs from two main propositions – the autonomy of investment from savings and the dependence of the latter from income; it thus follows that the two decisions are reconciled by adjustments of the level of income. This way of approaching the theory of employment does not provide by itself an answer to the question whether unemployment is to be ascribed, after all, to insufficient investments or to an insufficient propensity to consume – that is to say, if the *origin* of the phenomenon is ‘underinvestment’ or ‘underconsumption’. The answer to this query can stem only from a comprehensive analysis of the effects of the accumulation of capital over time – that is, from a long-run analysis; from the answer such analysis gives, different lines of employment policy will ensue.

This study aims at a comparative evaluation of how these aspects are dealt with by Kalecki and by Keynes. First, the problem is analysed along general lines referred to as medium- and long-term; later attention is drawn to even further perspectives, as envisaged by Kalecki and Keynes; every time an attempt is made to trace the main implications for economic policy.

A first aspect to consider is the asymmetry of the effects of investment activity, an asymmetry that both Kalecki and Keynes clearly perceived – meaning by ‘asymmetry’ the fact that, *coeteris paribus*, investments make productive capacity grow faster than effective demand.

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This problem is explicitly raised by Kalecki; it sets the basis of his theory of economic fluctuations and it leads him to important conclusions on the economic policy of full employment, as we shall see. A similar point can be found in Keynes, too, though in a less explicit manner, and though it gives rise to rather different conclusions as far as employment policy is concerned. Our first purpose, therefore, is to investigate why similar premises take Kalecki and Keynes to different conclusions.

Keynes argues in the *General Theory*:

Important schools of thought . . . maintain, from various points of view, that the chronic tendency of contemporary societies to under-employment is to be traced to under-consumption, which is unduly low . . . Practically, I only differ from these school of thought in thinking that they may lay a little too much emphasis on increased consumption at a time when there is still much social advantage to be obtained from increased investment. Theoretically, however, they are open to the criticism of neglecting the fact that there are *two* ways of expanding output. I am myself impressed by the great social advantages of increasing the stock of capital until it ceases to be scarce. But this is a practical judgement, not a theoretical imperative (Keynes, 1936, pp. 342–5).¹

Keynes, therefore, does not '*a priori*' attribute the lack of effective demand specifically either to underconsumption or to underinvestment; from the standpoint of a strict employment policy, he considers either way acceptable and interchangeable. Other reflections – i.e., the social advantages connected with a high rate of investment – get him to lean towards investments. However it emerges clearly that he does not conceive ('for a generation or two') any serious danger of overaccumulation: in this, he is certainly in disagreement with Kalecki, though perhaps not as much as would appear at first sight.

Keynes perceives two types of overinvestment: *absolute* overinvestment, when the rate of return is negative, and *relative* overinvestment, when the investments 'are destined to disappoint the expectations which prompt them' (Keynes, 1936, p. 320), that is, when they are bound to lead to a rate of return positive, but lower, than the rate of interest that ruled when they were decided. This situation, he goes on to say, is typical of a prolonged phase of high investment, and the remedy should not be the one normally adopted, whereby investment is curbed by increasing the rate of interest – as

this 'belongs to the species of remedy which cures the disease by killing the patient' (Keynes, 1936, p. 323); on the contrary the approach should be exactly the opposite, that is favouring the protraction of a high rate of investment by reducing interest.

This recommendation goes well beyond the control of cyclic fluctuation, and becomes instead a strategy to which monetary policy should conform in the long run, until 'capital will no longer be scarce' and its return just sufficient to 'cover risk and the exercise of skill and judgement' (Keynes, 1936, p. 375); that is to say, when overinvestment from relative will become absolute.²

But what does Keynes mean by scarcity? Several answers have been given to this question, but the one that all in all seems the most suitable (within and beyond the boundaries of the *General Theory*) is that there is a capital shortage compared with the *potential needs* of the society, together with a scarcity relative to the *effective demand* (that is to say, needs supported by purchasing power). A scarcity in the sense that – though still far from full utilisation of capacity – the return from capital is greater than it would be if capacity were larger, and it exceeds the reward for 'genuine' enterprise; that is to say, it gives rise to rents over and above that 'genuine' reward.³

In the long run, capital will no longer be scarce, since accumulation makes productive capacity grow faster than needs, as well as – distribution being equal – faster than effective demand. The rise of excess capacity can be avoided, Keynes seems to argue, if prices are flexible *vis-à-vis* money wages, since in that case the shift in income distribution will offset the fall – that would otherwise happen – in the average propensity to consume. Finally, the squeeze of profits thus brought about, and consequently the reduction in the MEC, could be counterbalanced by a consistent decline in the money rate of interest. If this interpretation of Keynes's logical process holds, the following conclusions may for the moment be drawn:

1. For Keynes (and, as we shall see, for Kalecki) the accumulation of capital is potentially a source of disequilibrium, since it creates a gap between capacity and demand. This can be corrected only if distribution is sufficiently flexible and monetary policy sufficiently far sighted. The absence of the latter (which was of particular interest to Keynes) or its ineffectiveness – the downward stickiness of the rate of interest – is the fundamental cause of unemployment.

2. The alternative between the incentivisation of investment and the incentivisation of consumption is relevant only over the short term. In

the long run the conflict slackens, as the acceleration of the pace of investment leads to distributional changes which favour consumption.

3. It is not the 'genuine' part of profit (the reward for 'risk and genuine enterprise') that suffers as a result of this policy, but the share of rent contained in it. In this way, the active components of society continue to be rewarded (or, at least, not penalised) whereas the prospect emerges of the 'euthanasia of the rentier, and, consequently, the euthanasia of the cumulative oppressive power of the capitalist to exploit the scarcity-value of capital' (Keynes, 1936, p. 376).

With this framework in mind, the economic policies Keynes proposes change according to the stages the economy is going through. In (1943) Keynes envisages three phases, starting from the end of the war, in the course of which consumption and investment will in turn have top priority. Leaving aside the first phase (the immediate postwar) and the last one (to which we shall return later), the second phase is considered as the most current in normal capitalist economy conditions, and as such most fully analysed in the *General Theory*.

The investment policy Keynes conceives for this intermediate phase can be sketched as follows: (1) Investment should be brought to the level at which – in relation to income – offsets the propensity to save out of full employment income⁴ or, in a more general sense, the propensity corresponding to the desired level of employment⁵; for that purpose, the rate of interest is to be kept at a steady level⁶ irrespective of short-term fluctuations of investments.⁷ (2) To the full employment demand both private and public investments should contribute, the latter being addressed to fulfil two targets –, that is, to give stability to the overall investments and to integrate private investments, which would otherwise be insufficient to generate the established level of demand. As regards the amount of public investment, Keynes expresses several different evaluations over the years. In the *General Theory* he warns that 'a somewhat comprehensive socialization of investment will prove the only means to secure an approximation to full employment' since 'it seems unlikely that the influence of the banking policy on the rate of interest will be sufficient by itself to determine an optimum rate of investment' (Keynes, 1936, p. 378). But just after this recommendation he adds:

But beyond this not obvious case is made out for a system of State Socialism which would embrace most of the economic life of the

community. It is not the ownership of the instruments of production which it is important for the State to assume. If the State is able to determine the aggregate amount of resources devoted to augmenting the instruments and the basic rate of reward to those who own them, it will have accomplished all that is necessary (Keynes, 1936, p. 378).

In (1943), the share of investment which should be under the control of 'public or semipublic bodies' is estimated at between two-thirds and three-quarters of overall investment, which appears to imply a considerable change of view compared with the *General Theory*, the reason being, probably an increased scepticism as to the possibility of accomplishing a consistent and steady reduction of the money rate of interest. To the question of the consistency of this view of the dimension of public intervention with the maintenance of the capitalist society, we shall return later.

4. Coming to Kalecki, the asymmetry of the effects of the investments are a chief aspect of his theory (as well as of Marxist thought in general), being seen as the expression of the contradictions inherent in the process of capital accumulation.⁸ Consistently, the tendency of the economy is to gravitate around a trend characterised by no net accumulation, since any deviation from it gives rise to conditions of over or underaccumulation, which lead the economy back to it.

As to the specific consequences for employment policies, Kalecki's premise is not dissimilar to that just examined in Keynes: employment policies should consider the fact that investment tends to widen production capacity more rapidly than demand. Unlike Keynes, however, the asymmetry cannot cease through adjustment of distribution because prices, established according to the degree of monopoly, are sticky *vis-à-vis* the fluctuations in the quantities produced; from this the eternal threat of excess capacity can spring. As a result, even should investment prove to be completely under control, it would be impossible to secure full employment through it. Indeed:

(a) If investment is set in such a manner as to create an effective demand corresponding to full employment demand for labour (similarly to Keynes's proposal) this would entail the setting up of excess capacity of plants; a fall of investment activity would ensue, bringing about the failure of the employment goal. In order to avert this danger, a *continuing* decrease of the rate of interest would be required (to offset the fall in the rate of profit, caused by the increased unused capacity); this in Kalecki opinion, is not feasible.⁹

(b) If instead one confined oneself to setting investment at a pace proportionate to the growth of population and of labour productivity, then the ensuing shortage of demand will leave both workers and plants idle.

(c) Nor could a solution be found in stepping up capital intensity, either as an increased capital-labour or an increased capital-output ratio; first because the impulse in that direction is mainly created by technical progress, whereas the rate of interest is deprived of any significant effect; but even disregarding this consideration, the rate of interest should decline *steadily* to offset the constant downward trend in the rate of profit.¹⁰

To sum up, full employment cannot be directly pursued by affecting private investment, since excess capacity would arise anyway: the fundamental problem remains underconsumption. Therefore, investments priority holds inasmuch as they are 'useful' as regards the supply side. It follows that (1) the pace of investment must be adjusted so as to offset the growth of population and of labour productivity and (2) additional demand – the difference between full employment demand and that created by the pace of investment as specified above – must be raised by opening 'external markets' and affecting the distribution of income – that is, supporting mass consumption until full employment demand is reached.

Kalecki is extremely sceptical as to the possibility of controlling private investment efficiently by means of the long-term rate of interest: this is not because investment lacks responsiveness, but because the long-term rate of interest (1) is relatively sticky to changes and (2) cannot drop under certain values.¹¹ For these reasons, it is necessary to integrate monetary with fiscal measures, the latter consisting in tax reliefs for the share of profits reinvested.¹²

Since either way of affecting demand – integrating private investment and supporting mass consumption – will require a considerable public expenditure, political problems will arise owing both to the volume and to the quality of expenditure required. This point draws on the well-known topic of the political aspects of full employment, a field we will not enter.¹³ Rather, what appears worth stressing is that Kalecki's judgement here differs distinctly from that of Keynes as regards the discrepancy between the means actually available and the will to use them consistently. Nor does Keynes fail to realise that the transition towards full employment will create problems, conflicts and pressures on public authorities. Nevertheless, he is prone to the faith that in the long run ideas are destined to prevail over vested

interests. It is symptomatic of the distance which divides the two authors that Keynes's firm opinion was that expansionary policies will have beneficial consequences on peace, since they make the struggle to conquer outlets less pressing.¹⁴

5. The situations considered hitherto refer to medium and long term, and the suggested policies aimed at maintaining full employment within a system in which significant structural changes have yet to take place. Also, coming to very long-run perspectives, similarities can be found in Kalecki and in Keynes, together with rather different views.

The main common point is that both of them seem to conceive stagnation or a state of semi-stagnation as the ultimate stage of the capitalist economy, the cause of which they both regard as substantially outside the economic mechanism. This conclusion, on the other hand, flows directly from their conceiving the long-run growth itself as determined by exogenous factors, so that both the growth process and the ending of it are assumed determined by a set of external causes.

Beyond these similarities one can find significant differences of view, especially with regard to the judgements attached to the stationary situations that would emerge.

Concentrating on the longer-term prospectives, Keynes outlines the 'natural evolution' of society as follows:

The natural evolution should be towards a decent level of consumption for every one; and, when that is high enough, towards the occupation of our energies in the non-economic interests of our lives. Thus we need to be slowly reconstructing our social system with this end in view (Keynes, 1937a, p. 393).

When approaching this ground, Keynes' attitude is marked by a mix of preoccupation and joyful expectation of a golden era: preoccupation, because once capital has been deprived of its scarcity, the maintenance of a high level of employment will rely upon means other than investment, which will in turn entail drastic reforms; joyful expectations, on the other hand, as finally 'the economic problem, the struggle for subsistence' could be said to be over and the 'age of leisure and abundance' fully achieved.¹⁵

Consistently in his various works Keynes wavers between an attitude nearer a utopist view and an altogether more moderate stance, taking into consideration the problems involved in the transition

towards the new situation and formulating more concrete proposals. Nevertheless, the prospective is fundamentally the same: the approach of a moment when the justification and the mainspring of accumulation will be considerably redimensioned and the options open to humanity radically different to those experienced up to the present time, dominated by the 'economic problem'.

Thus in (1930) – with a 'provocative' capacity remarkable given the times – after having expressed his intention to 'disembarass himself of short-term views and take wings into the future – Keynes announced the coming of an 'a age of leisure and abundance' within a century.¹⁶ In this age, finally freed from the struggle for survival, man will be able to fulfil his cultural, aesthetic and moral interests, helped in this by a working week reduced to fifteen hours, since 'three hours a day is quite enough to satisfy the old Adam in most of us' (Keynes, 1930, p. 329). Not that the difficulties involved in this change escape Keynes but (as mentioned above) these are concerned with habits and psychology rather than with the sphere of economy.¹⁷

A factor bound drastically to change the long-term framework of economic problems is the coming stationarity of the population, a condition of which Keynes noticed the first signs. Analysing the English economy of the period between 1860 and 1913, he arrived at the conclusion that the accumulation of capital in that arc of time had been determined: (1) for about 50 per cent by the growth in population; (2) for about 50 per cent by the increase in the standard of living; (3) for an insignificant percentage by the increase in capital intensity.¹⁸

Since the growth of the population will come to an end soon, Keynes argues, the accumulation of capital will then rely on the other two factors:

With a stationary population we shall, I argue, be absolutely dependent for the maintenance of prosperity and civil peace on policies of increasing consumption by a more equal distribution of incomes and of forcing down the rate of interest as to make more profitable a substantial change in the length of the period of production (Keynes, 1937b, p. 132).

Consequently:

If capitalistic society rejects a more equal distribution of incomes and the forces of banking and finance succeed in maintaining the rate of interest somewhere near the figure which ruled on the

average during the nineteenth century . . . then a chronic tendency towards the unemployment of resources must in the end sap and destroy that form of society (Keynes, 1937b, p. 132).

It is worthwhile stressing that the time necessary for the transition, or at least for approaching the final phase, is subject to varying evaluations, which range from a century (1930) to two generations (in the *General Theory*) to fifteen years starting from the end of the Second World war (1943). Although Keynes, in the latter work, is satisfied just to take a glimpse at the final stage, a change of opinion appears however to occur and can most probably be attributed to the availability of the means of intervention which he himself had contributed to creating; it is perhaps significant, in this respect, that the shortest estimate is put forward in the work in which the share attributed to public investment is the greatest (between two-thirds and three-quarters).

What conclusion can be drawn from these long-term views of Keynes? The outline which appears is one of a substantially stationary economy in which further progress requires the action of factors outside the economic mechanism, such as 'changes in technique, taste, population and institutions' (Keynes, 1936, pp. 220-1). Keynes in his various works seems to attach greater or lesser importance to these factors and therefore the outlook varies from one of a stationary nature to one of slow growth over time.

At first sight, Keynes's outlook could lead to the wrong conclusion that the ultimate phase of capitalism mirrors the prospective failure of his own project. It is worthwhile stressing, however, that Keynes was not a supporter of growth as such; rather the premise from which his analysis starts, and the situation against which he struggles, is the coexistence of both unused resources and unfulfilled needs. But the situation Keynes describes for the long period is completely different: the economy will be stationary not because the needs cannot be converted into effective demand, but because – even when a more equal distribution were assured – the need themselves will be basically stationary. The envisaged long-term situation therefore not only is not in contrast with Keynes's view but, on the contrary, is to be seen as the natural goal of the coherent application of his policies.

Of course there are a great number of questionable points in Keynes's arguments. So one can discuss the realism of his outlook, or the meaning of continuing to label as 'capitalist' a society in which accumulation has lost its place in the scale of social values as well as

its quantitative importance, or a society where the fall of the interest rate to zero means the disappearance of financial capital. Another disputable point concerns the possibility of reconciling a high propensity to save, brought about by the transition from a society based on *needs* to one based on *wants*, with a low rate of capital accumulation; Keynes probably envisages in public expenditure the way out of this contradiction, a solution that would raise considerable problems when extended to the long period. Finally, there is much room for discussing the nature and the essence of the reforms necessary to make it possible for capitalism and the new situation to coexist.

One must recognise, however, that there are two different levels of reflection in Keynes: on the one hand he sees, in accordance with his theoretical premises (and with his preoccupations) the problems bound to arise in the long period; on the other, the 'illumination' of his mentality, enforced by a remarkable optimism of the will, lead him to reject the idea that the solution of the 'economic problem' in itself inevitably implied the collapse of those values in which he believed. Certainly, Keynes was not a visionary, but he firmly believed in the strength and in the provocative capacity of ideas; we can thus probably find the clue to his attitude in the conclusion of the *General Theory*:

Is the fulfilment of these ideas a visionary hope? Are the interests which they will thwart stronger and more obvious than those which they will serve? I do not attempt an answer in this place . . . But if the ideas are correct . . . it would be a mistake, I predict, to dispute their potency over a period of time . . . The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else . . . I am sure that the power of vested interests is vastly exaggerated compared with the gradual encroachment of ideas (Keynes, 1936, p. 383).

For his part, Kalecki's view is quite negative since he conceives long-run growth as not inherent to the capitalist economy, steady growth being even less so; not to mention full employment growth, which is held as completely out of range.

Kalecki sees the tendency towards stationary situations emerging on two levels; firstly, there is an *inherent tendency* which accounts for the contradictory nature of investment and which results in the 'pure economic cycle'; the system can be released from this situation by counter-tendencies generated by 'semi-exogenous' factors - i.e.,

factors that cannot be functionally reconnected to their internal mechanisms; this is important in Kalecki's view as it points out the absence of endogenous forces which act systematically and continuously towards progress. The definition of these elements as 'development factors', for that facet of sporadicity inherent in the concept, expresses clearly the lack of self-propelling forces working steadily and rather the precariousness and irregularity of a process relying on accidental elements:

Our analysis shows that long-run development is not inherent in the capitalist economy. Thus specific 'development factors' are required to sustain a long-run upward movement (Kalecki, 1954, p. 161).

And also:

Harrod observes rightly that his theory exhibits the basic 'antimony' of the system; he thinks that 'antimony' leads to fluctuations around the trend line. I believed that the antimony of the capitalist economy is in fact more far reaching: the system cannot break the *impasse* of fluctuations around a static position unless economic growth is generated by the impact of semi-exogenous factors such as the effect of innovations upon investment. It is only in such a case that cyclical fluctuations do occur around the ascending line (Kalecki, 1962b, p. 134).

Even if – thanks to the combined support of public action and sufficient vivacity of the 'development factors' – the capitalist economy is capable of overcoming the impulse towards a slow and erratic growth, it is extremely unlikely that a secular decline can be avoided:

The slowing down of the growth of capitalist economies in the later stages of their development is probably accounted for, at least partly, by the decline of the intensity of innovations. Three broad reasons may be given for such a tendency. The most obvious is the diminishing importance of opening up new sources of raw materials, etc. Another is the hampering of application of new inventions which results from the increasingly monopolistic character of capitalism. Finally, 'assembly industries', such as those manufacturing automobiles, wireless, and other durable mass consumption goods, are gaining in importance and in such industries technological progress is largely concentrated in a 'scientific organization' of the

assembly process which does not involve heavy investment (Kalecki, 1954, p. 159).¹⁹

Even in the very long-term perspective (to which Kalecki dedicates no more than a few comments) innovations continue to play a leading role, and in the same way that they constituted the predominant factor of the growth, they are decisive also in bringing about its halt; at the same time, their assumed exogeneity leaves largely unexplored the causes of both.

To conclude, for Kalecki the threat of stagnation is here and now, always imminent but opposed by 'antagonistic' forces; in the very long run, however, this trend is destined to prevail under *laissez-faire* conditions. The long-term growth being not 'inherent' to capitalist economy, a systematic intervention by the State becomes necessary, along the lines already outlined: on the one hand the integration and the stabilisation of private investment, following the rate established by the growth in population and in labour productivity; on the other hand, the support of overall demand in order to make it correspond to its full employment level.

6. The purpose of this study has been to attempt a comparative evaluation of Kalecki's and Keynes's views of the 'permanent' causes of unemployment, as well as of the policies they recommended for the long run. This has brought us to face the '*vexata questio*' of underconsumption versus underinvestment. The neutrality of Keynes's diagnosis has been examined in reference to the medium term, as well as his proposal to ground employment policy on priority support of investment, leaving the inducement to consume to the ensuing changes in distribution. It has been argued that this viewpoint rests on the assumption that income distribution is flexible, and on the condition that monetary policy can (and does indeed) mean to uphold the decline of the capital rate of return.

In Kalecki, both the conditions assumed by Keynes fall short: the 'degree of monopoly' cuts out automatic adjustment of distribution, whereas the stickiness of the long-term rate of interest excludes the possibility for it to decline continuously so as to offset the decline of the profit rate. As a result, he tends to consider the crux of the matter rather in underconsumption, and recommends direct intervention both on investment and on income distribution.

In the absence of corrective policies, the economy is continually exposed to conditions of over or underaccumulation which are mirrored in the gravitation around a stationary trend (Kalecki) or in the 'oscillation around an intermediate position' not necessarily static,

but characterised by underutilisation of resources (Keynes).

From this situation, the system can free itself only by virtue of factors' (according to the former) and the coming to an end of population increase and the saturation of needs (according to the latter), are bound to determine conditions for an extremely slow growth, if not for a downright standstill. According to both authors, the conditions for the growth, and for its arrest, are external to the economic mechanism and, as such, are examined only superficially. growth, if not for a downright standstill. According to both authors, the conditions for the growth, and for its arrest, are external to the economic mechanism and, as such, are examined only superficially.

Certainly behind these similarities lie different philosophies and, still deeper, one author's conviction of the progressive affirmation of ideas over vested interests is diametrically opposed to the other's historic materialism. All this at times leads them towards attitudes which appear to be characterised, respectively, more by optimism and by pessimism of the will rather than by sound argument.

Keynes considers the semi-stationary state as virtually inevitable, and all in all to be hoped for – as long as radical reforms are set about; with varying degrees of emphasis, this stage is regarded as a 'natural goal' for humanity, and reform as the essential means whereby the preservation of capitalist society can be made compatible with the new situation.

For Kalecki, the trend towards a semi-stationary state is not the outcome of a law of necessity, nor is it to be wished, at least because the saturation of the needs of the masses is, for capitalism, out of the question; on the contrary it would be precisely the latter who would pay the toll, with growing unemployment and indigence.

It is a social constraint, and the impossibility of beating down vested interests, which leads in this direction. The reforms which Kalecki had, in a certain epoch of his life, judged feasible and suitable, would – contrary to Keynes's viewpoint – permit capitalism to survive in the only way it can: as a system in perpetual expansion.

NOTES

1. For a similar view see (Keynes, 1934):

Those standing on my side of the gulf [people denying the existence of automatic tendencies towards full employment] conclude that the only remedy is for us to change the distribution of wealth and modify our

habits in such a way as to increase our propensity to spend our incomes on current consumption. I agree with them in thinking that this would be a remedy. But I disagree with them when they go further and argue that it is the only remedy. For there is an alternative, namely, to increase the output of capital goods by reducing the rate of interest and in other ways (p. 490).

2. 'Thus it is to our best advantage to reduce the rate of interest to that point relatively to the schedule of the marginal efficiency of capital at which there is full employment. There can be no doubt that this criterion will lead to a much lower rate of interest than has ruled hitherto; and, so far as one can guess at the schedules of the marginal efficiency of capital corresponding to increasing amounts of capital, the rate of interest is likely to fall steadily, if it should be practicable to maintain condition more or less continuous full employment' (Keynes, 1936, p. 375). It is worth stressing that, starting in the 1920's, Keynes struggled with high rates of interest, which he considered to be the main cause for the slackness of these years.
3. According to a different interpretation, the drop occurring in MEC mirrors that of physical capital productivity, owing to increased capital intensity; this entails considering capital scarcity in the sense of scarcity of a single factor as against other factors. This interpretation stems from a number of ambiguities present in Keynes; to challenge it, possibly the following statement is sufficient: 'It is much preferable to speak of capital as having a yield over the course of its life in excess of its original cost, than as being *productive*. For the only reason why an asset offers a prospect of yielding during its life services having an aggregate value greater than its initial supply price is because it is *scarce*; and it is kept scarce because of the competition of the rate of interest on money. If capital become less scarce, the excess yield will diminish, without its having become less productive, at least in the physical sense' (Keynes, 1936, p. 213). Indeed the emphasis, spread throughout the *General Theory*, against the share of rent contained in the MEC confirms that Keynes doesn't see the return on capital as flowing from its physical productivity.
4. See Keynes (1936, p. 386).
5. In the *General Theory*, the recommendation given is to 'provide that the growth of capital equipment shall be such as to approach saturation-point at a rate which does not put a disproportionate burden on the standard of life of the present generation' (Keynes, 1936, p. 220).
6. Presumably Keynes means 'steady' as referring to short-term investment fluctuation, but declining in the long run so as to comply with the MEC downward sloping trend.
7. Interest should not be considered as a means of short-term control, since 'if we allow the rate of interest to be affected, we cannot easily reverse the trend' (Keynes, 1937a, p. 389).
8. 'We see that the question, "What causes periodical crisis?" could be answered shortly: the fact that investment is not only produced but also producing. Investment considered as expenditure is the source of pro-

perity, and every increase of it improves business and stimulates a further rise of investment. But at the same time every investment is an addition to capital equipment, and right from birth it competes with the older generation of this equipment. The tragedy of investment is that it causes crisis because it is useful. Doubtless many people will consider this theory paradoxical. But it is not the theory which is paradoxical, but its subject – the capitalist economy' (Kalecki, 1939, pp. 148–9). The basic contradiction underlying investment is twofold. For the one part, according to Domar's insight, it relies on the different time horizon of the effects of investments on demand and on capacity, i.e. the fact that whereas the impact on the former is exhausted in a short time, the one on capacity is accrued, that is it lasts for a longer period. But, Kalecki seems to add, there is another source of contradiction that makes it impracticable the way out suggested by steady state growth models: i.e., the fact that even if the time dimension of these effects were the same, they would still be unbalanced because of the propensity to save rise with the level of income.

9. See Kalecki (1945) pp. 87–8.
10. See Kalecki (1944, pp. 51–2; 1945, p. 90).
11. 'To bring about an appreciable change in the *long-run* rate of interest – which is relevant for influencing investment – is rather a slow process. Moreover, what is more important, there are limits to the reduction of the long-term rate because (in longer periods) this rate always exceeds the short-term rate by some margin and the short-term rate cannot fall below zero' (Kalecki 1944, p. 48).
12. The policy mix that Kalecki proposes for full employment runs along these lines:

Thus what seems to be a rational way of achieving full employment should be based on the following principles: (i) the Government spends so much on public investment and on subsidizing consumption of the poorer sections of the populations that this secures full employment in combination with the private investment which is necessary to increase the productive capacity of equipment proportionately to the rise in 'full employment national income'. (ii) Public investment is carried on at the rate actually required for satisfying the needs of the community, while that of Government spending above this level is devoted to subsidizing mass consumption (Kalecki, 1945, p. 89).

13. Public expenditure – Kalecki says – must avoid invading the field of 'productive' investment, which is confined to private concerns, otherwise it would come to be considered a way of opening the door to 'creeping Socialism' (see Kalecki, 1962a, pp. 76–7). Investment in the public service sector has a limited scope, however, and probably not enough to ensure full employment; besides, it tends to be frowned upon by the entrepreneurs, fearful that it could give rise to dangerous tendencies to nationalise certain services which would open new grounds to public investment. Because of this series of ties, public expenditure is bound to go in those directions where less resistance is to be met or, more precisely, where a powerful lobby of interests (capitalists, the Trade

- Unions, the political milieu) drives it – armaments. (see Kalecki, 1956, pp. 96–7).
14. See Keynes (1936, pp. 383–4).
 15. 'For the first time since his creation [he] will be faced with his real, his permanent problem – how to use his freedom from pressing economic cares, how to occupy the leisure, which science and compound interest will have won for him, to live wisely and agreeably as well' (Keynes, 1930, p. 327–8).
 16. Keynes, (1930, p. 328).
 17. 'Will this be a benefit? If one believes at all in the real values of life, the prospect at least opens up the possibility of benefit. Yet I think with dread of the readjustment of the habits and instincts of the ordinary man, bred into him for countless generations, which he may be asked to discard within few decades' (Keynes, 1930, p. 327).
 18. See Keynes (1937b).
 19. It is worthwhile noting, *en passant*, the very different role played, according to the two authors, by the dynamics of population. Indeed Kalecki does not attach great importance to population growth. He excludes the possibility that this factor has any significant effect on accumulation since, in contrast with the Keynesian viewpoint, 'what is important in this context is not an increase in population but an increase in purchasing power. An increase in the number of paupers does not broaden the market' (Kalecki, 1954, p. 161). The effect, which is theoretically more significant, would rather emerge by means of a drop in the interest rate, brought about by the reduction in money wages which would result from an increase in the population. Either argument – referred to both in (Kalecki 1943) and in (Kalecki 1954) – appears to be meaningless, particularly the second, which claims to confine a secular process in the straightjacket of hypotheses of *ceteris paribus* (in given money supply) acceptable only in the short term.

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Part II
Microfoundations and the
Theory of Distribution

6 Kalecki's Quest for the Microeconomic Foundations of his Macroeconomic Theory*

ALBERTO CHILOSI

I THE STRUCTURE OF KALECKI'S MACROECONOMICS

Kalecki's research on the functioning of the capitalist economy can be subdivided into the study of the following problems:

1. The determination of national income and of the other macroeconomic aggregates in the short run, *given the level of investment*. The latter is in the short run exogenous, because of the lag between investment orders and investments, and of the equilibrium hypothesis, according to which investment decisions are effectively carried out.¹

2. The determination of investment orders.

3. The cycle.

4. The long-run evolution of the economic system.

The issue of the microfoundations of aggregate behaviour affects points 1 and 2 in particular. Here I will limit myself to considering the issue of the microfoundations of the theory of income and employment determination only.²

In Kalecki, the theory of income determination is a kind of preliminary step towards building the theory of the trade cycle, which is really the unifying centre of his overall theoretical design. On the

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other hand, it obviously has a great deal of interest in itself, if only because of a number of important differences that (even aside from questions of priority) distinguish it from the Keynesian model of income determination.

These differences are in particular the following:

1. The strict connection between the theory of income distribution and that of income determination.

2. The non-perfectly competitive framework.³

3. The hypothesis of horizontal cost curves and elasticity of supply 'up to capacity level' in industry; this means that in industry supply is determined by demand at the given prices, given constant prime costs + mark-up: 'when demand increases it is met mainly by an increase in the volume of production while prices tend to remain stable' (Kalecki, 1954, p. 11).

Moreover the full capacity point is reached in practice only under exceptional circumstances (Kalecki, 1939, pp. 20, 23; 1954, p. 20). In turn, 'real wages have no close (positive or negative) correlation with employment because in reality imperfect competition and more or less horizontal curves of average wage-cost prevail in the majority of enterprises' (Kalecki, 1939, p. 88).⁴ It is true that the above is valid only for industry, in so far as 'agriculture and mining . . . are normally subject to diminishing returns' (Kalecki, 1939, p. 20). But the impact of the latter circumstance on the economy as a whole may be considered to be compensated by the impact of 'other industries' which 'have . . . distinctly falling average wage-costs until "practical capacity" is reached' (Kalecki, 1939, p. 20). As a consequence, 'conditions of approximately constant returns prevail, in the short period, in the economy as a whole' (Kalecki, 1939, p. 21).⁵ This implies constant prime costs, because 'the average costs of raw materials can be supposed approximately constant' (Kalecki, 1939, p. 20). Moreover 'the short period marginal cost curve does not differ considerably in the majority of enterprises from the short-period average-cost curve of manual labour and raw materials up to a certain point corresponding to "practical capacity"' (Kalecki, 1939, p. 23), 'prices of finished home-produced commodities change approximately in the same proportion as wage rates' (Kalecki, 1939, p. 37), and 'the index of average cost of manual labour does not depend appreciably on the level of output' (Kalecki, 1939, p. 37). All this

makes Kalecki's a real macroeconomic fixprice theory.⁶ The same cannot be said of Keynes. In the *General Theory* in fact, 'an increase in employment can only occur to the accompaniment of a decline in the rate of real wage' (Keynes, 1936, p. 17), and so, with sticky money wages, 'to the accompaniment' of increased prices. In this sense, the most simple textbook macroeconomic models of income determination are really more Kaleckian than Keynesian. A further reason is that for Kalecki, as in the simplest Keynesian model, investment is exogenous in the short run, being the consequence of previous investment decision.⁷

Points 2 and 3 are strictly interrelated, since in Kalecki the horizontal supply curve, given the horizontal cost curve, is the outcome of non-perfectly competitive modes of behaviour on the part of firms. The latter circumstance has been explained by Kalecki in various ways and has been the object of a long and debatable, but interesting, piece of research. The recollection and assessment of the latter forms the '*pièce de résistance*' of the present study.

II THE DISTRIBUTIONAL FACTORS AND THE HORIZONTAL SUPPLY CURVE

Kalecki approaches the issue of how the microeconomic behaviour of firms brings about the macroeconomic outcomes of his theory (and in particular the aggregative horizontal supply curve) according to two different viewpoints, in what can be seen as the two different main stages of his research. In the first, firms are profit maximisers. In the second, in the *Theory of Economic Dynamics*, Kalecki gives up his attempt to explain the horizontal (or 'elastic') supply curve through the maximising behaviour of imperfectly competitive firms and assumes that 'firms are not maximising profits in any definite way'. From then on, Kalecki never resorts to a maximising framework again. Nevertheless, the recollection of Kalecki's efforts to explain how the maximising behaviour of imperfectly competitive firms generates the peculiar features of his macroeconomic present some interest in itself, because of the hindsight it allows into his cultural background as an economist and into the evolution of his thought, and also because the issue of the microeconomic foundations of macroeconomic models in a non-perfectly competitive framework is very modern and is still the focus of attention of economic theorists.⁸

In *Próba* (Kalecki, 1933) the theory is already characterised by the following three assumptions, which will be constantly found in the subsequent reformulations:

1. Workers consume entirely and solely what they earn (in the *Theory of Economic Dynamics* workers' savings are considered, without substantial consequences, in the more general model).

2. Capitalists' consumption is a function of their incomes (profits): the consumption function of capitalists implies the multiplier of their autonomous expenditure (investments + autonomous consumption).

3. Savings are equal to investments, not only *definitionally, ex post*, but also *intentionally* (even if these types of concepts are not usually explicitly mentioned by Kalecki). In other terms, the whole of savings and investments are *voluntary*. This is the consequence of a set of equilibrium assumptions such as that investment decisions are effectively carried out, that there are no unintended investments (or disinvestments) in inventories and that consumers are able to carry out their decisions (they behave according to their consumption function).⁹ Note, however, that Kalecki, not unlike Keynes, is rather muddled on the issue, believing that the equality of savings and investments derives not from definitions or from equilibrium assumptions, but from 'the exchange process on the market of consumption goods'.¹⁰

Próba's theory of business cycles was essentially a theory of the cyclical behaviour of investments. The cyclical behaviour of profits corresponded to the cyclical behaviour of investments as a consequence of the above three assumptions – indeed, because of them, given the investments, profits are given. In order to arrive at a theory of the cyclical behaviour of national income what was required was a relationship linking profits and the share of profits, or profits and incomes from work or, what amounts to the same thing, a relationship linking incomes from work (and therefore profits if they are considered their complement to the national income) and national income. If we are able to arrive at one of these relationships the theory of income determination is completed. This is where the 'distribution factors' grounded in the microbehaviour of firms come in. The role of distribution factors is most clearly stated by Kalecki (1954, p. 42): 'Given that profits are determined by capitalists' consumption and investment, it is the workers' income (equal here to workers' consumption) which is determined by the 'distribution factors'. In this way capitalists' consumption and investment conjointly with the 'distribution factors' determine the workers' con-

sumption and consequently the national output and employment'. This delicate juncture is differently articulated in the different stages of Kalecki's research, unlike the previous one relating the cyclical behaviour of profits to the cyclical behaviour of investments which is rather stable.

In *Próba* (Kalecki, 1933, pp. 42–6) the closure of the model is based on a functional relationship at the aggregate level between the rate of profit and the profit margin, this means between P/K and P/Y , where P are profits, Y national income, and K the capital stock. Owing to this relationship, since P and K are at any moment determined by the mechanism of the trade cycle, so are Y and incomes from work. Kalecki's reasoning justifying the functional link between the rate of profit and profit margin is as follows: the rate of profit ($r = P/K$) is identically equal to the product of the relative profit margin (P/Y) and the ratio between production and the capital stock (Y/K): $P/K = P/Y \cdot Y/K$. The latter is an index of the rate of utilisation of productive capacity. Now, during the cycle, if the profit margin varies, the rate of utilisation of productive capacity varies in the same sense. This occurs because marginal firms go out of the market, or re-enter the market, or change their production and employment correspondingly, and also because the reduction of the rate of activity brings about a sharpening of competition, producing a reduction in profit margins. In other terms, let us suppose *ab absurdo* that when the rate of profit diminishes the rate of utilisation does not diminish; then the profit margin diminishes too but, contrary to the hypothesis, the rate of utilisation must diminish because marginal firms go out of the market or reduce production. As a consequence, rate of profit, profit margin and rate of utilisation of productive capacity vary in the same direction. Since a given point of the trade cycle is determined by the level of capital and of investment, because of the relationship existing between investment and profits, the profit rate is known at any moment too, and so (because of the above functional relationship between profit margin and rate of utilisation of productive capacity) are the rate of utilisation of productive capacity and the level of national income and of employment.¹¹ One may note that the only microeconomic basis of Kalecki's argument lies with the variation of the rate of activity of 'marginal' firms when the profit margin varies. The logical link between the different variables in 1933 operates in the following direction: investment → profits → profit margin → national income. In 1939, too, as we shall see, it is the *relative* profit margin (the degree of monopoly) which

supplies the required link between investments and profits and the level of national income. In *Próba* there are already two crucial aspects of the later Kalecki's analysis of 'distribution factors': (1) The link between profit margin and aggregate distribution between wages and profits. From the above assumed link between profit margin and rate of profit follow both the share of profits and its complement, the share of wages in national income. (2) L-shaped variable cost curves. Indeed, only if prime costs are constant up to full capacity does a reduction in the profit margin bring about a reduction in the rate of activity only through perfectly competitive firms going out of the market. Moreover, only if the cost curve becomes vertical at full capacity can firms be categorised, under imperfectly competitive conditions, into non-marginal (which do not reduce production when aggregate demand decreases) and marginal (which undergo a decrease in production). Otherwise there would also be a reduction of output and employment in non-marginal firms, if these were to produce in an increasing, non-vertical segment of the (marginal) cost curve. In fact in 1933 Kalecki already believed in the constancy of prime cost. Before full capacity is reached the marginal cost curve is horizontal: 'effective costs (namely costs other than amortization and interest on capital) . . . may be considered to a large extent as proportional [to production]' (Kalecki, 1933, p. 44).

The concept of the marginal firm cannot be found in the later analysis of 'distribution factors'. On the other hand, a crucial importance is taken on by the L-shaped cost curve. Other features of Kalecki's analysis of distribution factors in 1938-9 are as follows: (a) his starting point is the statistical regularity known as 'Bowley's law' that aroused a lot of interest in the 1930s (see, for instance, Keynes, 1939), according to which the share of labour in national income is approximately constant (Kalecki, 1939, p. 125); (b) he decidedly accepts the viewpoint according to which imperfect competition is the form taken by competition in the capitalist markets for goods and services (the markets for raw materials excepted) and tries to derive the theory of distribution from the behaviour of the firm under imperfect competition; (c) he analyses the implications of the fact that only a part of labour costs are variable.

Once a theoretical justification of Bowley's law can be found, this leads to a very simple formulation of the relationship existing between incomes from labour and residual incomes. If one supposes that residual incomes are profit, one arrives at the determination of national income as a function of the level of investments. The

procedure of the *Essays* is somewhat different, owing to the need to take into account point (c), but the logic of the argument is basically the same.

Kalecki's explanation of Bowley's law in the *Essays* is based on the imperfectly competitive structure of the market and on the above-mentioned hypothesis that the variable costs of firms are L-shaped. As we shall see in Sections v-vi, the latter assumption is crucial because it is the foundation of the link between the behaviour of the imperfectly competitive firm and the aggregate distribution of national income via the 'degree of monopoly'.

III THE DEGREE OF MONOPOLY AND THE DISTRIBUTION OF INCOME

Given the equality between marginal cost and marginal revenue, which is the necessary condition for profit maximisation, the difference between price and marginal cost, divided by price (namely the relative profit margin), is equal to the reciprocal of the elasticity of demand and may therefore be assumed, according to what Abba Lerner proposed in 1934, as a measure of market imperfection or, in other terms, of the 'degree of monopoly', a concept that, as is well known, Kalecki borrows from Lerner.¹³ In the case of horizontal variable cost curves, and therefore of equality of marginal and average variable cost, given that under perfect competition price equals marginal cost, the degree of monopoly measures the share of monopoly revenue (arising from the deviation from the equality of price and marginal cost) in total receipts.

During the trade cycle, two contrasting influences act, according to Kalecki, on the share of labour in income distribution. The first is the fact that the average degree of monopoly (namely the average, weighted by the corresponding outputs, of the degrees of monopoly of the different firms) which gives us the share of non-labour incomes in the overall value of production, varies in an opposite sense to the degree of utilisation of productive capacity, because during the depression firms tend to form cartels for protecting profits and prices are relatively sticky (Kalecki, 1939, p. 35). The second is that relative prices of raw materials vary in the opposite sense. Hence Kalecki's contention that 'the remarkable stability of the relative share of manual labour which we note in statistics is the result of these determinants working in opposite directions' (Kalecki, 1939, p. 31).

Kalecki's explanation is criticised by Keynes (1939, p. 410), insofar as 'Kalecki makes . . . no definite progress towards explaining why, when there is a change in the ratio of actual to capacity output, the corresponding changes in the degree of the imperfection of competition should *so exactly* offset other changes'.

Owing to the assumption that incomes from labour are entirely consumed and that consumption of other income recipients (including salary earners) is assumed to be an increasing function of their incomes (for a justification, in truth rather weak, of this last point see Kalecki, 1939, pp. 59–61) given the equality of savings and investments, national income becomes an increasing function of investment, from which one may derive the Keynesian multiplier. In short, this is the distributive and income determination theory that one finds in the *Essays*. In the *Theory of Economic Dynamics* salaries, instead of being considered jointly with profits, are lumped together with wages and, in the simplified model, it is assumed that for both income is equal to consumption. Moreover it is assumed that incomes from work as a whole are a simple linear function of national income. This function corresponds in a natural way to the following assumptions: (a) the *share* of wages in national income 'tends to be fairly stable in the course of the cycle' (Kalecki, 1954, pp. 39–40); (b) the overall *amount* of salaries during the cycle is constant. This can hardly be justified with Kalecki's argument according to which on the one hand the share of wages is stable, while 'salaries, because of their overhead character, are likely to fall less during the depression and to rise less during the boom than wages' (Kalecki, 1954, p. 40), unless the relationship which ties salaries to national income is assumed to be linear.

IV THE ISSUE OF THE COMPATIBILITY BETWEEN MICRO AND MACRO EQUILIBRIUM CONDITIONS: 1. THE REVIEW ARTICLE TO THE GENERAL THEORY

The relationship between degree of monopoly and distribution of income is tied to the issue of the transition from the theory of the imperfectly competitive firm to the consideration of macroeconomic aggregates, namely of the determination of the relationship between the microeconomic equilibrium conditions of firms and conditions of macroeconomic equilibrium.¹⁴ Kalecki faces for the first time this

issue in his review article to the *General Theory*, published in 1936 in *Ekonomista* (the main Polish periodical of economic theory). Kalecki's review article is of great interest, both because it presents a *General Theory* interpreted from the Kaleckian viewpoint, with capitalists as the only savers and imperfectly competitive firms, and because one has to deal with a *Kaleckian thesis* with Keynesian elements, in particular with increasing cost curves. Moreover the approach is very modern in a sense because of its focus on the issue of the microeconomic foundations of macroeconomic aggregates in an imperfectly competitive framework. At the same time, there is the attempt to build a link (rather unusual for Kalecki, not being based on the hypothesis of the constancy of variable average costs) between income distribution and the operation of imperfectly competitive firms. The latter produce so as to equate marginal revenue and marginal cost. Once the costs of material inputs are deducted from the curve of marginal revenue and the curve of marginal cost, one has a neat division of the value added of the firm between gross profits and wages (see figure 6.1).

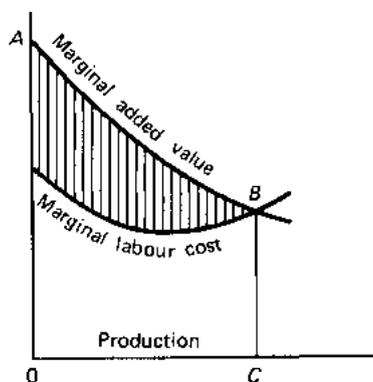


FIGURE 6.1

At the equilibrium point in *Figure 6.1* the sum of shaded areas are equal to profits, which are a function of investments, being determined as shown in Section I. The sums of non-shaded areas are equal

to workers' wages and consumption. When the aggregate demand from capitalists changes, the areas of profits change correspondingly. At the new equilibrium point, the shift of the marginal revenue curves is precisely such that the sum of shaded areas is just equal to aggregate profits corresponding, via the multiplier of capitalists' autonomous expenditure, to investments, and what is left is made up by wages, which bring about a demand for consumption goods equal to their amount. So the share of wages and the level of national income are determined again by the microeconomic conditions of equilibrium of firms. It is an interesting story,¹⁵ especially considering the time in which it was written. The following issue, however, remains open: what guarantees that the position of demand curves for the output of the individual firms is such that the general equilibrium of the system corresponds to the satisfaction of the macroeconomic equilibrium conditions and vice versa? In other words, what ensures that the conditions of macro and microeconomic equilibrium are compatible and that there is an overall economic equilibrium for every arbitrary level of investments?

V THE ISSUE OF THE COMPATIBILITY BETWEEN MICRO AND MACRO EQUILIBRIUM CONDITIONS: 2. THE SOLUTION OF THE ESSAYS

The solution to this problem in the *Essays*¹⁶ lies in the fact that (a) the average variable costs of firms are assumed to be constant in the relevant range; (b) the 'degree of monopoly' at enterprise level is assumed – so far as the 'fundamental data' do not change and so in the short run at least – as constant. As a consequence, prices do not change when the level of production changes: the supply curve of firms is horizontal; in other terms, output is determined at the level of demand (principle of effective demand), apart from some passing disturbances of non-essential importance (cf. Kalecki, 1939, pp. 55–6). In turn, demand is determined at the aggregate level, as seen in Section III, by the level of investments, *given the degree of monopoly*. Thus, in correspondence to the given level of investment, the incomes distributed by firms are such that, given the average degree of monopoly, the demand for the products of firms is just equal to those incomes, and profits are trivially in the 'right' relationship with costs, so that there is conformity between macro and microeconomic equilibrium conditions.

One may note now that the assumption that the degree of monopoly at firm level is given and stays constant when production varies implies that when aggregate demand changes the demand curves for the individual firms shift in such a way that the price that corresponds to the intersection point between the curve of marginal revenue and the line of marginal cost stays constant. This implies that at any level of equilibrium output the elasticity of demand in the profit maximising point is a constant u , so that 'the relation of price to marginal cost is a constant $1/(1 - u)$ ' (Kalecki, 1939, p. 27). This is ensured if, when demand changes 'individual demand curves' undergo 'an iso-elastic shift . . . to the right' (Kalecki, 1943, p. 15n). These are rather peculiar assumptions that in Kalecki's reasoning are justified by the assertion that only a change in 'fundamental data' characterising the competitive structure of industry and not a change in aggregate demand as such may lead to a change in the elasticity of demand for the various firms at any given prices, so that, if such a change does not take place, demand curves shift isoelastically (at the relevant equilibrium points at least) when aggregate demand changes. Kalecki mentions a number of circumstances that in the long run and in the course of the trade cycle are bound, according to him, to affect the competitive structure of the economy and so the degree of monopoly (see Kalecki, 1939, pp. 32ff.). In this sense it would be unfair to accuse Kalecki's degree of monopoly of being tautological. A more pertinent criticism would perhaps be that the relationship between the 'fundamental data' and the shape of individual demand curves, and so the aggregate degree of monopoly, lacks precise justification, remaining at the heuristic level.

Lange puts forward the following fundamental objection to the way in which Kalecki proceeds:

If entrepreneurs are assumed to equalize marginal cost and marginal revenue, the degree of monopoly cannot be taken as a datum. The degree of monopoly of a firm depends, then, on the shape of the demand function for its product and on its output; it is the reciprocal of the elasticity of demand. The average degree of monopoly for the whole economy being a weighted mean is changed by a shift in output between industries. Thus it has little meaning to say that the distribution of the national income is 'determined' by the average degree of monopoly. Rather the average degree of monopoly is, together with the other variables of the system, determined by more fundamental data such as demand

schedules and the shape of cost curves which determine the degree of monopoly of the firms as well as the distribution of the value of the total output between industries and firms (Lange, 1941, p. 281).¹⁷

As we have seen, the shape of cost curves is assumed by Kalecki, on the basis of empirical considerations, to be horizontal in the range corresponding to the normal course of operation of the capitalist economy. Kalecki turns to the composition effect in some ways in the *Studies in Economic Dynamics* (Kalecki, 1943, pp. 12–14) and the *Theory of Economic Dynamics* (Kalecki, 1954, p. 29). In 1940, on the other hand, he addresses himself to the issue of deriving the supply curve of industry from some more fundamental assumptions concerning the shape of demand curves for its individual firms.

VI. THE SUPPLY CURVE OF AN INDUSTRY UNDER IMPERFECT COMPETITION

According to Kalecki, the supply curve of the industry is the set of combinations of average price and output which correspond to possible equilibrium configurations. Each configuration is derived assuming a certain structure of cost and demand curves for the different firms. The equilibrium configuration of the industry changes (1) because of changes in aggregate demand, leaving the state of market imperfection unchanged; (2) because of changes in market imperfection. The first changes are *along* the supply curve, whose points accordingly correspond to equilibrium configurations differing in the aggregate level of demand only.¹⁸ The second changes result in *shifts* of the supply curve. Accordingly, the latter may be defined as the locus of equilibrium combinations of average price and of output of the industry corresponding to the different levels of aggregate demand *given the level of market imperfection*. The latter is considered to be given if the elasticity of demand for the product of each firm e_k is a determined function of the ratio of its price p_k to the average price p' of the industry, 'the shape of the function e_k representing the state of market imperfection' (Kalecki, 1940, p. 91). 'If the shape of functions e_k changes so that to the same p_k there corresponds a smaller e_k . . . market imperfection increases and conversely'. This introduces a partial ordering over the set of demand functions. If at least one of the demand functions changes so that to the same p_k

there corresponds a smaller e_k in one section of the function and a greater e_k in another, the ordering obviously does not apply. But Kalecki apparently assumes that this is never the case.

Given some additional assumptions and after some reasoning, Kalecki concludes that in the case of constant cost curves the supply curve of the industry is horizontal, and it is increasing in the case of increasing cost curves. Moreover 'the supply curve shifts upwards if there is an increase in market imperfection, in the degree of oligopoly or in the rates of prime selling costs'.¹⁹

Finally, on the basis of the previous arguments and taking into consideration actual data concerning British and American industry, Kalecki arrives at 'an explanation of the stability of the relative share of wages in net output' which 'does not differ in substance' from the one he gave in 1938-9 (Kalecki, 1940, pp. 109-10). Now he relaxes, however, the 'rather stringent assumption of a horizontal quasi supply curve', which 'is not necessary [for justifying the constancy of the wage share] if the upward *shift* of this curve during the slump is sufficiently important to have an influence upon the relative share of manual labour in the net output of the same order as that exerted jointly by the upward *slope* of the same curve and the change of 'basic' raw material prices relative to wage cost' (Kalecki, 1940, p. 110).

VII. THE THEORY OF ECONOMIC DYNAMICS

As we have seen, in 1940, while adhering to the equilibrium imperfectly competitive paradigm, Kalecki introduces oligopolistic elements into it, altering the equality between marginal revenue and marginal cost. At the same time, he gives some consideration to the fact that 'the entrepreneur as a rule is ignorant not only as to the demand curve for his products but even as regards the precise notion of his marginal cost function'.

In 1943 (pp. 12-14), while still adhering to the imperfectly competitive-oligopolistic framework, Kalecki expresses the change in the price index of the firm as a linear function of the index of change in prime cost and of the index of change of the average price of industry.

In 1954, he presents an equation of price determination by the individual firm that is linear in prime cost and in the average cost of the industry. Now Kalecki's firm follows a rule of behaviour which,

though still finding its explanation in the pursuit of profit, does not amount to the maximisation of profit 'in any definite way'. This is the consequence of the lack of information of the relevant circumstances (or Knightean uncertainty), rather than of a lack of the will to maximise as such. According to Kalecki's 'rule of thumb', there are two parameters affecting the behaviour of the firm: its variable cost (which continues to be assumed as constant up to the full employment level, which as a rule is never reached) and the average price of the industry. The price set by the firm is thus assumed to be a linear and increasing function of the average variable cost and of the average price of the industry. Given the linear functions determining the prices set by the individual firms as functions of their average variable costs and the average price of the industry, Kalecki seems to consider the existence of an equilibrium solution for the industry as a whole self-evident. This solution is given whenever, at the given prices set by the different firms, the demands for their products are such that, by utilising the quantities demanded as weights of the weighted average of their prices, one obtains a value of the average price of the industry which, substituted into the price equations, gives us back those prices. The equilibrium solution is thus a fixed point of the transformation of prices into themselves given by the price equations. Once the existence of a solution is assumed,²⁰ adding up the price equations after multiplication by the corresponding production levels, and indicating as p_i the price of the product of enterprise i , o_i its output, u_i the unit prime cost, m_i and n_i positive coefficients, and by the bars over the quantities the corresponding averages for the industry, one gets:

$$\Sigma p_i o_i = \Sigma m_i u_i o_i + \bar{p} \Sigma n_i o_i$$

and therefore:

$$\Sigma p_i o_i / \Sigma o_i = \Sigma m_i u_i o_i / \Sigma u_i o_i \Sigma u_i o_i / \Sigma o_i + \bar{p} \Sigma n_i o_i / \Sigma o_i$$

then:

$$\bar{p} = \bar{m}\bar{u} + \bar{n}\bar{p}$$

hence:

$$\bar{p} = \bar{n} / (1 - \bar{n}) = \bar{u}$$

Kalecki assumes that when market imperfection changes, the straight lines $p_i/u_i = n_i + m_i \bar{p}/u_i$ (which can be obtained by dividing the price lines by u_i) shift without intersecting each other 'over the relevant

range of \bar{p}/u_i' . Thus, for any given value of \bar{p}/u_i' , the greater $m_i/(1 - n_i)$, the greater is p_i/u_i , namely the ratio between prices and variable costs, and the greater is $1 - u_i/p_i = (p_i - u_i)/p_i$, the relative profit margin. As we have seen, the latter was defined in the *Essays* (Kalecki, 1939, p. 19) 'the degree of monopoly of the enterprise'. In the *Theory of Economic Dynamics* an equivalent measure is then $m/(1 - n)$, which is thus defined as a measure of the degree of monopoly, as referred to an individual firm. At the industry level, $\bar{m}/(1 - \bar{n})$ gives us the ratio between average price and variable average cost, and in turn is considered as a measure of the degree of monopoly for the industry as a whole. Kalecki confronts the issue of how, in the course of the trade cycle and in the long run, the degree of monopoly changes at the level of the economic system; but implicitly he assumes the degree of monopoly, defined at enterprise level, as given in the short run since the competitive structure of industry and the way in which firms set prices are given. In particular, the degree of monopoly of firms and the average degree of monopoly of the industry are considered here too as independent of the overall level of demand for the product of the industry. As a consequence, entrepreneurs react to changes in demand by changing the level of production and not the way in which prices are set. Moreover, the degree of monopoly as 'reflected' in coefficients m and n is independent of the relationship of the average price of the industry to that of the other ones. This can be justified, referring to Kalecki's previous constructions, in particular Kalecki (1940), by considering that the price equations of the firms and of the industry are defined for a given competitive structure of the industry, or 'degree of monopoly' as reflected in coefficients m and n . If there is a change in competitive structure in the economy, and in particular in the industry concerned, this is 'reflected' in a change in the degree of monopoly and so in the price equations. If the average price of the industry changes this may just reflect a change in the general price level – and so the degree of monopoly and the m and n coefficients do not change – or it could reflect a change in the competitive structure of the economy, so that there will be a change in the m and n coefficients. When there is an increase in aggregate demand, this does not alone lead to a change in the competitive structure of the economy, and therefore the coefficients stay constant and so do prices, provided prime costs do not change, which is normally the case in the capitalist economy, where there is normally underutilisation of resources. Alternatively, prime costs may increase somewhat, because of the increase in the prices of

raw materials, but the degree of monopoly decreases, compensating the above movement.

Truly speaking, even if the coefficients of the price equations are independent (in the short run, at least) of the level of demand for the product of industry, and average variable costs are independent of the level of output, there is still another condition which must be satisfied so that prices are set by firms independently of demand conditions: the shares in total output by the various firms of the industry must not change. Indeed, as a matter of principle there is still the possibility that, whenever the level of demand for the product of the industry varies, the way in which demand is divided between the different firms changes, thus changing the weights of p and changing therefore the way in which prices are fixed by firms. But if this latter condition is also satisfied and the demand for the product of any industry is subdivided between the different firms in proportions that are independent of its level, industrial prices are determined in the short run regardless of the overall size of demand. Given that at the given prices production adapts itself to the level of demand (supply is 'elastic'), firms are always in equilibrium.

VIII. CONCLUSION

As we have seen, the above solution depends critically on the hypothesis of the horizontal supply curve and the latter on that of the constancy of variable cost. At the same time the part of Kalecki's theory which refers to the short-run determination of profits is based on a set of *ad hoc* assumptions (even if this is perhaps somewhat obscured by the confusion between equilibrium conditions and accounting identities). Clearly, the introduction of more general assumptions cannot be incorporated in a theory of income determination in an imperfectly framework in which the compatibility of the various decisions by the different agents is rigorously analysed at the level of the economic system (this means a theory of general equilibrium) with the simple analytical and mathematical instruments used by Kalecki. Still, Kalecki faced the issue of the functioning of the economic system as a whole under conditions of imperfect competition in a period in which the theory of imperfect competition was essentially a theory of partial equilibrium and the study of the aggregative behaviour of the economic system was tackled (by Keynes in particular) assuming perfectly competitive conditions.

Kalecki's theory of distribution, with all its *ad hoc* assumptions and approximations, has the great merit of taking in due account the crucial importance that the competitive structure of markets has on income distribution in a capitalist economy. His theory of income determination was the first one couched in an imperfectly competitive framework. Being, by contrast with Keynes's, truly fixprice it has the merit (dubious perhaps for some) of being in some ways the cultural antecedent of most textbook income determination models. Finally, Kalecki's quest for the microeconomic foundations of non-perfectly competitive macroeconomic models makes him a real, and instructive, antecedent of a very interesting modern line of research.

NOTES

1. On the issue of equilibrium in Kalecki's macroeconomics see below, note 5.
2. For an analysis by the present author of the issue of the determination of investment orders in Kalecki, see Chilosi (1979) (which is an overall appraisal of Kalecki's economics) and Chilosi (1982).
3. In the earlier works Kalecki occasionally considers a perfectly competitive framework (or 'free competition', in his words). But Kalecki's overall view is that 'monopoly appears to be deeply rooted in the nature of the capitalist system: free competition, as an assumption, may be useful in the first stage of certain investigations, but as a description of the normal state of capitalist economy it is merely a myth' (Kalecki, 1939, p. 41).
4. However, a *change* of money wages, according to a not-too-persuasive dynamic argument, has *real* effects on distribution and employment because is supposed to bring about a change in the 'degree of monopoly' (Kalecki, 1939, p. 88).
5. Kalecki is somewhat less outspoken in 1954, where he just distinguishes between demand-determined, in agriculture and raw material production, and cost-determined prices, in the production of finished goods, which 'is elastic as a result of existing reserves of productive capacity' (p. 11). On the other hand, he still resorts to the compensation argument to justify the stability of the relative share of wages during the trade cycle (p. 31).
6. There are a number of exceptions to this. In particular, the assumption of short-run constant cost curves cannot be found in the review article to the *General Theory* and in the business cycles theory of 1937. In *Próba* horizontal short-run cost curves up to full capacity seem to be implied at the level of the firm but not of the economy as a whole (see below).

It is not irrelevant in appreciating Kalecki's later change of view that all references to change in prices have been suppressed in the later partial

re-edition of *Próba* in Kalecki (1962). On this point, see Kalecki (1979, pp. 114–16), where the differences between the different editions of Kalecki's work are listed by the editor of the volume, Jerzy Osiatyński.

7. For a more thorough discussion of the above points, see Chilosi (1979, p. 29).
8. In what follows, we shall refer to Kalecki's basic model of a closed economy, without considering the complications deriving from public expenditures or foreign trade.
9. The discussant of the present paper, Mainwaring, refers to the question 'whether Kalecki actually worked with a macro-equilibrium concept'. But whether these assumptions are dubbed or not as 'equilibrium' ones does not matter. They are equilibrium assumptions in the usual meaning of economists.

Some time ago Asimakopulos wrote that "'equilibrium" is a term that is rarely, if ever, to be found in Kalecki's writings' (Asimakopulos, 1977, p. 328). He was actually misled by the fact that 'in his volume of *Selected Essays on the Dynamics of the Capitalist Economy* (1971) '... the term "equilibrium" does not appear in the Index'. In fact Kalecki avoided referring to the concept explicitly in his postwar writings. This does not apply, however, to his previous ones. In Kalecki (1979) and Kalecki (1980) where his works on the capitalist economy are collected, there are more than fifty references to the term 'equilibrium' in the index, mostly contained in the first volume. In editing the essays to be republished in the 1971 volume of his *Selected Essays*, Kalecki tried in fact to emphasise those aspects of his economics that were 'off-mainstream', so exerting a kind of belated self-censorship, which led, for instance, to the suppression of all references but one to Keynes in the original works. In the index of the first two volumes of *Collected Works* (Kalecki, 1979 and 1980) one may count *eighty-four* references to Keynes.

10. Kalecki (1939, p. 43); on these points see more extensively Chilosi (1979, pp. 60–2).
11. It is worth noting that the special role given to the rate of utilisation of productive capacity in the 'distribution factors' returns later on in Kalecki (1941), where 'the utilization of equipment of the industry as a whole determines the relative share of wages in the value added', the latter being considered as 'a diminishing function of the utilisation of equipment' (p. 36).
12. In the French version of the theory of *Próba* (Kalecki, 1935, p. 300), instead of marginal firms going out of the market or reducing production when the profit margin decreases, it is just marginal production ('this means that production the unitary profit of which is very small') that is eliminated.
13. Accordingly, the implied pricing theory is that of the imperfectly competitive firm. This runs against Basile and Salvadori's contention (1984–85, p. 250) that 'in Kalecki's 1938 *Econometrica* analysis of distribution there was no reference to the theory of pricing'. The acceptance by Kalecki of the paradigm of the theory of imperfect competition, which until 1954 provided the underpinning of his theory of 'distributional

- factors', is underplayed by the two authors (and totally ignored by others) in a way that is not supported by an attentive reading of Kalecki's works prior to 1954. It is worth noting that before 1938 the imperfectly competitive framework was already taken up by Kalecki in his 1936 review article to the *General Theory*, and in the version of the theory of the business cycle of 1937.
14. As is always the case in these types of models, the conditions of macroeconomic equilibrium do not relate to the labour market. One may characterise the latter through the assumption of an exogenously given money wage, which determines the absolute level of prices, and of a variable amount of positive excess supply of labour.
 15. Which can be found also in Kalecki (1937, pp. 78–9).
 16. There is no need to suppose that Kalecki was fully aware of the issue, the real nature of which can be best appreciated from the vantage point of modern economic theory. What I am concerned with in the text is how the issue of the compatibility of macro and micro equilibrium conditions is objectively tackled in the different stages of elaboration of Kalecki's theory.
 17. An easy way out from Lange's objection could have been to postulate an economy that was behaving as the replica of a single imperfectly competitive firm. Then the elasticity of demand ('the degree of monopoly') of the representative firm at the equilibrium point could rightly have been taken as an objective measure of the degree of imperfection of competition. But Kalecki did not want simply to build a model for its own sake, albeit providing some insights as to how the actual world did behave. His aim (as Keynes's) was to build a *theory* purporting directly to explain the world in its complexity.
 18. In Chilosi (1979) I failed to grasp this point correctly, so I wrongly criticised Kalecki for having considered the equilibrium price of the firm as dependent on its variable cost and on the level of the average price of the industry only and not on the average prices of other industries too. In fact, if the relationship between the average prices of the different industries changes, this leads to a change in the degree of monopoly and so to a *shift* of the demand curves for the individual firms. A similar point applies also to the construction of Kalecki (1954).
 19. When there is oligopolistic forces in the industry, price is set above marginal cost. The entrepreneur 'fixes his price at a certain point' where marginal revenue is greater than marginal cost. 'He does not reduce his price below this level because he assumes that this will induce his competitors to reduce their prices and so the average price, sufficiently to render his operation unprofitable. But neither does he raise the price above this level because he assumes that his competitors will not raise their prices sufficiently to make *this* operation profitable' (Kalecki, 1940, p. 97). The ratios between marginal revenue and marginal cost of the different firms of the industry thus 'determine the degree of oligopoly' (p. 98).
 20. A proof of the existence of a solution, given some assumptions, is presented by Basile and Salvadori (1984–85).

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7 Methodological Implications of Kalecki's Microfoundations

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INTRODUCTION

Kalecki's analysis of pricing and distribution underwent substantial changes from its original statement in 'The Determinants of Distribution of National Income' (Kalecki, 1939b) to its final version in the posthumously published 'Class Struggle and Distribution of National Income'. (Kalecki, 1971)¹. Despite these changes, Kalecki maintained certain features through all versions of the analysis. In particular, he attempted to formulate the models in such a way as to make the determination of the shares of wages and profits in the national income² independent of the level of output, and the determination of the level of aggregate profits³ independent of both prices and relative shares. The primary purpose of the current study is to examine the reasons behind this, and to try to draw some general implications from Kalecki's analysis of the interrelationship of micro and macro analysis, as well as to trace the development of the role which the microanalysis plays in the analysis of the determination of output. Due to the fact, mentioned above, that we are primarily concerned with understanding what Kalecki was *trying* to do, rather than what he *succeeded* in doing, we will not consider the problems with (and the limitations of) the analysis of pricing and distribution, but rather

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what may be called Kalecki's 'pure' model. In other words, we are proceeding on the basis that Kalecki was able to achieve the independence of pricing and distribution from the level of output and of the level of profits from pricing and distribution, for which he was striving.

In order to draw some methodological implication from the manner in which Kalecki's microanalysis and macroanalysis interrelate, it is useful first to consider some other views as to the relationship between 'micro' and 'macro' theories. Before proceeding, it should be noted that the broader methodological problems associated with defining exactly what is meant by these terms will not be dealt with here, so that they must be interpreted in some conventional way.

Although there has been considerable discussion recently about the 'microeconomic foundations of macroeconomics',⁴ there has not been very much consideration as to what is actually meant by this. Part of the discussion about 'microfoundations' has been about the exact way in which they fit in with the macroeconomic theory they are the foundations for. Not surprisingly, there is a strong relationship between the type of theory being examined and the relationship posited between the microfoundations and the macrotheory. We can distinguish at least two approaches to this question. The first is most often associated with 'neoclassical' general equilibrium economists, and involves a denial of a separate identity to macrotheory, which is perceived as merely being some sort of aggregate of micro relations:

[T]he microeconomic general equilibrium view would implicitly deny that aggregate *theorizing* could provide any significant insight that was *logically* unattainable from a more rigorous disaggregative approach (Weintraub, 1979, p. 7, emphasis in original).

Economists in this tradition, if they attempt to 'do macroeconomics', do so by deriving 'macroeconomic' results – such as non-market clearing equilibria – in general equilibrium models. By denying legitimacy to any 'holistic' approach⁵ they reject the criticisms by both Keynes and Kalecki that there is a fallacy of composition involved in drawing macro conclusions from micro theory.⁶ The underlying assumption behind this approach is that microeconomic theory is the fundamental one, and that macroeconomic theory is relevant only when derived from it.

The second approach is most often associated with economists working within either the Marxist⁷ or the post-Keynesian tradition,⁸ who:

consider macroeconomics to have been cut free, by Keynes, from standard microeconomic analysis and consequently the way is open to them to reconstitute microtheory to support explicit Post-Keynesian analysis. From such a perspective the problem of 'what microfoundations for macroeconomics?' becomes an extrapolation of macroeconomic reasoning back to the behaviour of individual units. (Weintraub, 1979, p. 13).

In this type of analysis, it is the macroeconomic theory which is seen as, in some sense, fundamental, with the microeconomic analysis having to conform to it.

If we regard these two cases as *hypothetical* extremes, we can regard the first as seeing macroeconomics as a pure aggregation from the micro, with no new information resulting from the aggregation that is not already in the microtheory. On the other hand, the second view can be characterised as regarding the micro as a pure disaggregation from the macro, with no new information about the functioning of the economy being generated by the procedure.

In this study, I wish to argue that the way in which micro and macro theories are interrelated in Kalecki's analysis is quite different to either of these two approaches. In particular, neither theory dominates nor forms a constraint on the other. Rather than any form of hierarchical relationship, the two theories lie side by side (so to speak), and both give information which the other cannot give, while the interrelation of the two yields further information not obtainable from either in isolation.⁹ To illustrate this, I will consider in greater detail the relations of Kalecki's micro analysis to his theory of the determination of the level of output.¹⁰

In considering the interrelationship of Kalecki's micro and macro analysis, I will concentrate on his three books on capitalist economies: *Essays in the Theory of Economic Fluctuations* (Kalecki, 1939c), *Studies in Economic Dynamics* (Kalecki, 1943) and *Theory of Economic Dynamics* (Kalecki, 1954), as well as on the pamphlet 'Money and Real Wages' (Kalecki, 1939a).¹¹ In the Preface to the first of these, Kalecki states that:

These essays, though formally independent, nevertheless constitute a whole. Each of them treats a problem which is interesting in itself, but, at the same time it prepares the ground for the succeeding essays. In particular the first five essays lead up to the sixth, which contains a theory of the business cycle (p. 10).

The order in which subjects are presented for analysis in Kalecki (1939c) is significant, and it is the same order as in the other two books on capitalist economies cited. All commence with the micro-economic analysis of pricing in the manufacturing sector, and of the determination of the relative share of manual labour in national income. They then consider the determinants of aggregate variables such as the total level of profits and of national income, the rate of interest and investment, before culminating in a discussion of the business cycle. The sequence is important because it reveals Kalecki's microanalysis as a stage in the development of his theory of business cycles, which (as the quotation above also indicates) was his main interest. The microanalysis played two distinct roles in the subsequent macroanalysis. In the earlier works, its main purpose was to explain the inflexibility of the distribution between wage and non-wage income in the face of changes in the level of demand, and the movement of the degree of monopoly in the face of changes in money wages. In other words, the initial function of the microanalysis was to explain why both distributive shares and prices would move so as to worsen problems with the level of effective demand. In later works, the microanalysis also played an important role in the determination of the level of economic activity. With the aggregate level of profits determined by the expenditure decisions of capitalists, the microanalysis determined the level of economic activity to which that level of profits corresponded by determining the magnitude of which it was a relative share.

To demonstrate these functions of the microanalysis, each will be considered separately, before the methodological implications of their interreaction are examined.

II MICROANALYSIS AS EXPLANATION OF RIGIDITY

In *Essays in the Theory of Economic Fluctuations* (Kalecki, 1939c), and 'Money and Real Wages' (Kalecki, 1939a), the main purpose of the microanalysis is respectively to explain movements or rigidities in prices and in distribution resulting from changes in demand or in money wages.

As noted above, *Essays in the Theory of Economic Fluctuations* is a collection of essays which were largely published elsewhere, but modified for this collection. The first of these is devoted to the microanalysis of 'the Distribution of National Income'. Its results are

used sporadically in subsequent argument – for example, in Kalecki's analysis of the multiplier (pp. 50–6), the rigidity of the distribution of income between wage and non-wage earners plays a pivotal role in explaining the constancy of the multiplier. The microanalysis plays a more prominent role in the third essay 'Money and Real Wages', analysing the effects of changes in money wages on real wages and on employment. Due to price stickiness, Kalecki argues that the degree of monopoly is likely to increase as a result of any reduction in money wages, thereby reducing demand and hence employment.

An interesting example of this first function of the 'microanalysis' occurs in a pamphlet Kalecki published in Polish in 1939 entitled *Money and Real Wages* (Kalecki 1939a).¹² Its importance arises from its theoretical part, where the effects of a reduction in money wages under perfect competition are contrasted with a similar reduction under imperfect competition. It therefore allows unambiguous consideration of the exact role played by imperfect competition and therefore the microanalysis within Kalecki's analysis, a matter worthy of detailed consideration.

Kalecki's analysis starts by isolating what he regards as the two main assumptions in what he calls 'the Classical Theory of Wages', but is more usually described as 'neoclassical' theory. These are, firstly 'the assumption of perfect competition and of the so called "law of increasing marginal costs"', and secondly 'the assumption of a given price level or a given value of the aggregate demand' (Kalecki, 1939a, p. 40). Although Kalecki immediately signals scepticism about the appropriateness of the law of increasing marginal costs, it is initially accepted for the sake of the argument. Its effect, Kalecki notes, is that rises in employment must be associated with a decline in real wages. With money wages given, aggregate output and employment can increase only if the price level also increases, causing real wages to fall.

Thus from the 'law of increasing marginal costs' follows the inverse relationship between production and the real wage. (Kalecki, 1939a, p. 42).

However, this does not imply that a reduction in *money* wages will stimulate employment. Nothing has been said, as yet, about the relationship between money and real wages. The 'neoclassical' theory tackles this problem with the second assumption – that is, by assuming a given general level of prices or a given level of monetary

aggregate demand. Under the first part of this assumption, the reduction in money wages leads to an equivalent reduction in real wages. A cut in money wages, under the second part of the assumption, reduces marginal costs, while the aggregate price level is initially stable due to the stability of aggregate demand. The resulting excess of price over marginal cost will lead to an expansion of production, which will cause prices to fall, as the same aggregate money demand is now spread over more goods. At the same time, marginal costs will rise due to the increase in output. Equilibrium is restored when marginal costs are, once again, equal to their respective prices. At this new equilibrium, production and employment are greater than at the old one, and real wages are lower (Kalecki, 1939a, p. 43).

Kalecki was extremely critical of the basic assumption of this analysis, calling it 'totally unfounded', because over the business cycle both the general price level and aggregate demand 'are subject to violent swings' (Kalecki, 1939a, p.43).

Consequently Kalecki examines the effects of a reduction in money wages assuming perfect competition and rising marginal costs, but dropping the assumption of a given price level or a given level of aggregate demand. The model reflects a closed economy with capitalists' saving part of their income and workers spending all their income on consumption. The national income of this system is then represented as follows:

INCOME	EXPENDITURE
Income of capitalists	Investment
	Capitalists' consumption
Wages	Workers' consumption

where investment is defined as both the purchase of fixed capital and the change in inventories.

Because workers do not save, their consumption equals their wages. By equating the income and revenue sides of the national income, it follows that:

$$\text{Capitalists' income} = \text{Investment} + \text{Capitalists' consumption} \quad (7.1)$$

Given the above assumptions, workers cannot change the level of their consumption. Capitalists, on the other hand, can increase (or reduce) their consumption and investment above (or below) their

present income by drawing on (or paying off) credit or reserves. Equation (7.1) shows that the income of capitalists as a class will adjust to their expenditure, because aggregate production will reach the level at which the profits derived from it will equal capitalists' consumption plus investment.

As Kalecki put it:

Therefore the capitalists as a class determine by their expenditure their profits and in consequence aggregate production (Kalecki, 1939a, p. 45).

Kalecki demonstrates this result by reformulating the analysis using Marx's reproduction schemas. The economy is divided into three departments producing investment goods, capitalists' consumption goods and workers' consumption goods respectively. In Department 3, which produces workers' consumption goods, the output is partly consumed by its own workers while the surplus output is consumed by workers in the other two departments. Wages in Departments 2 and 3 therefore equal the profits received in Department 3. Schematically this can be represented as follows, with O_i ($i = 1, 2, 3$) being the output of Department i , I_i its investment, W_i its workers' consumption and C_i the consumption of its capitalists:

$$O_1 = I_1 + C_1 + W_1 = I_1 + I_2 + I_3 \quad (7.2)$$

$$O_2 = I_2 + C_2 + W_2 = C_1 + C_2 + C_3 \quad (7.3)$$

$$O_3 = I_3 + C_3 + W_3 = W_1 + W_2 + W_3 \quad (7.4)$$

where $I_i + C_i$ correspond to the profits in the i^{th} department.

From the above, it is easily shown that:

$$I_3 + C_3 = W_1 + W_2 \quad (7.5)$$

Some implications of Kalecki's use of these schemas can now be examined. Consider the effects of an increase in investment caused by an improvement in entrepreneurial confidence, for example. (For Kalecki, the main determinant of investment was 'the difference between the expected rate of profit and (the long-term) rate of interest' (Kalecki, 1939a, p. 46).) This leads to an increase in output, employment and wages in Department 1. In turn, this causes increased workers' consumption which boosts production in the wage goods sector (Department 3). If capitalists' consumption remains unchanged aggregate production will expand until profits increase by

the same amount as the increase in investment. Any increase in capitalists' consumption will further increase profits and production.

On the basis of this system, Kalecki re-examines the effects of a reduction in money wages, because to analyse the effects on output and employment of money wage cuts, their effects on capitalists' consumption and investment need to be considered. In terms of Kalecki's model, it is unlikely that either would increase immediately, as capitalists will wait for an *actual* increase in profits before changing their expenditures. However, if this behavioural assumption is correct then neither of these responses is likely to occur. Hence aggregate production will also be unaffected. Because investment, capitalists' consumption and aggregate production remain unchanged in the period immediately following the reduction in wages, the reduction in wages will lead to a fall in aggregate demand. Combined with the fall in marginal costs, this will lead to a fall in the general price level proportionate to the initial fall in money wages. Apart from a proportional reduction in the general price level, there is therefore no change in the system. There is, therefore, no reason for capitalists to increase their investment or consumption in *subsequent periods*.

In terms of the departmental schemas outlined above, the wage reduction, with investment and capitalists' consumption initially unchanged, affects only the demand for the output of Department 3 (the wage goods department). Employment in Departments 1 and 2 will not be affected, hence there is a decline in the demand for wage goods proportionate to the decline in wages. However, because marginal costs in Department 3 are assumed to decline proportionately to wages, there is a proportionate decline in the price of its output and no impact on employment or output. Hence there will be no change in employment or output in any department, but the fall in marginal costs lowers prices in proportion to the wage reduction. In a perfectly competitive system a reduction in money wages influences neither output nor employment, but will lead to a proportionate change in the general price level.¹³

Kalecki assumes constant marginal cost up to the level of full capacity utilisation. If changes in employment and output occur within the output range represented by the horizontal part of the firm's marginal cost curve, and the degree of monopoly is constant, the ratio of price to costs also remains constant. Output and employment can therefore *expand* without changing real wages, unlike the case of rising marginal costs. Kalecki concedes, however, that the

degree of monopoly, 'measured by the ratio of price to marginal costs' is not constant in periods of depression and booms, because raw material prices and wage costs tend to change to a greater extent than the general price level.

The next step is to consider the effects of a reduction in money wages under conditions of imperfect competition with constant marginal costs up to the level of full capacity utilisation. The initial argument is exactly the same as in the perfect competition case. The important determinants of production and employment are investment and capitalists' consumption, neither of which are affected by the initial fall in money wages. Under perfect competition, the fall in wages and hence in marginal costs leads to an equivalent fall in prices which are equal to marginal costs. However, under imperfect competition, prices and marginal costs diverge. As a result, some prices may be 'rigid' and fall less than proportionately to wages, hence increasing the ratio of prices to marginal costs. In other words, there may be fall in real wages, and hence in the 'real purchasing power of the workers'. As a result, the demand for the output of the wage goods sector, Department 3, also falls, reducing employment and profits in that Department. This affects other Departments, and there will be an overall decline in output and in employment. As Kalecki concludes:

Thus the decline in real wages . . . is associated here with the fall in employment . . . A reduction in money wages is usually accompanied as a result of price 'rigidity' by an increase in the 'degree of monopoly' and consequently leads to a reduction in real wages as well. However, this decline is accompanied by a fall rather than a rise in employment. The slump in employment in question affects the wage good industries while employment in industries producing investment goods and capitalists' consumer goods remains unchanged. The real income of the capitalists does not rise but the real income of the workers declines (Kalecki, 1939a, p. 56, emphasis in original).

The vital difference, then, between the cases of perfect competition and imperfect competition, concerning the effects of a wage cut on employment is the increase in unemployment in the latter case due to increases in the degree of monopoly. The main role of imperfect competition and the microanalysis is therefore to explain the price rigidities which cause this increase in the degree of monopoly.

III MICROANALYSIS AS A DETERMINANT OF THE LEVEL OF ECONOMIC ACTIVITY

The second role of the microanalysis was first discussed in *Studies in Economic Dynamics* (Kalecki, 1943), which consists of 'five interconnected essays'. In the first essay, 'Costs and Prices', the determinants of pricing and distribution are discussed. Only in the third essay, 'A Theory of Profits',¹⁴ does the microanalysis of the first essay play a crucial role, not in determining the level of profits, *but in determining the level of output corresponding to each level of aggregate profits*. In it, Kalecki develops a model of the determination of the level of profits in the short period, according to which:

[R]eal gross profits in a given short period are determined by decisions of capitalists as to their consumption and investment formed in the past subject to the correction for unexpected changes in the volume of stocks (Kalecki, 1943, p. 49).

So real gross profits are determined in the same manner as they are in *Essays in the Theory of Economic Fluctuations*. However, the micro-factors determining the distribution of income now play a different role. According to Kalecki:

[These] factors . . . will affect not real profits but the real wage and salary bill and consequently the national output. If, for instance the degree of market imperfection or oligopoly increases, and, as a result, so does the ratio of profits to wages, real profits do not change, but the real wage bill falls, first, because of the fall in real wage rates, and secondly, because of the consequent reduction in demand for wage goods, and thus of output and employment in the wage-good industries . . . [Mark ups] increase, but the national output falls just so much that, as a result, the real total profits remain the same. However great the margin of profit on a unit of output, the capitalists cannot make more in total profits than they consume and invest (Kalecki, 1943, p. 50).

This passage is of great importance in understanding the link between Kalecki's micro and macro analysis. Briefly, it argues that the level of real profits is determined by the capitalists' consumption and investment decision. With total profits, capitalists' consumption and investment determined in real terms, so are the levels of output and

employment in the investment goods sector (Department 1) and the capitalists' consumption sector. Therefore the microfactors which determine the distribution of income will act through real wages, and hence the level of national output. Changes in these microfactors, such as changes in the degree of monopoly, cannot therefore affect the level of profits, but they will influence employment and output in the wage goods sector (Department 3). In other words, the increase in the mark-up increases profits in the investment and capitalists' consumption sectors, at the same time reducing wages in those sectors. The subsequent reduction in demand for wage goods reduces output and employment in that sector; and also profits. The reduction in profits in the wage-goods sector is equal to the increased profits in the other two sectors, so total profits remain unchanged. Joan Robinson has often stressed this important point:

The most important point in Kalecki's analysis is the demonstration that the overall rate of profit cannot be raised by raising the degree of monopoly. A higher proportion of profit margins leads to lower real wages and lower utilization of plant, not to a higher overall total profit (Robinson, 1969, p. 261).

In her subsequent tribute to Kalecki in the *Oxford Bulletin of Economics and Statistics* (Robinson, 1977), the emphasis on the importance of this argument is repeated:

There are two elements in Kalecki's analysis, the share of profit in the product of industry is determined by the level of gross margins, while the total flow of profits per annum depends upon the total flow of capitalists' expenditure on investment and consumption.

.....

In this way, Kalecki was able to weave the analysis of imperfect competition and of effective demand together and it was this that opened up the way for what goes under the name of post-Keynesian economic theory (Robinson, 1977, pp. 13-14).

In 'A Theory of Profits', therefore, Kalecki gives a very important account of the interrelation of his micro and macro analysis. In this paper, the macroanalysis is important for determining the aggregate level of profits, but it is in combination with the microanalysis that the level of real wages, output and employment corresponding to that level of profits are determined.

IV THEORY OF ECONOMIC DYNAMICS

In *Theory of Economic Dynamics* (Kalecki, 1954),¹⁵ the last complete book Kalecki wrote on the economics of capitalism, he combines both of the roles of the microanalysis discussed above, so it is worthwhile spelling the model out in greater detail. The first two chapters of this book (Part 1: 'Degree of Monopoly and Distribution of Income') develop the microfoundations by analysing pricing decisions, as well as the determinants of labour's share in the national income. Part 2, 'Determination of Profits and National Income' is divided into three chapters which discuss 'The Determinants of Profits', the relationship between 'Profits and Investment', and 'The Determination of National Income and Consumption' respectively.

The analysis in the first of these is very similar to that in 'A Theory of Profits' discussed in Section III. The national income accounts of a closed economy with no government are used to illustrate the proposition that capitalists' investment and consumption decisions determine their profits. The analysis is then reformulated in terms of Marxian reproduction schemas for a three sector economy. Again, what is called here the 'microanalysis', and what Kalecki calls the 'distribution factors', determine national output and employment by determining the share of manual labour in national income, as the level of profits is determined by capitalists' consumption and investment.

Up to this point, the analysis is clearly the same as in *Studies in Economic Dynamics*. In his latter work, the model is extended to encompass government and international trade, but as the essence of the analysis remains unchanged, these are not discussed.

Kalecki next considers the relation between profits and investment. In any period, both capitalists' consumption and their investment are the result of previous decisions. Capitalists' consumption (C_t) consists of a part determined by habit (A), which is constant in the short run but is 'subject to long-run changes', and a part that is proportional to real profits ($P_{t-\lambda}$) 'of some time ago'.¹⁶

$$C_t = A_t + qP_{t-\lambda} \quad 0 < q < 1 \quad (7.6)$$

where λ indicates the time it takes capitalists to change their consumption as a result of a change in their current income.

Assuming a closed economy with no government, and with workers consuming all their income, then profits equal investment (I) plus capitalists' consumption:

$$P = I + C \quad (7.7)$$

Substituting (7.6) into (7.7), and introducing time subscripts, we obtain:

$$P_t = I_t + qP_{t-\lambda} + A \quad (7.8)$$

Real profits at time t are then determined by current investment and by profits at $t - \lambda$. Profits at $t - \lambda$ will be determined by investment at $t - \lambda$ and by profits at $t - 2\lambda$, etc. We can therefore see that current profits are a linear function of past investment, that is, of investment at t , $t - \lambda$, $t - 2\lambda$, $t - 3\lambda$ and so on, with coefficients equal to 1, q , q^2 etc. respectively. Since q lies between zero and one, the further back in time the investment, the smaller will be its influence on current investment. So profits are a function of current investment and previous investment, and will roughly follow investment with a lag:

$$P_t = f(I_{t-\omega}) \quad (7.9)$$

where ω is the time lag.

Substituting this into (7.8.), we obtain:

$$f(I_{t-\omega}) = I_t + qf(I_{t-\omega-\lambda}) + A \quad (7.10)$$

Since this is a general investment equation, it can be solved for specific values. In particular, consider the case where investment is stable for some time, that is $I_t = I_{t-\omega} = I_{t-\omega-\lambda}$, then:

$$\begin{aligned} f(I_t) &= I_t + qf(I_t) + A \\ &= \frac{I_t + A}{1 - q} \end{aligned} \quad (7.11)$$

Kalecki argues that 'as this equality is fulfilled for any level of I_t it gives us the shape of the function f ' (Kalecki, p. 54). From this, we derive the general form of the function:

$$P_t = \frac{I_{t-\omega} + A}{1 - q} \quad (7.12)$$

Equation (7.12) shows that current profits are fully determined by lagged investment and, therefore by past investment decisions and by the constant part of capitalists' consumption. Although equation (7.12) relates profits to investment plus capitalists' consumption, the

latter's dependence on past profits means that it can be substituted for its determinants, that is, by profits.

Before moving on to Kalecki's analysis in the 'Determinants of National Income and Consumption', it is useful to consider the relative share of total labour in the gross income of the private sector. In all discussions of the microanalysis considered so far, Kalecki has concentrated on the relative share of manual labour in the gross output of the private sector, and shown that it tends to be relatively stable over the cycle. Salaries, on the other hand, because they are overheads, experience less change over the cycle than wages. The relative share of labour as a whole, because it is equal to the wage plus salary bill, should fluctuate less than real gross income over the cycle. This can be represented by equation (7.13):

$$V = \pi Y + B \quad (7.13)$$

where: V is the total wage and salary bill

B is a positive constant in the short period, (but 'subject to long-run changes')

and $0 < \pi < 1$ because $V < Y$ and $B < 0$

Dividing both sides by Y :

$$V/Y = \pi + B/Y \quad (7.14)$$

From equations (7.12) and (7.13) it follows that Y_t , as well as P_t , are fully determined by $I_{t-\omega}$. Profits determined by equation (7.12) together with equation (7.14), reflecting the microanalysis of distribution, determine gross income.

As Kalecki puts it:

[T]he gross income, Y_t is pushed up to a point at which profits out of it, as determined by the 'distribution factors', correspond to the level of investment $I_{t-\omega}$. The role of the 'distribution factors' is thus to determine income or product on the basis of profits which are in turn determined by investment (Kalecki, 1954, p. 61).

Again, as with *Studies in Economic Dynamics*, changes in the degree of monopoly do not lead to changes in the level of profits, which are determined by past investment decisions (equation (7.12)). Rather, they lead to changes in the relative share of profits in gross income and also to changes in real wages and profits, by influencing π in equation (7.14). The level of gross income will therefore vary as a

result of changes in the degree of monopoly.

To demonstrate the influences of changes in investment on income, we derive the equation for the multiplier from equations (7.12) and (7.14):

$$\Delta Y_t = \frac{\Delta I_t - \omega}{(1 - \pi)(1 - q)} \quad (7.15)$$

Since $0 < \pi < 1$ and $0 < q < 1$, output will increase more than investment. This is because the increase in investment will induce increased capacity (reflected in the $(1 - q)$ term) and increased workers' income and hence consumption (reflected in the $(1 - \pi)$ term).

In an extremely important passage, Kalecki uses this relationship to argue that price flexibility is greater under socialism than under capitalism. The passage is, therefore reproduced in full below:

In order to bring into focus the nature of this process in the capitalist economy it is useful to consider what the effect of a reduction in investment in a socialist system would be. The workers released from the production of investment goods would be employed in consumption goods industries. The increased supply of these goods would be absorbed by means of a reduction in their prices. Since profits of the socialist industries would be equal to investment, prices would have to be reduced to the point where the decline in profits would be equal to the fall in the value of investment. In other words, full employment would be maintained through the reduction of prices in relation to costs. In the capitalist system, however, the price/cost relationship, as reflected in equation [7.14], is maintained and profits fall by the same amount as investment plus capitalists' consumption through the reduction in output and employment. It is indeed paradoxical that, while the apologists of capitalism usually consider the 'price mechanism' to be the great advantage of the capitalist system, price flexibility proves to be a characteristic feature of the socialist economy (Kalecki, 1954, pp. 62-3).

Kalecki therefore combines the two roles of the microanalysis discussed in the passage above. With the degree of monopoly determined 'exogenously' by competitive factors, the non-flexibility of the distribution of income is the factor generating problems with the level of effective demand. The fall in investment creates unemployment precisely because of the rigidity of the degree of monopoly.

V CONCLUSION

Having looked at some examples of the role of the microanalysis we can consider the nature of the interrelationship of Kalecki's macrotheory with the 'microfoundations'. In their original role of explaining the impact of changes in money wages on prices and distributive shares, they provide a model for Kalecki's insights into the nature of these factors, namely that the clue to distribution lies in the pricing decisions of entrepreneurs with the limits of that decision determined by competitive influences which Kalecki nicknamed the degree of monopoly.¹⁷ In other words, when he is analysing macroeconomic phenomena, Kalecki makes certain assumptions about how prices and distributive shares will react, and part of the purpose of the microanalysis is to provide a model which produces these results. In the second stage of their interrelationship, the microanalysis plays a pivotal role in the determination of the level of output. The macro and the micro analyses each tell part of the story, and it is only through their interrelation that the whole account emerges.

In this way, it can be seen that the micro and the macro analyses, as was stated earlier, lie side by side interdependently, that is, on an equal footing. That is not to say that they are of equal importance for the analysis of output and of trade cycles, which is clearly not the case. Some things are determined at the micro level – largely independent of what is happening at the macro level. As has already been noted, Kalecki tried to develop models of pricing and distribution which were independent of the level of output. Similarly, some things are determined at the macro level, largely independent of pricing and distribution. Both influence each other – and from their interrelation something different from either, the level of output, is determined. Alternatively, we could say that, for Kalecki, the microanalysis and the macroanalysis give different information about the working of the economy and the integration of the two gives additional information about *where* the economy *and* individual units find themselves. The microanalysis of pricing and distribution determines the share of profit and wages in national income, the macroanalysis of investment and of intersectoral flows determines the level of profits and together they determine the level of output. This is in contrast with neoclassical general equilibrium economists, for whom macroeconomic phenomena are merely some sort of aggregate outcome of microeconomic relations. It is also in contrast to post-Keynesian analysis, where the microrelations are derived from a backward extrapolation

of the macro, so that the question really becomes one of finding '*the macro foundations of microeconomics*' (Crotty, 1980, p. 23, emphasis in original). In Kalecki micro and macro stand side by side, with important feedbacks between them. Kalecki (following Marx and the classical economists) treated micro and macro issues interdependently, without really distinguishing between them.

As has been stressed, this does not imply that Kalecki regarded them as of equal importance. It has already been observed that the microanalysis was mainly a step towards the development of the theory of output and business cycles. This explains some of the specific features of his analysis. As the editor of his collected papers in Polish has observed:

The immediate impulse for the formulation of the degree of monopoly theory of income distribution seems to have been the need to find analytical tools which would make it possible to investigate cyclical and secular changes in wages and profits as components of national income, and their relative shares, under oligopoly competition (Osiatyński, 1979, p. 340).

An example of this is Kalecki's discussion of changes in the degree of monopoly over the trade cycle, which has important implications for changes in the level of output in the economy as a whole, as discussed in earlier sections of this study.

An even better example of this is Kalecki's concern with manual labour's share in the output of the industrial sector. This is important for the determination of workers consumption, which Kalecki assumes to be equal to their income. The residual share of gross output will accrue to salaries and to profits, with the latter providing the basis for capitalists consumption and for investment. There are at least two reasons for the distinction between the income of manual workers and of capitalists. Firstly, while it may reasonably be assumed that workers consume all their income, capitalists clearly do not. Part of capitalists income will be saved, and used in the financing of investment. The other important point of distinction lies in the difference in the constraint faced by each 'class'. Capitalists, unlike workers, are not bound by their current income and can be treated as if they had a monopoly on credit institutions.¹⁸ For all these reasons, Kalecki's differential treatment of wage and non-wage incomes makes a great deal of sense. The implications of this for the level of effective demand, and hence as an explanation of fluctuations in output is obvious.¹⁹

Kalecki's approach to the question of microfoundations has some important implications. Although micro and macro questions may sometimes be regarded as separate areas of study, nevertheless there are fundamental interrelations. The disaggregate study of the behaviour of firms is, to an extent, independent of the analysis of macro-phenomena, although there are important (dialectic) interrelations which form an equally important area of study.

The above discussion has proceeded under the assumption that the independence of microanalysis and macroanalysis from each other is achievable. As I have argued elsewhere (Kriesler, 1987), this is not the case for Kalecki's analysis. In other words, the previous discussion must be modified so as to consider the fact that there will be some influence of the level of output on the determination of prices and relative shares; and some influence of prices and distribution on the determination of aggregate profits. Nevertheless, the methodological implications discussed need not be modified very substantially. Rather, a return to the classical method of analysis by stages is suggested, once again emphasising the similarity in method of Kalecki and the classical economists. That is, first one considers (say) the microanalysis, holding output constant. At the next stage, the level of profits can be considered, with pricing and distribution held constant. These, together, then determine the level of output, which is then used to modify the previous analysis of pricing and distribution. This iterative process will continue until either the system's solutions result in stable outcomes for all the processes, or some dynamic can be determined. According to Roncaglia:

[This type of framework] represents a decision to analyse each particular problem separately, one at a time, isolating one from the other. The assumptions and methods of analysis need not necessarily be the same for each and every problem. It is necessary to choose, for each particular problem, only those variables most relevant to the analysis of the problem at hand, leaving aside those factors which, as Ricardo says, lead only to 'modifications' in the analysis, but not to changes in the substance of the analysis (Roncaglia, 1978, p. 22).²⁰

NOTES

1. In Kriesler (1987), I have attempted to trace the development of Kalecki's analysis of pricing and distribution, and its relation to his analysis of output and employment. In that work, it was concluded that Kalecki was unable to capture his basic insights in a satisfactory model.
2. For the sake of convenience, and because it is built on the basis of the theory of the firm, this will henceforth be referred to as Kalecki's microanalysis.
3. For similar reasons to that of footnote 2, this will be referred to as Kalecki's macroeconomics.
4. See, for example, Harcourt (1977) and Weintraub (1979).
5. See, for example, Hahn (1984, p. 2) and Harcourt (1977, pp. 375-6, 380).
6. See Keynes (1973, Preface to the French edn, especially pp. xxxii, xxxiii and Chapter 19), Kalecki (1939a), Robinson (1951, p. 135) and Harcourt (1986).
7. See, for example, Crotty (1980, p. 23) and Harcourt (1980, p. 27).
8. See, for example, Harcourt (1981, p. 9) and Pasinetti (1974, p. 118).
9. It should be noted that the classical economists also treated micro and macro interdependently, without really distinguishing between them. Kalecki's method is, in many ways, similar to that of Ricardo and of Marx in treating micro and macro side by side. In fact, the distinction in economics between micro and macro is only a relatively recent phenomenon, and was not important at the time of Kalecki's original formulation of his analysis.
10. No attempt is made in this study to discuss the contents of Kalecki's microanalysis. For a review of the development of Kalecki's analysis of pricing and distribution and its interrelation with the analysis of the determination of output, see Kriesler (1987).
11. *Selected Essays on the Dynamics of the Capitalist Economy (1933-70)*, mainly reprints selections from these or other previously published essays, which will be discussed separately.
12. These has been translated into English and published as the final two chapters of *Studies in the Theory of the Business Cycles: 1933-1939*. The paper with the same name which appears as the third essay in *Essays In Economic Fluctuations*, and which was referred to in the last paragraph, is substantially different.
13. The real balance effect is irrelevant here, although not considered by Kalecki, as there is no room within his analysis for wealth to influence consumption, due to the behavioural assumptions.
14. Reprinted from the *Economic Journal* (1942).
15. Kalecki (1971b) is not discussed here, as the analysis is similar to that of Kalecki (1954), except for the assumption that workers are able to influence the mark-up.
16. Kalecki initially ignores tax payments, but these are later incorporated by him (Kalecki, 1954, pp. 55-6).
17. See Kriesler (1987) Chapters 4-6.

18. For an excellent discussion of these issues, see Marglin (1984, p. 126).
19. I am indebted to Jerzy Osiatyński for these observations. See also Osiatyński (1979, pp. 339–40).
20. For further discussions of this 'procedure by separate logical steps', see Pasinetti (1974, pp. 42–8), Garegnani (1983) and Garegnani (1984), pp. 292–9).

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8 Class Struggle and Income Distribution in Kaleckian Theory

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I FOREWORD

In the 'Introduction' to the English edition of his *Selected Essays on the Dynamics of the Capitalist Economy*, which includes his main contributions to the theory of economic dynamics published between 1933 and 1970, Kalecki stated:

It is interesting to notice that the theory of effective demand, already clearly formulated in the first papers, remains unchanged in all the relevant writings, as do my views on the distribution of national income. However, there is a continuous search for new solutions in the theory of investment decisions (Kalecki, 1971b, p. viii).

It appears, however, that in some respects Kalecki's distribution theory has never been satisfactorily formulated and, in particular, has not been integrated into his theory of investment. As is well known, the 'neo-Keynesian' (or post-Keynesian) theory of distribution is based upon an idea already present in earlier writings by Kalecki, though Kaldor attributed it to Keynes's *Treatise*. But Kalecki's distribution theory, as formulated, is not in line with the conclusions reached by neo-Keynesians with regard to distribution theory, in particular with the proposition that in long-run equilibrium the rate

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of profit is equal to the ratio of the accumulation rate to capitalists' propensity to save – a point we shall try to make in this study.

II 'PRICE TAKERS' AND 'PRICE MAKERS' IN KALECKI

It should be preliminarily observed here that in Kalecki's approach a price theory claiming to be realistic must forgo the old notion of firms being *price takers* and replace it with the notion that firms do have some degree of freedom in setting their prices, and are accordingly *price makers*. It is common knowledge that this approach, which involves discarding the assumption of perfect competition, arises not only from Kalecki's pressing concern for realistic analyses, but also – and above all – from his deeply-rooted conviction – no doubt grounded in Marxism – that income distribution is not mechanically determined by the market, but depends, on the contrary, on the comparative strengths of existing interest groups and, first and foremost, on the greater or lesser power of capitalists (the owners of the factors of production) as compared to trade union power (see, for instance, Kalecki, 1954, p. 18). This serves to clarify, right from the outset, that Kalecki's theory rests entirely on his firm belief that class struggle plays an important role in determining the price level and, therefore, the distribution of national income.

It is a well-known fact that Kalecki's theory is founded on the distinction between prices (or price changes) which are (prevalingly) cost-determined and prices which are (prevalingly) demand-determined. The chapter on 'Costs and prices' in *The Theory of Economic Dynamics* opens with a paragraph entirely concerned with this distinction, and clarifies emphatically that 'these two types of price formation arise out of different conditions of supply' (see Kalecki, 1954, p. 11). In Kalecki's view, the prices of finished products are cost-determined because the supply of these goods is elastic as long as the resources of the economy are not fully utilised, and this is the typical condition of a developed capitalist economy (see, for instance, Kalecki, 1968, p. 265); and, whenever reserves of production capacity exist, fluctuations in demand prevalingly generate variations in the level of output, whereas prices tend to remain stable. The prices of raw materials and unprocessed foodstuffs are instead demand-determined because the supply of agricultural produce and raw materials is inelastic in the short run (see Kalecki, 1954, pp. 11–12).

In other words, the prices of industrial products are prevailingly cost-determined as a result of the fact that a certain amount of excess capacity is present, as a rule, in industry. Kalecki contended that if the supply of industrial products were inelastic prices would be mechanically determined by demand and supply, as taught by traditional theory; when, on the contrary, supply is elastic and passively reacts to variations in demand, demand loses its role as price determinant, since elasticity of supply confers a degree of freedom upon the pricing system – a fact which in turn means that prices are no longer determined by demand and supply, but may be fixed by firms on the basis of their respective 'degrees of monopoly'.

The distinction between perfect competition and oligopoly is thus associated by Kalecki with the distinction between firms which are *price takers* and firms which are *price makers*, and the latter distinction is equal, in essence, with the distinction between demand-determined prices (or, rather, prices determined by supply and demand) and cost-determined prices. (For a different interpretation of Kalecki's view, see Sebastiani, 1985, p. 62).

This is an important point in evaluating the differences between Kalecki's and Kaldor's theories of distribution. If, in fact, the distinction between the two different pricing methods 'arises out of divergent conditions of supply in short periods' – as Feiwel also argued (see Feiwel, 1975, p. 101) – Kalecki's distribution theory, which requires supply to be elastic, is based on the assumption of an industry-based economy where firms have, as a rule, excess capacity – thus, unlike Kaldor's distribution theory, it does not apply in conditions of full employment.¹

In his famous posthumous essay on 'Class struggle and income distribution' (Kalecki, 1971a) Kalecki investigates the role of class struggle first within a model of perfect competition and then in an oligopolistic one. This is a method peculiarly his own; Kalecki adopted it also on other occasions (see, for instance, Kalecki, 1941) to demonstrate that if, conforming to dominant theory, one formulates the entirely unrealistic assumption of perfect competition, the conclusions reached will be of necessity in opposition with reality; and if, on the contrary, one assumes firms to be price makers, the analysis will become more realistic and it will permit one to consider, in particular, how political – institutional factors and, above all, class struggle, may influence income distribution and price determination.

III KALECKI'S DISTRIBUTION THEORY

Let us, then, briefly retrace Kalecki's train of thought in analysing degree of monopoly, profits, and income distribution. It is well known that in investigating such issues Kalecki often assumes: (a) that three departments may be distinguished within the economy, respectively producing investment goods (Department I), consumption goods for capitalists (Department II), and wage goods (Department III); and (b) that workers consume the whole of their wages; in addition to the above, he often makes the assumption that the concerned economy is a closed system where no State intervention is envisaged.

A crucial notion of Kalecki's income and distribution theories is that investment is autonomous (because dependent on investment decisions made in the past: see Kalecki, 1936-7, pp. 77 *et seq.*; Kalecki, 1939a, pp. 158 *et seq.*; Kalecki, 1954, pp. 109 *et seq.*), but Kalecki also makes the hypothesis that capitalists' consumption is independent of current income; and, taken together, these assumptions mean that when the money-wage rates of Departments I and II increase by a given proportion, the profits of Department III, which are equal to the sum of the total wages paid out in Departments I and II, also increase by the same proportion.

If we assume that workers do not save, the income of Department III, which we call C_w , is:

$$C_w = W_1 + W_2 + W_3 \quad (8.1)$$

where W stands for the total wage bill and the suffixes denote the departments concerned.

But as C_w is also, by definition

$$C_w = W_3 + P_3 \quad (8.2)$$

(where P stands for profits),

a comparison of equations (8.1) and (8.2) yields:

$$W_1 + W_2 = P_3 \quad (8.3)$$

Obviously, the total of profit and wages in Departments I and II is equal to the value of the outputs of those departments, i.e.:

$$W_1 + W_2 + P_1 + P_2 = I + C_p \quad (8.4)$$

where I indicates gross investment, the output of Department I, and C_p stands for capitalists consumption, the output of Department II.

Hence from equation (8.3) it follows that:

$$W_1 + W_2 + P_1 + P_2 = P_1 + P_2 + P_3 = P$$

which, when compared with equation (8.4), yields:

$$P = I + C_p \quad (8.5)$$

The above is a proposition which Kalecki advanced as early as 1933 (see Kalecki, 1933a, pp. 3–4). Dobb rightly considered it ‘the starting point’ for Kalecki’s analyses, though at the same time he pointed out that, in spite of its ‘extreme simplicity’, this proposition leads to conclusions which may appear to some extent paradoxical (see Dobb, 1973, p. 212; also see Kalecki, 1939b, p. 45 and Steindl, 1981, p. 593).

Proposition (8.5) always holds: it is a defining proposition; but it receives cognitive value and is turned into a theory when Kalecki explicitly states that the equation ‘is to be read from right to left’ – i.e., when he contends that there is a clear causal relation from capitalists’ expenditures to profits, not vice versa.

‘Now it is clear’ – he argues – ‘that capitalists may decide to consume and to invest more in a given period than in the preceding one, but they cannot decide to earn more. It is, therefore, their investment and consumption decisions that determine profits, and not vice versa’ (see Kalecki, 1954, p. 46).

It should be noted also that the direction of this causal relation was clearly indicated by Kalecki as early as 1933 (see Kalecki, 1933a, pp. 13–15), when he wrote such often-quoted statements as ‘capitalists as a class gain exactly as much as they invest or consume’, or ‘capitalists as a whole, determine their own profits’ (see Kalecki, 1933a, p. 14, and also, for instance, Kalecki, 1939b, p. 94).

Proposition (8.5) is therefore fundamental to Kalecki’s analyses. Kalecki used it in formulating his theory of the multiplier (which is analogous with Keynes’s) and is the key to the right understanding of the role played by the ‘factors of distribution’ and, consequently, by class struggle in determining national income.

A well-known fact is that in Kaleckian theory the ‘factors of distribution’ determine the margin to be added to prime costs in order to obtain the supply prices of goods and result in the so-called ‘degree of monopoly’; but paradoxically they are found to determine wages and not profits.

On the basis of the foregoing – we want to stress again – profits are held to be determined by capitalists' expenditures, but these are independent of the income produced in the period under examination. 'If the period which we consider is short' – Kalecki writes – we may say that the capitalists' investment and consumption are determined by decisions shaped in the *past*, for the execution of investment orders takes a certain time, and capitalists' consumption responds to changes in the factors which influence it only with a certain delay' (see Kalecki, 1954, p. 46). In other words, the outputs of Departments I and II are independent of current income but, being given in real terms, they are independent also of the price level and, hence, of the 'factors of distribution'. The factors of distribution are consequently effective only in determining the output of Department III and, accordingly, the margin of profit, the money-wage rate, the total wage bill, and national income, but not also the value of total gross profits.

As mentioned above, from equation (8.3) it follows that output and employment in Department III will be pushed up to the point where the profits earned out of that production will be equal to the wages of Department I and II (Kalecki, 1954, p. 47). But a different way of saying the same thing is that on the basis of equation (8.5) output and employment in Department III and, consequently (output and employment in Departments I and II being given), output and employment in the economy as a whole 'will be pushed up to the point where the profits earned out of it in accordance with the 'factors of distribution' are equal to the sum of capitalists' consumption and investment' (see Kalecki, 1954, p. 47).

It is hence also possible to state that the multiplier is used to determine the value of gross output in Department III, though not the value of total gross profits.

IV A CRITICISM

So far, we have pointed out two statements: (a) the 'factors of distribution' do determine the wage bill but not also the value of total gross profits, and (b) the multiplier process is useful in determining a condition of equilibrium of output and employment in Department III but not contemporarily also the condition of equilibrium of output and employment in Departments I and II; and these two statements are as closely associated with each other as are the two sides of the

same coin. But if they are taken together, they reveal an inadmissible result in Kalecki's theory. If, in fact, the 'factors of distribution' determine the wage bill but not profits – i.e., if they do determine output in Department III but not also the outputs of Departments I and II – any variation whatsoever in such factors (for instance, an escalation in class struggle) will cause a variation in wages but not in profits, a variation in workers' consumption but not in investment; hence it will result in a variation in the profit rate of the consumption goods department, though not also in a variation in the profit rate of the economy as a whole. But this denotes that Kalecki's theory does not take account of the tendency toward a levelling of the profit rates and, consequently, does not result in a condition of long-run equilibrium.²

With a view to further generalising the point we are trying to make here, let us just slightly change the assumptions on which the foregoing has been based so far, and suppose instead that capitalists consume a constant proportion (c_p) of their incomes.³

In this case, from equation (8.5) it follows that:

$$P - c_p P = I = S$$

where S is gross national saving;

consequently, dividing by K and reorganising the whole, we obtain:

$$\frac{P}{K} = \frac{I}{K} \cdot \frac{1}{1 - c_p} = \frac{g}{s_c}$$

where g is the accumulation rate and s_c is the capitalists propensity to save.

This well-known proposition is one of the formulas of the so-called 'Keynesian theory of distribution' and yields the equilibrium rate of profit for the economy as a whole and, obviously, for the single sectors.

Let us, then, assume that in investigating the effects of an increase in the degree of monopoly we are starting from a situation of equilibrium. If, as Kalecki assumes in analyses of this kind (see, in particular, Kalecki, 1954, p. 91, and Kalecki, 1971a, p. 1 *et seq.*), investment in real term is given, also the output of Department I is given and consequently, if the degree of monopoly and, hence, profit per unit sold increase, both total profits and the profit rate will increase in Department I. Total output and employment, however,

are found to decrease because the increase in the degree of monopoly shifts distribution in favour of profits and the increase in the profit share increases the community's propensity to save; hence, the value of gross investment being given, the equilibrium value of income (and, consequently, the levels of output in Departments II and III) diminishes. (In particular, output in Department III decreases in the case under review as a result of two different reasons: because of the fall in the labour share in national income, and because income and the value of gross output decrease). Consequently, as far as Departments II and III are concerned, even if the degree of monopoly and profit per unit sold increase, the value of gross profits (and, consequently, the rate of profit) may decrease (as a result of the decrease in productive activity).

But the analysis can be more precise, because even when changes in relative prices are taken into account, the profit rate for the system as a whole, given the hypotheses made above, is not affected by any variation in relative prices, *provided that the accumulation rate is assumed as given* – i.e., provided that it is assumed that neither relative prices *within* Department I nor investment decisions change. Thus, not only in a model with three goods, one for each department, but also in a model with n consumption goods and with relative prices given in Department I (and therefore with only one capital good) the profit rate for the system as a whole is given if investments are assumed to be given. It follows that, starting from a condition of equilibrium, an increase in the 'degree of monopoly' for the economy as a whole, while resulting in an increase in the profit rate of Department I, will of necessity reduce the profit rate in at least one of the other two departments. We have to add that in any case, as a consequence of the decline in the department's productive activity, the Department III profit rate will always be lower than the Department I profit rate (which, as a result of the increase in the degree of monopoly, will inevitably increase).

Consequently, starting from a situation of equilibrium in the single sectors, and assuming that all of them have the same profit rate, any increase in the degree of monopoly, with investments given, will lead to different profit rates in the different departments.

Nor may we state – we repeat – that in Kalecki's view the levelling of the profit rates of the different departments may result from a change in the relative prices of goods, because nowhere in Kalecki's work is there the slightest hint in that direction. Moreover, as is easily

deduced from the foregoing, since the analysis assumes the endowment of capital goods to be given in the single departments and for the single firms, the levelling of profit rates would entail (in the case in point) that the value of the capital goods employed in Department III should increase compared to the value of the capital goods employed in Department I; and there is no reason to assume that this should always be the case.

A new equilibrium with profit rates levelled out in the different departments might consequently be envisaged only if the value of gross investment were found to decrease when the degree of monopoly grows; but such a proposition is absent from Kalecki's investigation of this subject, where the value of gross investment is assumed to be given. The main point to be made is, however, that whenever Kalecki investigated the relation existing between investment and margin of profit, he always considered it as a *direct*, not inverse relation: in fact, from his very first formulation of the 'increasing risk' principle, through his *Theory of Economic Dynamics*, up to his later writings, he did, as mentioned before, constantly amend his investment theory, but always clung to the idea that the more a firm is able to self-finance itself, the larger its investments will be.

Accordingly it seems that Kalecki's analysis of the effects of changes in the degree of monopoly upon distribution and the equilibrium of national income is not in harmony with the assumption of a tendency toward a levelling of profit rates in the different departments.

V CLASS STRUGGLE AND THE LEVELLING OF PROFIT RATES

As has been pointed out by Asimakopulos, a satisfactory Kaleckian theory of distribution must correctly combine Kalecki's two main contributions to this subject: his recognition of the role of the degree of monopoly in the setting of *mark-ups* and his demonstration of the role of capitalists' expenditures in determining profits and the level of employment (see Asimakopulos, 1975, p. 327). But the problem here is that Kalecki himself never managed satisfactorily to combine these two contributions of his own.

Whenever a change in the degree of monopoly is envisaged for the system as a whole, it must be thought of as resulting from class struggle – i.e., from a shift in the balance of power between capital-

ists and workers, or from a change in the degree of competition among firms – i.e., a change in the intensity of the struggle among capitalists. The article to be specifically considered in this regard is 'Class struggle and the distribution of national income', an article we have already mentioned and which is held to be among Kalecki's best contributions to economic theory as well as his most mature work on prices and distribution. As said above, this article inquires into the role of class struggle first in a perfect competition model and then in an oligopolistic one in order to show that as long as one follows dominant theory in making the wholly unrealistic assumption of perfect competition, the conclusions drawn will of necessity be unrealistic. But the point to be made is that it is exactly when Kalecki discards the traditional notion of perfect competition that he comes up against the difficulty already demonstrated in this study.

In his article on class struggle Kalecki assumes that capitalists' expenditures are entirely independent of income and that consequently output and employment in Departments I and II are given. If we now examine a case of perfect competition with supply curves increasing and concave upward after a certain point – he argues – an increase in wages brought about by class struggle must needs cause, in these sectors, 'a proportional rise in prices at given levels of respective outputs (perhaps not in the first short period, but later on) (see Kalecki, 1971a, p. 3), because marginal productivity is given. Consequently, in Departments I and II, profits increase in the same proportion as wages, and distribution remains unchanged.⁴

But in the above case the output and employment levels remain the same also in Department III for, if wages increase in the same proportion in the different departments, on the basis of equation (8.3) the profits of Department III increase in the same proportion as the money-wage rates. Hence also in Department III wages and profits are found to increase in the same proportion and distribution remains unaffected.

A different case in point is observed in semi-oligopolistic markets, because if prices are not mechanically determined by supply and demand, a wage increase will not necessarily increase profits in the same proportion if the output level is given.⁵ Thus in Departments I and II, where the output levels are given, a wage increase will conceivably reduce profit margins; and in Department III, whilst total gross profits increase in the same proportion as the money-wage rates (according to equation (8.3)), the total wage bill increases at a rate higher than the money-wage rates, since there is a redistribution

of income from profits to wages as a consequence of the reduction in the *mark-ups*: and this entails an increase in output and employment (see Kalecki, 1939b, pp. 55–6, and Kalecki, 1971a, p. 6).

It follows that, whereas the rate of profit is of necessity found to decrease in Departments I and II, in Department III it may either increase or decrease (because output increases when the *margin of profit declines*); and, in any case, the profit rate of Department III will exceed those of Departments I and II as a result of the increased production activity.

Hence we may again stress that Kalecki's analysis of the effects of class struggle is not in harmony with the notion of the tendency toward a levelling of profit rates.

For the profit rates to be levelled in the short run, the value of gross output ought to increase in Departments I and II. But if there are arguments to support the notion that class struggle tends to impress an upward movement on the value of gross investment (increased social unrest induces firms to replace labour with capital and, above all, any increase in the production of consumption goods tends to stimulate investment⁶), a reasonable conclusion would also be that class struggle, while shifting the balance of power in a direction favourable to workers, brings about 'a worsening of the climate' in business spheres, tapers the gross savings of firms, and causes monetary restrictions, with consequential adverse repercussions upon investment; the latter is the view generally shared by both post-Keynesians and Marxists (see, for instance, Kaldor, 1957, pp. 599 *et seq.*; Goodwin, 1967, pp. 54–8; Glyn and Sutcliffe, 1972, Chapter V; Sylos Labini, 1972 and 1977, Part III; Dutt, 1984; Goldstein, 1985, p. 122 *et seq.*; Marglin, 1985).

In the article here under review Kalecki assumes the value of gross investment to be given; and elsewhere, as also mentioned above, when analysing the relationship between degree of monopoly and investment he contends that investment *falls* according as the rate of profit or the degree of monopoly diminish (see, in particular, Kalecki, 1933b, p. 87 *et seq.*, and Kalecki, 1954, p. 96 *et seq.*; as to the evolution of Kalecki's views in such connection, see Chilosi, 1979b, pp. 30–8).

There seems consequently to be no way to correct the aforementioned disequilibrium in short periods without contradicting Kalecki's propositions.

VI SHORT AND LONG PERIOD

It is worth re-emphasising that the inadequacy in Kalecki's analysis arises from the fact that he neglects, or at least fails to clarify, that in different sectors (and in different firms) the rates of profit tend to level out. But this is held to be a situation of long-run equilibrium, and so a right conclusion ought to be that Kalecki's analysis is found to hold for short periods, but not also for long ones.

As is well known, in Kalecki's view 'the long-run trend is but a slowly changing component of a chain of short-period situations: it has no independent entity' (see Kalecki, 1968, p. 263). According to Asimakopulos this means that 'Kalecki denies that such a distinction between short- and long-run theory is possible' (see Asimakopulos, 1975, p. 314). Were this true, then Kalecki's view would clearly be unacceptable, for the distinction between short and long periods is at the heart of the most authoritative classic and neo-classic thought.⁷

However, if the distinction between short and long period is maintained, and the tendency of profit rates to level out is viewed as a basic law governing long-run trends, then the shortcoming in Kalecki's analysis is evident, since it is beyond any doubt that he never attached great importance to the levelling-out of profit rates. His idea was undoubtedly that firms determine margins – not rates – of profit, and that in fixing such margins of profit they do not consistently apply any maximisation principle. This is explicitly stated, for instance, in the important chapter on 'Costs and prices' in the *Theory of Economic Dynamics*, which contains the following proposition: 'in view of the uncertainties faced in the process of price fixing it will not be assumed that the firm attempt to maximize its profits in any precise sort of manner' (see Kalecki, 1971b, p. 44); and this means that the hypothesis of the levelling-out of profit rates can be incorporated into Kalecki's analysis only at the risk of distorting his thoughts.⁸ But in the article on class struggle mentioned above, having conducted what he himself termed a short-period analysis, Kalecki explicitly raises the question of whether it also holds for subsequent periods, in respect of which it is necessary to consider 'all the ramifications' of the wage increase concerned (see Kalecki, 1971a, p. 2); and this may prompt the conclusion that what is needed to extend the analysis also to subsequent periods is, first of all, a way to account, at least to a certain extent, for the tendency of profit rates to level out.

Kalecki once wrote that 'the usefulness of the long-run equilibrium theory of distribution [is] rather doubtful' (see Kalecki, 1941, p. 31); but in 1941, in answering a criticism by Whitman, he admitted that his pricing theory ought to have accounted, at least to a certain extent, for the tendency of profit rates to level out and he also showed the manner in which such tendency is found to operate. When profit rates are different from sector to sector, he argued, then firms make their investments where rates of profit are highest, and this reduces the degree to which plants already operating in high-profit areas are utilised; the result is therefore a decline of profit rates in those sectors. In other words, it is not the manufacturing techniques that vary in accordance with varying rates of profit; it is production capacity that is found to be adjusted (see Whitman, 1941, pp. 263-5; Kalecki, 1942, p. 122-3; Sawyer, 1985, pp. 35-6).⁹

However, Riach and others have argued that Kalecki's theory ought to be reformulated also with respect to short periods in order to account for the fact that, in fixing prices, firms tend to maximise, not margins, but *rates* of profit (see Riach, 1971; Asimakopulos, 1975);¹⁰ and Mrs Robinson has in turn argued that there must needs be long-period elements also in the short-period relationship between prices and costs and that Kalecki himself admitted of long-period influences on pricing when he argued that 'firms with high overheads act in tacit agreement to protect their profits' (see Robinson, 1977, p. 189).

It appears far from easy, therefore, to draw any definite conclusion from the foregoing. What can be stated with certainty is that in his writings Kalecki concerned himself very little with the tendency of profit rates to level out; this in turn suggests that he attached little weight to the action of this levelling force. But this also suggests that the issue under examination here cannot be solved by merely stating that Kalecki's theory is correct when applied to short periods; nor is it justified to maintain that the only thing needed to make it hold also with reference to subsequent periods is to integrate it in such a way as to make it account for the tendency of the profit rates to level out.

A more correct conclusion seems to be that, provided the tendency of profit rates to level out is really essential to a right understanding of the way in which capitalism works, then Kalecki's theory, as formulated, is a short-run theory of doubtful validity which, if extended to cover also long periods, needs to be reformulated in a way that will account for this tendency.

VII A TERMINOLOGICAL ISSUE

It has often been pointed out that the term 'degree of monopoly' implies the concurrence of a number of sundry factors, and has never been satisfactorily defined even by Kalecki himself. Consequently this term is usually considered to be a vague and generic notion. And it is also well known that this is the reason why Kalecki's theory of distribution has been labelled 'a tautology' (see Kaldor, 1955-6, pp. 92-3; Kaldor, 1960, pp. 224-5; Nuti, 1970, p. 226, and Eatwell, 1979, p. 38).

Kalecki himself once wrote that the label 'tautological' attached to his price theory was probably due, at least in part, to the term 'degree of monopoly' (see Kalecki, 1968, p. 265),¹¹ which he took over from Lerner;¹² and some have pointed out that in his last work on this subject, the article on 'Class struggle and the distribution of national income', Kalecki dropped the term 'degree of monopoly' and adopted in its stead the phrase 'semi-monopolistic influences resulting from imperfect competition or oligopoly' (see Feiwel, 1975, p. 88; Basile and Salvadori, 1984-5, p. 258). In fact, in Feiwel's view, not only in this work but also in earlier writings the degree of monopoly 'is *determined* by and *reflects* what Kalecki called semi-monopolistic or monopolistic influences resulting from imperfect competition or oligopoly' (see Feiwel, 1975, p. 96).

But is it actually true that in Kalecki 'degree of monopoly' is synonymous with 'semi-monopolistic or monopolistic influences resulting from imperfect competition or oligopoly'? Obviously this latter phrase points to the intensity of competition among firms - i.e., the intensity of the struggle *within* the class of capitalists, and is in no way associated with class struggle. The problem consequently lies in ascertaining whether Kalecki's term 'degree of monopoly' is really in no way associated with class struggle.

In the article we are concerned with here, Kalecki states that *for the single firms* the functions determining the mark-ups (which he calls 'functions f ')¹³ will reflect 'the semi-monopolistic influences . . . arising from imperfect competition or oligopoly', but for the system as a whole class struggle modifies mark-ups and distribution because it modifies the functions f (see Kalecki, 1971a, pp. 4-5). Hence it seems that for Kalecki (a) when the level of class struggle is given, the functions f are also given, and in this case the mark-ups and distribution are determined by the 'semi-monopolistic influences arising from imperfect competition or oligopoly', but that (b) when the structure

of markets and the intensity of competition are given – i.e., when ‘the semi-monopolistic influences arising from imperfect competition or oligopoly’ are given – any exacerbation in class struggle caused by a rise in workers’ bargaining power can lastingly modify both the mark-ups and distribution. Consequently, should the degree of monopoly fall in with the mark-ups, one ought to state that in Kalecki the ‘degree of monopoly’ does not reflect – as is instead often argued – only the ‘semi-monopolistic influences arising from imperfect competition or oligopoly’, because it reflects not merely the intensity of the struggle among firms but also the intensity of the struggle between classes.¹⁴

NOTES

1. The incompatibility between his own and Kaldor’s distribution theories is explicitly stated in Kalecki, 1968, pp. 265–6.
2. The levelling of profit rates results in a condition of long-run equilibrium only if constant returns are assumed; for an extension of Sraffa’s model to cover cases of increasing returns, which do not require profit rates to be levelled, see Salvadori (1985).
3. It should be kept in mind that whilst Kalecki contends it to be unrealistic to assume that capitalists’ consumption is dependent on capitalists’ current incomes, at times he made such an assumption himself, arguing that ‘as long as the time lag between investment decisions and investment is emphasized, disregarding that between profits and capitalists’ consumption does not distort the analysis’ (see Kalecki, 1968, p. 264).
4. This conclusion is already found in Kalecki, 1938, and 1939b, pp. 98–9.
5. It has recently been observed that in a model where prime costs are only labour costs and no interchange is envisaged with abroad, a rise in the money-wage rates determines, *ceteris paribus*, a rise in prices in the same proportion also as a result of the full-cost theory; and that, if class struggle causes a change in the distribution of shares, this depends, not upon the ‘mere mechanism of the inflationary process’, as described by full-cost theory, but upon the fact that in the case under review there has been a change in the parties’ respective bargaining powers’ (see Tarling and Wilkinson, 1985, pp. 179–85).
6. In this regard, and with a view to all of the foregoing, it is interesting to note that Kalecki considers the effects of variations in both the level and the rate of change of economic activity upon investment as the central *pièce de résistance* of economics (see Kalecki, 1968, p. 263).
7. Recently, on re-examining full-cost theory, Lee argued that it could be considered neither a short-period theory nor a long-period one, for it ‘displaces both the short and the long period categories’ and requires ‘a

- new and possibly conceptually novel time category which captures the property of a common price to many sequential exchanges in the context of given plant and equipment' (see Lee, 1984, p. 161). But if this were true and the distinction between long and short period were dropped, this would undoubtedly generate difficulties also within full-cost theory.
8. The line of reasoning which led Kalecki to make the decision of dropping the assumption of profit maximisation – which he had accepted at an earlier stage of his theoretic elaboration – is reported in Denicolò and Matteuzzi, 1985, pp. 19–41).
 9. According to Reynolds, 'in Kalecki's analysis, long run profit maximisation is not assumed either, though it can be argued that the behaviour outlined is consistent with long-run maximisation of profits' (see Reynolds, 1983, p. 494, n. 4, and then pp. 499–502).
 10. A correct observation is that Kalecki always abstained from definitely formalising his theories, so that when these are thoroughly investigated, they often require to be integrated (see Sebastiani, 1985, p. 79).
 11. Feiwel wrote that Kalecki 'somewhat regretted the use of the term "degree of monopoly"' because he supposed it to have contributed to the dismissal of his theory as tautological (see Feiwel, 1975, p. 97).
 12. See Kalecki (1954, p. 3).
 13. For a criticism of the functions f as found in Kalecki's last version of the theory of the degree of monopoly see Asimakopulos, 1975, p. 318, when he states that 'Contrary to Kalecki's statement, the function f appears to be a decreasing function'. Arguments for the increasing nature of the function f are instead found in Basile and Salvadori (1984–5, pp. 255–6), who do not leave room for any doubts whatsoever in this regard.
 14. Basile has argued that only at a later stage of Kalecki's thought, after 1954, is the degree of monopoly found to reflect also the intensity of class struggle (see Basile, 1980, pp. 46–7); this is clearly confirmed by the careful analysis of the evolution of Kalecki's thought conducted in Chilosi, 1979.

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9 The Rate of Profit in Kalecki's Theory

EDWARD NELL

I THE 'NORMAL' RATE OF PROFIT

In his various accounts of the working of capitalism, Kalecki seldom mentions the general, or 'normal', rate of profit, nor does he ever try to present a theory of what determines it. By contrast, he devotes a great deal of attention to the determinants – and consequences – of the realisation of current profits. Of course, an average rate of profits can be found by dividing currently realised profits, over some period, by the value of the capital stock during that period, but the result need not bear any relationship to the normal rate of profit. This latter is the rate of profit that can be expected when the output of normal capacity operation is sold at normal prices, reflecting the established degree of competition. Currently realised profits are those obtained when current output is sold at current market prices. But current output may reflect abnormal operating or labour market conditions, and may be sold under abnormal market conditions, hence the disjunction of the two concepts. The missing element is a determination of the profitability of capital when operating under 'normal' conditions; this is the potential profit to be realised. For profits cannot be realised unless they can be produced, and Kalecki presents no account of the profit potential of capital.

II CHOICE OF TECHNIQUE OR METHOD OF PRODUCTION

One context where the role of the normal rate of profit is indispensable is that of the choice of technique, or method of production. The

technique which produces at the least unit cost can be shown to be the one which yields the maximum rate of profit. Moreover, this is the choice which will yield a competitive advantage in the long run; for example, if a producer chose a technique providing a higher margin of profit but a lower rate, then given the same retention of earnings ratio, this producer would accumulate at a slower rate, resulting in a reduced market share. Moreover, with a lower rate of profit a producer might be unable to pay interest at the prevailing rate, if that were very near the rate of profit yielded by the techniques chosen by others.

III SOCIALIST AND CAPITALIST CONDITIONS

Curiously, Kalecki does recognise the importance of the rate of profit, or rate of return, in choosing techniques in a socialist context. As Nuti has pointed out, Kalecki's criterion for choosing the best technique involves maximising an implicit rate of return. But if this is the rational procedure under socialist conditions, why not under capitalism. As argued above, competition would seem to dictate the choice of the profit rate maximising technique. Oligopoly and monopoly power distort many relationships, so that the rate of profit will no longer be uniform throughout the economy, but even with the distortions, it must still be true that those making the choice must maximise the rate of return relevant to them. (It may be that certain features of some techniques will help to maintain or improve barriers to competition. These features might not figure in a decision under competitive conditions, but all that is necessary in the more general case is to evaluate their costs and benefits.) In any case, Kalecki and his followers today are caught in a dilemma: either they must explain why choice of technique must maximise the rate of return under socialist conditions, but not under capitalism. Or they must provide an account, hitherto missing in his work, of the determination of the general or normal rate of profit, since it must figure in such choices.

IV EFFECTIVE DEMAND

Kalecki's theory of effective demand establishes certain relationships between the distribution of income and the composition of output. In

particular, wages are spent on consumer goods, while profits go largely to finance investment spending on capital goods. More formally, under certain assumptions, the level of investment spending determines the total profit realised in both sectors – and, in particular, the wage bill of the capital goods sector determines the profit realised in the consumer goods sector. As a consequence, changes in the wage rate will lead to direct, rather than inverse, changes in the level of employment. Moreover, the proportion of the total profit (equal to total investment spending) realised in the consumer goods sector varies directly with the real wage. These propositions differentiate the Kaleckian approach to effective demand from the Keynesian, and they underlie a distinctive approach to policy. But they entail expressing the wage bill of the capital goods sector, measured as a quantity of capital goods output, in terms of the consumer goods commanded by that wage bill. This requires an established price ratio; moreover, it has to be one that is not readily disturbed by variations in the levels of spending and employment. For otherwise the impact of such changes will be on prices, and the characteristic Kaleckian results will not appear. (For example, if an increase in the wage bill in the capital goods sector bid up consumer goods prices, this would raise profits by reducing real wages, and there would be no multiplier effects on employment.)

V CHANGES IN DEMAND

In the traditional theory, changes in demand will affect prices, unless very special conditions hold. But Kalecki is no better placed. His theory of price rests on the determinants of the mark-up under conditions of imperfect competition – a higher mark-up would normally reflect a higher 'degree of monopoly'. Whatever the other strengths and weaknesses of this approach, it does not establish a price ratio that is invariant to changes in effective demand. For the degree of monopoly in a particular industry has to depend in part on the elasticity of demand for its product – and this, in turn, can hardly be unaffected by the size of the wage bill, its distribution between sectors, the distribution of income, and the distribution of realised profits between the sectors. Yet all of these are determined by the theory of effective demand.

VI 'NORMAL' PRICES

So Kalecki's theory of effective demand requires a theory of 'normal prices', independent of the short-period changes studied by that theory (and perhaps independent of at least some long-period changes in demand as well, but that is not the issue here). These prices are required to establish the level of normal capacity output and profits, in order to study the degree of capacity utilisation and the realisation of profits. Moreover, the normal rate of profit is required in order to study the problem of the choice of technique. But if the normal rate of profit is known then, following Sraffa, in competitive conditions or for any given degree of monopoly, normal prices can be calculated, given the set of possible techniques (or given the dominant established technique). So the problem boils down to finding the determinants of the normal rate of profit. Once this is known, the normal mark-up can be calculated in each industry. If conditions are competitive and the rate of profit is uniform, there will be an associated set of normal prices, based on the competitive mark-ups. Long-run changes in the degree of monopoly will then define the deviations of actual 'normal' prices from competitive normal prices – i.e., from the normal prices associated with a uniform rate of profit. The actual system's normal prices then make it possible to aggregate heterogeneous outputs into the variables required in the theory of effective demand, and they make it possible to understand how calculations regarding the future can be attributed to agents of the theory.

VII CONCLUSION

The conclusion, therefore, is that Kalecki's approach implicitly rests on the relationship between the rate of profit and normal prices, and to be complete requires a theory of the determinants of the rate of profits.

10 Effective Demand and the Rate of Profits: Some Thoughts on Marx, Kalecki and Sraffa*

FERDINANDO VIANELLO

I INTRODUCTION

The Marxian twist given by Kalecki to his theory of effective demand by restating it with the help of the 'schemes of reproduction'¹ makes Marx a natural term of comparison for the Polish economist. As a matter of fact, it is Marx himself who uses the 'schemes of reproduction' to point out the possibility that the 'surplus-value produced' may be not entirely 'realised' – namely, that aggregate production may exceed aggregate planned expenditure. The lack of a short-period adjustment mechanism strikes the modern reader, however, as a distinctive feature of Marx's treatment of the matter *vis-à-vis* the Keynesian and perhaps even more the Kaleckian theory of effective demand (Section II).² This difference between Marx and Kalecki appears interviewed with a difference in their views on the rate of profits. It is the latter difference that the present study will try to highlight, disentangling it from the former.

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According to Marx, overproduction³ represents a chronic tendency of the capitalist economy, much for the same reason given by Kalecki (1939, p. 149) for the recurrence of crises: 'The tragedy of investment is that it causes crisis because it is useful'. (And according to both Kalecki and Marx, it may be added, the role of the crises is to make investment useful again, by eliminating excess capacity.) However, overproduction is not permitted to interfere with Marx's determination of the general rate of profits, which enters that price he calls 'of production' and describes as the 'guiding star' for investment decisions. Given the level of the wage, the general rate of profits as conceived of by Marx can in fact be affected only by a change in the methods of production (Section III). The same is true of the rate of profits appearing in Piero Sraffa's normal-price equations, which implicitly postulate – it will be suggested – the normal degree of utilisation of productive capacity (Sections IV and V).

According to Kalecki, on the contrary, no such things as normal prices and a general rate of profits exist to provide guidance for investment decisions, the expected profitability of investment being made to depend on the current profitability of capital, or the 'realised' rate of profits, which is, *coeteris paribus*, the higher the higher the degree of utilisation of productive capacity. Effective demand is thus credited by Kalecki with an influence on the expected profitability of investment, whereas neither Marx nor (according to our interpretation) Sraffa are prepared to recognise such an influence on the general, or normal, rate of profits, which is – as how should it not be? – the rate they regard as relevant to investment decisions.⁴

A current profitability exceeding (or falling short of) the general rate of profits as a result of productive capacity being over (or, respectively, under) utilised – it will be submitted – is no reason why a producer should expect that the productive capacity of the equipment (embodying the dominant method of production) he will find himself endowed with in the years to come will be similarly over (or under) utilised, thus causing profitability to persist in standing above (or, respectively, below) the general rate of profits. For such an expectation would imply – to put it shortly – that the producer in question is planning to endow himself with less (or, respectively, more) capital equipment than he expects to need.

On the same ground, Marx's claim that a rise in the wage weakens the inducement to invest will be defended against Josef Steindl's criticism, based on the notion that a real-wage rise does not show itself in lower profits – for profits cannot fall before investment (or

capitalists' consumption) has fallen – but in a higher degree of utilisation of productive capacity in the (vertically integrated) consumption-good department. Even if current profitability remains unchanged, it will be contended, the general rate of profits (i.e., the expected rate, corresponding to the normal degree of utilisation of productive capacity) falls as the wage rises (Section VI). And this may well adversely affect investment.⁵

II PRODUCED AND REALISED SURPLUS-VALUE

'As soon as all the surplus-labour it was possible to squeeze out has been embodied in commodities', Marx declares:

surplus-value has been produced. But this production of surplus-value completes but the first act of the capitalist process of production – the direct production process . . . Now comes the second act of the process. The entire mass of commodities, i.e., the total product, including the portion which replaces the constant and variable capital, and that representing surplus-value, must be sold. If this is not done, or done only in part, or only at prices below the prices of production, the labourer has been indeed exploited, but his exploitation is not realised as such for the capitalist, and this can be bound up with a total or partial failure to realise the surplus-value pressed out of him, indeed even with the partial or total loss of the capital (Marx, 1894, p. 244).

Let C be the overall value of the means of production – or 'constant capital' – employed in a particular year, and Y that year's value added. The value of the 'entire mass of commodities' produced, and brought to market at the end of the annual cycle of production, is $(C' + Y)$, where C' denotes the sum of the value of the intermediate goods used up in production and of the portion of value 'transferred from the instruments of labour to the product of labour' (Marx, 1885, p. 453). An equivalent expression is $(C' + V + S)$, where V denotes the economy's 'variable capital', or the value of the necessities advanced to workers in the year considered, and S the 'surplus-value' produced, the latter being defined as the difference between the value added and the value of the necessities ($S = Y - V$). If each worker is assumed to receive the same bundle of commodities in exchange for one year's labour, and the labour time directly or

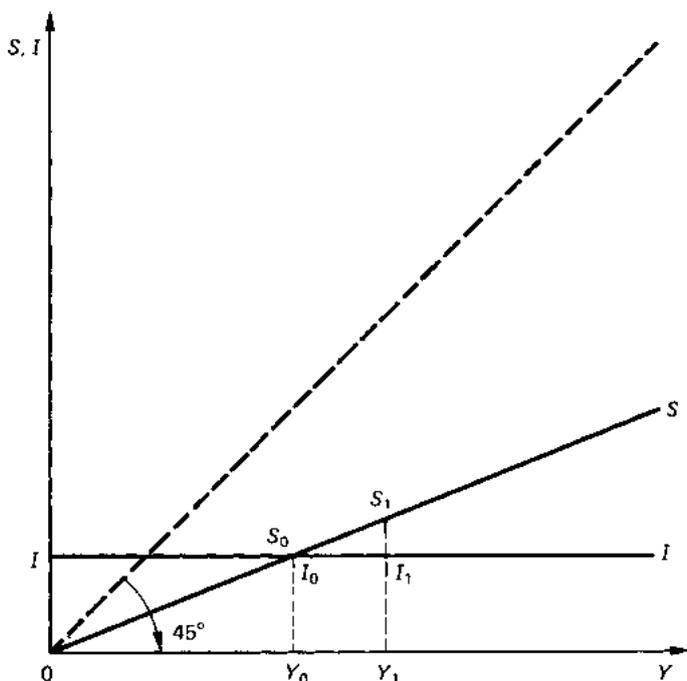


FIGURE 10.1 *Realised surplus-value unchanged ($Y_0 I_0 = Y_1 I_1$) as value added rises from OY_0 to OY_1 and surplus-value produced from $Y_0 S_0$ to $Y_1 S_1$.*

indirectly required to produce the bundle is taken as given, the labour theory of value makes S a constant proportion of Y^6 , as shown by the line OS in Figure 10.1.

Planned expenditure, too, is reckoned by Marx gross of depreciation and inclusive of the purchase of intermediate goods, namely (assuming the absence of capitalist's consumption) as $(C' + V)$ plus net planned investment, or the planned variation of $(C + V)$ from one year to the next. Clearly, total planned expenditure $(C' + V + \Delta C + \Delta V)$ exceeds the total value of production $(C' + V + S)$, or falls short of it by the excess of $(\Delta C + \Delta V)$ over S or, respectively, of S over $(\Delta C + \Delta V)^7$. (The distinction, peculiar to Marx's theoretical construction, between the 'values', reflecting the quantities of labour expended on the production of the commodities, and the 'prices of production', based on the general rate of profits,

will for the moment be ignored, as Marx himself usually does in his analysis of the 'realisation problem'; on the prices of production see below pp. 171-2)

In Figure 10.1, net planned investment is represented by the line *II*. At the value added OY_0 the surplus-value produced (Y_0S_0) equals the net planned investment (Y_0I_0). If, then, the composition of total planned expenditure is the same as that of the total product, the latter is entirely sold at its full value, and the surplus-value produced is entirely realised, or converted into an equal amount of net profits. Next, consider the case where the value added is OY_1 . If total planned expenditure is constant in terms of value, as assumed in Figure 10.1, it falls short of the total value of production by I_1S_1 . Realised surplus-value is the same as in the previous case ($Y_1I_1 = Y_0I_0$), although the surplus-value produced (Y_1S_1) is now greater. Capitalists, then, 'earn what they spend', though in a sense peculiar to the present context: they receive as *realised* surplus-value what they spend on the purchase of additional constant and variable capital (*plus* what they spend for their own consumption, the existence of which can easily be allowed for).

No short-period adjustment mechanism is implied in the above discussion. The economy's value added is *not* assumed to tend to that level (OY_0) at which total expenditure and total output are equal. It follows that the deficiency of planned expenditure shows itself in overproduction⁸ rather than in underutilisation of productive capacity: lack of realisation does not prevent surplus-value from being produced.

This reading of Marx's position may appear objectionable in the light of his emphatic rejection of the view of 'social capital as a fixed magnitude of a fixed degree of efficiency' (a view which makes 'the commonest phenomena of the process of production, as e.g., its sudden expansions and contractions, nay, accumulation itself, . . . perfectly unconceivable' (Marx, 1867, pp. 570-1) and of the prominence he gives to the 'elasticity' (Marx, 1867, p. 424) of production by calling attention, in particular, to the existence of reserves of unused productive capacity - or 'dormant capital', in Bailey's phrase taken over by Marx (Marx, 1953, pp. 582-4) - and to the common practice of changing the length of the working day and the intensity of labour in response to changes in demand (see, for example, Marx, 1885, p. 262).⁹ It must, however, be stressed that such statements belong to a different context from the analysis of the 'realisation problem', where departures from the normal degree of utilisation of

productive capacity play no significant role, and the production plans made at the beginning of the year (when means of production and necessaries are bought) are usually treated as if they were not revised until the end of the year (when products are brought to market).

III THE GENERAL RATE OF PROFITS UNAFFECTED BY OVERPRODUCTION

Maladjustments in the composition of output were left out of the picture in the preceding section, where the attention was focused on the *level* (as opposed to the *composition*) of planned expenditure. Such maladjustments (or 'disproportionate production' (Marx, 1905-10, II, p. 521)) are, however, of major importance in Marx's view of the 'realisation problem', being indeed susceptible of giving rise not only to 'partial crises' (Marx, 1905-10, II, p. 521), but also to a widespread fall in the demand for means of production and necessaries, and thereby – if the industries initially involved are of sufficient weight – to a 'more or less general . . . overproduction on the whole market' (Marx, 1905-10, II, p. 523).¹⁰

The adjustment mechanism entrusted with the task of bringing about a proper composition of output is a long-period one, namely, the 'competition of capitals' (Marx, 1905-10, II, p. 521). Apart from the above-mentioned reference to 'a more or less general overproduction', as a possible outcome of 'disproportionate production', Marx's argument closely follows that of Ricardo (which in turn echoes that of Adam Smith). If the quantities of commodities brought to market bear different proportions to each other from the quantities that the market is prepared to absorb at those prices ('natural prices', 'prices of production') which embody the 'general' or, in Adam Smith's phrase, 'ordinary' rate of profits, then – so the argument runs – 'the rise or fall of market value which is caused by this disproportion', and the consequent unequal profitability of the different employments of capital, result in "the withdrawal of capital from one branch of production and its transfer to another" (Marx, 1905-10, II, p. 521). Thus, 'the principle that apportions capital to each trade in the precise amount that is required', as Ricardo (1821, p. 80) calls the competition of capitals, is the same one which makes it possible to conceive of the natural price as 'the central price, to which the prices of all commodities are continually gravitating' (Smith, 1776, I, p. 65).

According to Ricardo, however, the competition of capitals, which tends to correct the maladjustments as regards the composition of output, operates in conjunction with the Law of Markets, which ensures that the level of planned expenditure is adjusted to the level of output. As we have seen, this is not so with Marx, to whose analysis of the 'realisation problem' we must now return, bringing into consideration his view of overproduction not as a mere possibility, but as a chronic tendency of the capitalist economy.

'Even when the real wages are rising', Marx holds, they 'never rise proportionally to the productive power of labour' (Marx, 1867, p. 566), which is continuously enhanced by the replacement of workers with machines.¹¹ This enlarges year after year the relative (as well as the absolute) size of the gap between the value added and the variable capital – the line *OS* in Figure 10.1 steepens progressively – thus making increasingly difficult for investment to fill it, namely to equal the surplus-value produced. A strengthening of the inducement to invest in the investment-good department of the economy, such as to make up for the weakening of the inducement to increase the productive capacity installed in the consumption-good department, may of course alleviate the difficulty. Accumulation in the investment-good department cannot, however, be assumed to be self-sustaining – as it will be in Tugan-Baranovsky's criticism of Marx's conclusions (see Tugan-Baranovsky, 1905, Chapter 9) – for, ultimately, 'constant capital is never produced for its own sake but solely because more of it is needed in spheres of production whose products go into individual consumption' (Marx, 1894, p. 305).

If we turn now to Marx's determination of the general rate of profits, the picture appears markedly different. For in this part of his theory we find no trace of overproduction. In calculating the general rate of profits as the ratio between the overall surplus-value produced (*S*) and the overall constant *plus* variable capital (*C + V*), Marx takes it for granted that the surplus-value produced is entirely realised, in otherwords, that the total product and the productive capacity installed are fully adjusted to the level and composition of planned expenditure.

The reason given by Marx for ruling out overproduction when determining the general rate of profits is that overproduction is by its very nature a temporary phenomenon. Commenting upon Adam Smith's claim that 'as capitals increase in any country, the profits that can be made by employing them necessarily diminish' (Smith, 1776, 1,

p. 375; see also Smith, 1776, I, p. 98), Marx observes: 'When Adam Smith explains the fall in the rate of profits from an over-abundance of capital, he is speaking of a *permanent* effect and this is wrong. As against this, the transitory over-abundance of capital, overproduction and crises are something different. Permanent crises do not exist' (Marx, 1905–10, II, p. 497n). For it is characteristic of the crises to abolish their own cause by reducing the productive capacity installed.

This amounts to saying that the actual ratio of the economy's realised surplus-value to the value of the overall capital employed gravitates towards a 'central' ratio, much in the same way in which actual (or 'market') prices gravitate towards the prices of production. Overproduction – we are led to conclude – though a chronic tendency of the capitalist economy, cannot affect the general rate of profits – the latter being not, in Marx's opinion, the actual, but the 'central' surplus-value – capital ratio, or the ratio (of *produced and realised* surplus-value to the value of capital) observable in a 'fully adjusted situation', as defined in Vianello (1985, p. 70) – namely, one in which commodities are sold at their prices of production and the productive capacity installed in each industry is exactly sufficient to produce the quantities that the market absorbs at those prices. It follows that what can cause a change in the general rate of profits, as conceived of by Marx, is only (a) a change in the 'rate of surplus-value', namely, the ratio of the surplus-value produced to the variable capital (S/V) or (b) a change in the 'organic composition of capital', namely, the ratio of constant to variable capital (C/V); either change being susceptible of resulting both from a change in the bundle of necessities which represents the reward of one year's labour and by a change in the methods of production. (On the existence side by side of two or more methods of production for the same commodity as a persisting source of discrepancy between the overall profits: overall capital ratio and the general rate of profits, see below, pp. 173–4. Let us assume, for the moment, that each commodity is produced in only one way).

The general rate of profits – determined, as we have seen, on the basis of the labour theory of value – is used by Marx, in a second stage of the argument, to determine the 'prices of production', which owe their name to the circumstance of being '*in the long run the necessary condition of supply*,¹² of the reproduction of commodities in every individual sphere' (Marx, 1894, p. 198, emphasis added). As noted above (p. 169) – and as Marx himself points out in a passage

quoted below (p. 173) – ‘price of production’ is nothing but another name for the ‘natural price’, namely, for that price of which Adam Smith says that, though it ‘is not always the lowest at which a dealer may sometimes sell his goods, it is the lowest at which he is likely to sell them for a considerable time; at least where there is perfect liberty, or where he may change his trade as often as he pleases’ (Smith, 1776, I, p. 63). A formulation which also appears to have inspired Alfred Marshall’s description of the *long-period normal supply price* as that price ‘the expectation of which is sufficient and only just sufficient to make it worth while for people to set themselves to produce that aggregate amount’, where reference is made to ‘what can be produced by plant, which itself can be remuneratively produced and applied within the given time’ (Marshall, 1964, pp. 310 and 315).¹³

As Marx puts it, the price of production ‘forms the guiding star of the merchant or the manufacturer in every undertaking that requires time’ (Marx, 1867, p. 163n.). Which, as far as the manufacturer is concerned, can only be taken to mean that he will plan to endow himself with the capital equipment required to produce those commodities, and in those quantities, which he expects to be able to sell at prices not falling short – as a rough average over ‘fat and lean years’ (Marx, 1894, p. 208) – of the corresponding prices of production; namely, at a profit not falling short of that corresponding to the general rate (an extra profit being, however, expected by ‘the capitalist who applies [an] improved method of production’ up to the moment at which ‘the new method of production [will have] become general’ (Marx, 1867, p. 302) and a lower price of production will have come to be established).

IV THE GENERAL RATE OF PROFITS REDEFINED

Also in Piero Sraffa’s *Production of Commodities by Means of Commodities*, the rate of profits and the prices corresponding to any given wage (or the wage and the prices corresponding to any given rate of profits, if one accepts Sraffa’s suggestion of treating the latter as the independent variable: see Sraffa, 1960, p. 33) can be affected only by a change in the methods of production. Explaining his choice of calling ‘values’ or ‘prices’ *tout court* the exchange ratios which satisfy his equations, Sraffa observes: ‘Such classical terms as “necessary price”, “natural price” or “price of production” would meet the case,

but value and price have been preferred as being shorter and in the present context (which contains no reference to market prices) no more ambiguous' (Sraffa, 1960, p. 9; see also Marx, 1894, p. 198: '[the price of production] is really what Adam Smith calls *natural price*, Ricardo calls *price of production*, *cost of production*, and the physiocrats *prix nécessaire*'). To this list Joan Robinson, (1962) adds 'normal price' (see also above, note 13), a phrase which will be preferred in what follows to the old-fashioned 'price of production' as a description of the 'centre of repose' (Smith, 1776, I, p. 65) towards which market prices gravitate.

Three differences between Marx's and Sraffa's treatment of the matter should, however, be noted. The first and best known one is that Sraffa recognises that the rate of profits 'cannot be determined before we know the prices of the goods' (Sraffa, 1960, p. 6) any more than the prices can be determined before we know the rate of profits, and he provides a theoretical scheme capable of coping with this interdependence. In doing so, he breaks with Marx's two-stage procedure – of determining firstly the general rate of profits on the basis of the labour theory of value and then using the general rate of profits to determine the prices of production (see above, Section III) or, which amounts to the same thing, with his conception of the prices of production as resulting from the economy's overall surplus-value being allotted by competition to the different industries in proportion to the constant *plus* variable capitals employed in each (both reckoned in terms of the labour-determined 'values' of the underlying commodities, rather than of their prices of production).

The second difference concerns the problem of identifying, among the different methods of production employed in the same (single-product) industry, the one to be taken into account for the purpose of determining normal prices and the general rate of profits. This must obviously be the same method of production which is normally chosen by a producer who decides to endow himself with additional productive capacity or to replace his worn-out, or obsolete, equipment. Such a 'normal', or 'dominant', method of production may conceivably coexist both with more profitable methods – which, although susceptible of becoming dominant at some point in the future, for the time being have no substantial bearing on the competition of capitals (see Marx's reference to an improved method being made 'general' by competition: end of Section III, above) – and with less profitable ones, employing 'fixed capital items which, having been in active use in the past, have now been superseded but are

worth employing for what they can get' (Sraffa, 1960, p. 78). In discussing the formation of the general rate of profits and of the prices of production, however, Marx inclines to treat the 'values' (on which the above-described procedure leading to the prices of production is based) as reflecting the quantity of labour expended *on average* on the production of one unit of each commodity, thus making the 'value' of the overall quantity produced of each commodity reflect the overall quantity of labour expended on its production, no matter how numerous (and how different from each other) are the methods of production employed.¹⁴ It is worth emphasising that, once the ingenious idea of combining all the methods employed in the production of each commodity into a single 'average' method has been recognised as untenable as a basis for the normal-price equations, we are left with no connection whatsoever between the general rate of profits and the ratio of the overall profits received in the economy (inclusive of the 'quasi-rent' (Sraffa, 1960, p. 78) received for the obsolescent machines, as well as of the extra profits secured by the latest-introduced methods) to the value of the overall capital employed (inclusive of the value of the obsolescent as well as of the newest machines).

The third difference is that nothing in Sraffa's book appears to preclude a reading of his normal-price equations as referring to a world in which production adjusts to demand through changes in the degree of utilisation of productive capacity. (In order to reconcile this interpretation with the classical hypothesis, retained by Sraffa, that commodities are brought to market at the end of the year, we shall assume that producers correctly anticipate demand one year in advance, so that they can endow themselves with the appropriate amounts of intermediate goods; as to wages, Sraffa assumes that they are paid *post factum* as a share of the annual product' (p. 70), rather than at the beginning of the year as an advance from capital.)

The existence of a short-period adjustment mechanism, based on changes in the degree of utilisation of productive capacity calls, however, for a redefinition of normal prices and the general rate of profits, to the effect that these concepts postulate the 'normal' degree of utilisation of productive capacity – namely, that degree of utilisation which producers regard as ideally suited to their requirements, particularly (though not only) in the light of the expected fluctuations of demand (for a detailed discussion of the factors affecting the normal degree of utilisation see Ciccone (1986, pp. 26–32); the *locus classicus* for the subject is Steindl (1977, Chapter 2)). The normal, or

'planned', degree of utilisation of productive capacity – which bears a definite kinship to Professor Steindl's 'planned' (or 'desired') excess capacity (but also, *mutatis mutandis*, to Harrod's 'required' capital coefficient) – is the only one compatible with the conception of normal prices as the 'central' ones, and the guiding lights for investment decisions. For that rate of profits the expectation of which is regarded as just sufficient to make a trade attractive (namely, the general rate of profits) cannot be conceived of as implying a degree of utilisation of productive capacity different from the one planned by the investors. (Suppose the general rate of profits to be 10 percent. A 10 percent rate obtainable thanks to a degree of utilisation systematically higher – or in spite of a degree of utilisation systematically lower – than the one planned by the investors would, then, represent an insufficient – or, respectively, more than sufficient – reward for the employment of capital in production. Were it regarded as exactly sufficient, we should be compelled to conclude that the general rate of profits is actually lower – or, respectively, higher – than 10 percent.)

Consider now a highly simplified economy, consisting of two industries. As in Professor Hicks's well-known example (Hicks, 1965, Chapter 12), one of them produces a quantity of tractors (T) and the other a quantity of corn (C), tractors being the only means of production employed in the two industries. The tractors, which are all of the same type, do not wear out with use and are confidently expected not to become obsolete. By T_t and T_c we indicate the quantities of tractors employed in the tractor and in the corn industries, respectively; by L_t and L_c the corresponding quantities of (uniform) labour. Sraffa's normal-price equations, adapted to our hypotheses and definitions, appear as follows:

$$\begin{aligned} T_t p_t r + L_t w &= T p_t \\ T_c p_t r + L_c w &= C \end{aligned}$$

where r is the general rate of profits, w the wage and p_t the price of tractors; the price of corn is made equal to unity.

The reference to the normal degree of utilisation of productive capacity is made explicit by adding the equations

$$\begin{aligned} T &= x_t T_t \\ C &= x_c T_c \\ L_t &= l_t T_t \\ L_c &= l_c T_c \end{aligned}$$

where x_t and x_c are the quantities respectively of tractors and of corn produced by a tractor utilised normally – i.e., manned respectively with l_t and l_c units of labour.

Substituting the latter equations into the former, we get the following:

$$\begin{aligned} p_t r + l_t w &= x_t p_t \\ p_t r + l_c w &= x_c \end{aligned}$$

i.e., two equations as compared with three variables (r , w and p_t). The resulting degree of freedom allows us to establish a relationship between the wage and the rate of profits. If we further assume that tractors, when utilised normally, are manned in the same way in the two industries, namely $l_t = l_c$, we are back in the realm of the labour theory of value, and the relationship between w and r becomes a straight-line one:

$$r = x_t \left(1 - \frac{l_c}{x_t} w \right)$$

as shown in Figure 10.2 (the second variable, π , measured on the horizontal axis belongs in the argument of the following sections). When $w = 0$ the rate of profits is equal to x_t , or to the ratio of T to T_t , corresponding to the normal degree of utilisation of productive capacity. As the wage is increased, the rate of profits falls continuously, reaching zero when the wage equals the output of corn per unit of labour (x_c/l_c).

V CURRENT PROFITABILITY AND THE GENERAL RATE OF PROFITS COMPARED

In considering the adjustment of production to demand through changes in the degree of utilisation of productive capacity, T_t and T_c will be taken as given, and it will be assumed that, as T and C rise or fall, L_t and, respectively, L_c rise or fall in the same proportion. It will further be assumed that the two commodities are actually sold (and the book value of tractors reckoned) at their normal prices, this being true not only when productive capacity is utilised normally, but also when it is over or underutilised.

Thanks to these *additional* assumptions the graphical device pre-

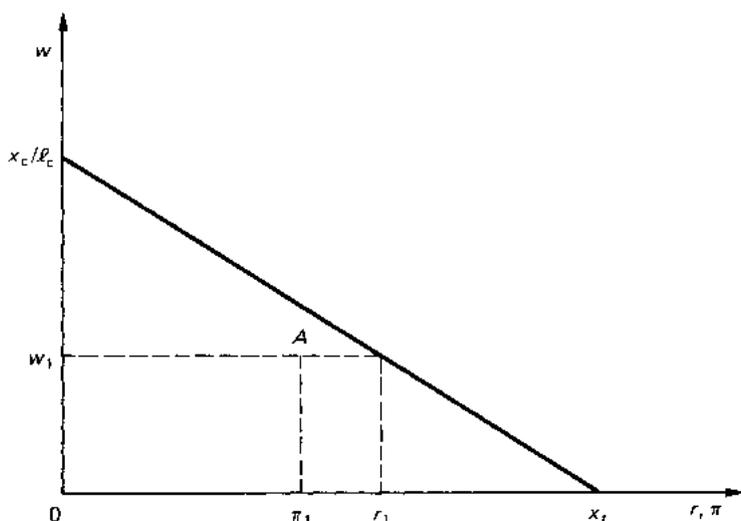


FIGURE 10.2 Relationship between the wage in terms of corn (w) and the general rate of profits (r) when $l_t = l_c$. Current profitability ($\pi = P/K$) is measured on the horizontal axis alongside of r ; let $O\pi_1$ be the current profitability corresponding to the wage Ow_1 (hence, to the general rate of profits Or_1) when the value added has fallen to the level OY_0 in Figure 10.3.

sented in Figure 10.1 can easily be adapted to the case under scrutiny. This is done in Figure 10.3, which is premised on the wage being taken as given (let it be the wage Ow_1 in Figure 10.2) and on workers being assumed not to save and capitalists not to consume. As in Figure 10.1, the line OS represents the difference between the value added and the wages. Investment orders are assumed to be initially at the level shown by the upper horizontal line (\bar{I}). The value added OY_1 satisfies the condition

$$Y - (L_t w + L_c w) = T p_t$$

(it being understood that T is adequate to meet the investment orders). This implies that corn is produced in the quantity demanded by the workers ($L_t w + L_c w = C$) and that profits equal the value of the quantity of tractors produced, or

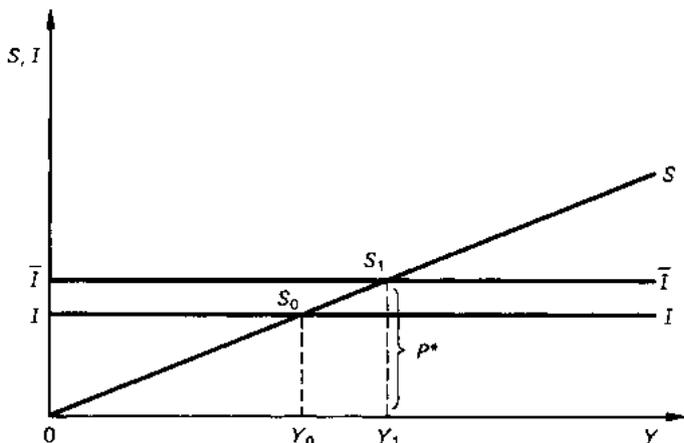


FIGURE 10.3 Profits fall as investment falls. From being equal to the general rate of profits (Or_1 in Figure 10.2) when the value added is at the level OY_1 , current profitability ($\pi = P/K$) falls to $O\pi_1$ in Figure 10.2 as the value added falls to the level OY_0 .

where P denotes profits. At any other level of Y , errors in the anticipation of demand would cause unplanned accumulation of stocks of corn or postponement of consumption.¹⁵ It will be remembered, however, that such errors have been assumed not to be made (see above, p. 174).

The stage has now been set for comparing Sraffa's general rate of profits with Kalecki's 'gross profitability of existing plant', or 'rate of profits' (Kalecki, 1933, p. 6 and 1954, p. 98), by which he means the ratio of the economy's current profits, gross of depreciation, to the current value of the economy's capital. A concept which our everlasting tractors make equivalent to the 'current', or 'realised', rate of profits as defined by Joan Robinson – namely, 'the ratio of current gross profits, minus depreciation, to the value of the stock of capital at current replacement costs' (Robinson, 1962, p. 29).

Current profitability may differ from the general rate of profits on account of (a) different methods of production being employed side by side in the same industry (see above, Section IV), (b) commodities being sold at market prices which differ from their normal prices, and (c) productive capacity being over or underutilised. The tractors

being assumed to be all of the same type and the two commodities to be sold in all cases at their normal prices, our economy admits of only one reason for discrepancy between current profitability and the general rate of profits – namely, over or underutilisation of productive capacity.

Suppose however, as a last preliminary exercise, that, the value added being OY_1 , the normal degree of utilisation prevails in both industries. The profits accruing to the capitalists in this ‘fully adjusted situation’ (see above, p. 171) are

$$P^* = x_i T_i p_i$$

and the general rate of profits (Or_1 in Figure 10.2), which is actually received in both industries, can be expressed as

$$r = \frac{P^*}{K}$$

where K denotes the value (at normal prices) of the stock of capital ($K = T_i p_i + T_c p_i$). If now investment falls to the level shown by the lower horizontal line (II) in Figure 10.3, the value added falls to OY_0 and profits to $Y_0 S_0$. The resulting situation may be described as one in which, the general rate of profits being P^*/K , current profitability (P/K) falls short of it (let it be $O\pi_1$ in Figure 10.2); or one in which, owing to the underutilisation of productive capacity, capitalists as a class fail to receive the full (general) rate of profits on their capital.

VI CURRENT AND EXPECTED PROFITABILITY: THE GENERAL RATE OF PROFITS REHABILITATED

According to Kalecki, the expected profitability of investment is higher, the higher P/K ,¹⁶ which in turn is higher, the higher the current degree of utilisation of productive capacity. In his own words, ‘the marginal rate of profits at a given time – by which is meant the marginal *prospective* rate of profits . . . – is determined *grosso modo* by the level of national income Y and the stock of capital equipment’ (Kalecki, 1939, p. 133, emphasis in original). This being so because, ‘knowing so little about the future, entrepreneurs are inclined to be optimists when present trade is good and pessimists when it is bad’ (Kalecki, 1939, p. 134).

What makes this alleged influence of current on expected profitability highly objectionable (no less so for being widely recognised) is that it implies that, whenever the existing tractors (to stay with the above example) are over (or under) utilised, producers expect, for that very reason, that their tractors (taking together the existing ones and those – of the same type – to be installed) will turn out to be over (or, respectively, under) utilised also in the future. Which is tantamount to saying that they are currently planning to endow themselves with less (or, respectively, more) tractors than they expect to be able to run at their normal degree of capacity utilisation. Why, however, should producers set themselves the goal of perpetuating an initial maladjustment?

The foregoing does not seek to deny that 'present affairs have a predominant influence on long-term expectations' (Kalecki, 1939, p. 134) – or that 'the facts of the existing situation enter, in a sense disproportionately, into the formation of our long-term expectations; our current practice being to take the existing situation and to project it into the future, modified only to the extent that we have more or less definite reasons for expecting a change' (Keynes, 1936, p. 148). What is denied is, rather, that producers *expect* a certain degree of utilisation of productive capacity in the same way in which they expect, say, a certain level of demand for their products. The future degree of utilisation of productive capacity, it is contended, is not a question of expectation but of requirement and planning (see above, p. 174–5).

The planned degree of utilisation is, indeed, to be numbered among the elements of the existing situation susceptible of being projected into the future in the way suggested by Keynes, while this is not the case with the current degree. Whatever the latter may be, producers will plan to install that amount of additional productive capacity which they regard as necessary in order to meet the expected demand for their products without either systematically exceeding or systematically falling short of that degree of utilisation which they consider normal – i.e., suitable – in the existing situation (unless, of course, they have 'more or less definite reasons for expecting a change' in the factors on which they base their opinion – e.g., in the pattern of the fluctuations of demand). This planned addition to the existing productive capacity brings the expected degree of utilisation into line with the normal one, and thus expected profitability into line with the general rate of profits.

Suppose, however, that all the producers in a trade regard their

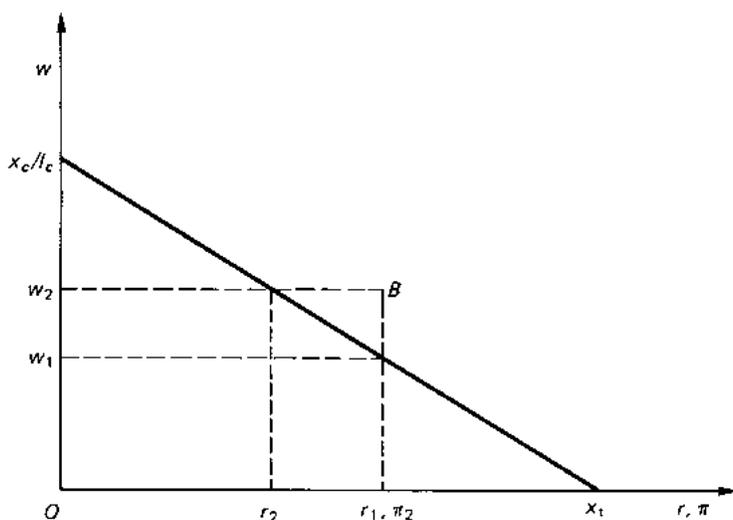


FIGURE 10.4 Relationship between the wage in terms of corn (w) and the general rate of profits (r) when $l_t = l_c$: see Figure 10.2. $O\pi_2$ is the current profitability corresponding to the wage Ow_2 (hence, to the rate of profits Or_2) when, following the rise of the wage from Ow_1 to Ow_2 , the value added has risen to the level OY_2 in Figure 10.5; current profitability remains equal to the general rate of profits (Or_1) ruling before the rise in the wage and in the value added.

existing capital equipment as more than sufficient to meet the expected demand for their products. The general rate of profits can still be said to provide guidance for their investment decisions no less than for those of potential entrants – though, as it were, a negative guidance. For no producer will resume investment until he satisfies himself that he will receive at least the general rate of profits from the employment not only of his existing tractors, but also of additional ones.¹⁷

To look at the argument of this section from a different perspective, let us suppose the wage to rise from Ow_1 to Ow_2 in Figure 10.4 (which is in fact a replica of Figure 10.2). If the new proportion of $(Y - Lw)$ to Y is that shown by the line OS and investment orders by the line $\bar{I}\bar{I}$ in Figure 10.5 (a replica of Figure 10.3), the increased demand for and production of corn causes the value added to rise from OY_1 to OY_2 . The economy's overall profits turn out not to have

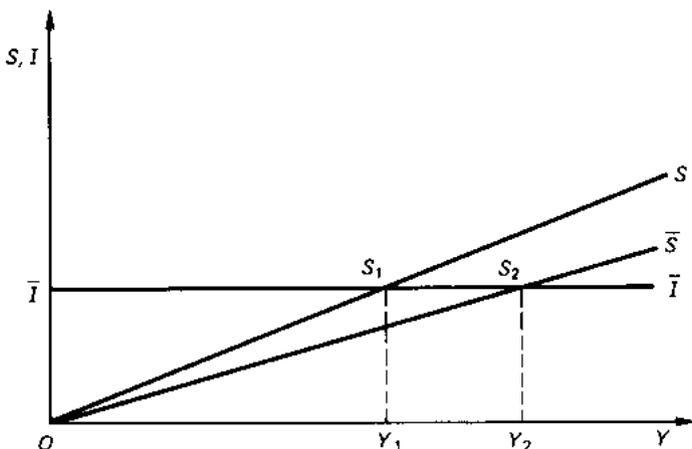


FIGURE 10.5 Profits unchanged as the wage rises (from Ow_1 to Ow_2 in Figure 10.4) and the general rate of profits falls (from Or_1 to Or_2).

changed ($Y_1S_1 = Y_2S_2$), the fall in the profits received in the tractor industry being matched by an equivalent increase in the profits received in the corn industry.

It is on this ground that Professor Steindl rejects Marx's claim that, following a rise in real wages, 'accumulation slackens . . . because the stimulus of gain is blunted' (Marx, 1867, p. 580). The rise in real wages, Professor Steindl argues, 'could never reduce profits as long as investment (and capitalists' consumption) remains high' (Steindl, 1977, p. 237; see also Kalecki, 1954, p. 61).

What he fails to point out is, however, that expected profitability is hindered by the wage rise, even if current profitability is not. Current profitability – which was assumed to equal the general rate of profits when the wage was OY_1 (in Figures 10.2 and 10.4) and the value added Ow_2 (in Figures 10.3 and 10.5) – has indeed remained unchanged (the current profitability corresponding to Ow_2 being $O\pi_2 = Or_1$), but it now exceeds the general rate of profits (which has fallen from Or_1 to Or_2) as shown by point B in Figure 10.4. As a matter of fact, current profitability in the corn industry is still higher than $O\pi_2$. Producers, however, know very well that their profits are bolstered by the overutilisation of productive capacity. And since they are not planning to keep productive capacity perpetually over-

tilised, they must expect profitability to fall not only below its present level, but also below Or_1 . Indeed, if they expect the normal price of tractors in terms of corn to remain constant (an expectation which, thanks to our heroic assumptions, will prove correct), their expected profitability will be Or_2 . As to producers in the tractor industry (whose equipment has never ceased to be run at its normal degree of capacity utilisation), their current profitability already equals the new general rate of profits (Or_2); nor have they any apparent reason for expecting the future to bring about a change in profitability (provided, of course, that the new wage is believed to have come to stay).

That a rise in real wages had an unmistakably beneficial impact on the economy was a basic tenet of the old underconsumptionists, to which Marx countered that a rise in real wages was indeed a remedy for overproduction, but not a painless one. For it caused the general rate of profits to fall, thus paving the way for a different kind of crisis.¹⁸ Kalecki's and his followers' lack of a proper understanding of the cost- (as opposed to the demand-) side of the problem – namely, of the impact of a rise in real wages on expected profitability – brings them closer to the underconsumptionists than to Marx, in whose theoretical construction the view of the capitalist economy as doomed to overproduction – a view for which he was indebted to Engels and through him to Sismondi¹⁹ – is made to co-exist with the Ricardian approach to value and distribution, hence (the differences between Marx and Ricardo as regards capital being left out of the picture) with the inverse relationship between the wage and the general rate of profits. (It is noteworthy, in the latter connection, that in Marx's *Contribution to a Critique of Political Economy* Ricardo and Sismondi are, as it were, placed on the same footing, 'classical economics' being described as 'ending with Ricardo in Britain and Sismondi in France' (Marx, 1859, p. 52); see also Marx, 1873, p. 24.)

NOTES

1. See, in particular, Kalecki (1954, Chapter 3). A reference to the 'schemes of reproduction' can also be found in Kalecki (1939). Kalecki's claim that, in discussing the 'schemes of reproduction', Marx 'does not pay attention to the problem of what happens if investment is inadequate to secure the moving equilibrium' (Kalecki, 1939, p. 45) is at variance with the reading of Marx's position offered in Section II, below.
2. In Kalecki's theory of effective demand, as expounded in Chapter 3 of his *Theory of Economic Dynamics*, production is assumed to adjust

smoothly to demand and prices to remain constant until a bottleneck is reached. The importance of 'unexpected accumulation or running down of stocks', Kalecki contends, 'seems to have been frequently exaggerated' (Kalecki, 1954, p. 79). In a 1937 note, not to come to light till many years later, Keynes observed that the theory of effective demand is substantially the same if we assume that short-period expectations are always fulfilled'. 'I now feel', Keynes added, 'that if I were writing the book again I should begin by setting forth my theory on the assumption that short-period expectations were always fulfilled; and then have a subsequent chapter showing what difference it makes when short-period expectations are disappointed' (Keynes, 1973, p. 181). Had Keynes actually rearranged the matter along these lines, the initial statement of the principle of effective demand would have looked very much like that contained in Chapter 3 of the *Theory of Economic Dynamics*.

3. A situation of overproduction can be said to occur when the production of one or more commodities exceeds its or their 'effectual demand' as defined by Adam Smith, namely, 'the demand of those who are willing to pay the natural price' (Smith, 1776, II, p. 63) – in Marx's terminology, the 'price of production' – of the commodity or commodities in question. Kalecki's use of the phrase 'overproduction' to denote a situation resulting from a fall in aggregate demand and production (see Kalecki, 1967, pp. 149, 150) is eloquent as to his lack of interest in overproduction proper.
4. 'At any given level of the *general rate of profits*, the method that produces at a lower price is of course the most profitable of the two for a producer who builds a new plant' (Sraffa, 1960, p. 81, emphasis added). Indeed, who would care about a 'general rate of profits' which a producer who builds a new plant regards as irrelevant?
5. An investment slump is indeed hardly avoidable – it may be observed as an aside – if producers are unable to restore profitability (either by putting up prices relative to money wages or via a rise in productivity), and the monetary authorities refuse to let the rate of interests adjust downwards. See Vianello (1988, Section I).
6. This is the most clearly seen if the value of commodities is reckoned directly in units of labour (man-years). The value added per unit of labour is then made equal to unity. Since the variable capital per unit of labour (v) is uniform in all industries, the surplus-value per unit of labour ($1 - v$) is also uniform in all industries. Provided, then, that v remains constant, a rise in the economy's value added entails a proportional rise in the surplus-value produced, no matter how the composition of output may change.
7. Rather than to give a detailed account of Marx's treatment of the matter, the present section endeavours to bring out the essentials and to explore some implications of his position (as stated in *Capital*, II, Chs. 20 and 21). The explanation he offers of a discrepancy between total planned expenditure and the total value of production deserves, however, to be reported somewhat more widely. At any moment of time, Marx argues, some capitalists are engaged in the 'formation of a hoard' (Marx, 1885, p. 496); among the reasons for this use of profits, one to which Marx calls

attention is that 'every single capitalist requires a sinking fund for that part of his fixed capital which falls due for reproduction only after a lapse of years but must then be entirely replaced' (Marx, 1885, p. 185). Other capitalists are simultaneously engaged in the opposite exercise: 'with the money hoarded by the conversion of surplus-value into money they buy means of production, additional elements of constant capital . . . Capitalists belonging to these two categories confront each other: some as buyers, the others as sellers, and each one of the two exclusively in one of the two roles . . . But inasmuch as only one-sided exchanges are made, a number of mere purchases on the one hand, a number of mere sales on the other . . . the balance can be maintained only on the assumption that in amount the value of the one-sided purchases and that of the one-sided sales tally'. Such a balance, however, is 'an accident, owing to the spontaneous nature of this production' (Marx, 1885, pp. 496-9). A general deficiency of investment opportunities invites 'not an individual, but a general accumulation of money capital on the part of the capitalist class'. In order, however, to realise the surplus-value produced, converting it into money to be hoarded, capitalists 'would all have to sell a portion of their product without buying nothing in return' (Marx, 1885, pp. 352-3), which is obviously impossible. The resulting situation is of the kind discussed in the remainder of the present section.

8. See above, note 3. Overproduction of capital goods may be ruled out by assuming, as Marx sometimes does, that their production is 'determined by orders' (Marx, 1885, p. 470; see also Marx, 1885, p. 494).
9. A distinction is drawn by Marx between foodstuffs, whose production 'cannot be suddenly increased in the course of the year', so that 'their import grows' as a consequence of a rise in demand, and 'those branches of industry in which production can be rapidly expanded (manufacture proper, mining, etc.)' (Marx, 1885, p. 319). This distinction bears a close resemblance to Kalecki's one between those branches in which production 'is elastic as a result of existing reserves of productive capacity' and prices are 'cost-determined', and those in which production 'requires a considerable time' and prices are 'demand-determined' (Kalecki, 1954, p. 43; mining is, however, transferred from the first to the second group).
10. 'The stagnation of the market, which is glutted with cotton cloth, hampers the reproduction process of the weaver. This disturbance first affects his workers. Thus they are now to a smaller extent, or not at all, consumers of his commodity - cotton cloth - and of other commodities which entered into their consumption . . . But apart from the workers who are directly employed by the capital invested in the cotton weaving, a large number of other producers are hit by this interruption in the reproduction process of cotton: spinners, cotton-growers, engineers (producers of spindles, looms, etc.), iron and coal producers and so on . . . All these industries have this in common, that their revenue . . . is not consumed . . . in their own product but in the product of other spheres, which produce articles of consumption, calico among others. Thus the consumption and the demand for calico fall just because there is too much of it on the market. But this also applies to all other

- commodities on which, as articles of consumption, the revenue of these indirect producers of cotton is spent' (Marx, 1905–10, II, pp. 522–3).
11. 'The majority of the population, the working people, can only expand their consumption within very narrow limits, whereas the demand for labour, although it grows *absolutely*, decreases *relatively*, to the same extent as capitalism develops' (Marx, 1905–10, II, p. 492).
 12. '*Bedingung der Zufuhr*', which in the English translation referred to in the text is rendered by 'prerequisite of supply', renders in turn the English expression 'necessary condition of the supply [of the objects wanted]', originally appearing in Malthus (1820, p. 78).
 13. Marshall's 'long-period supply prices' and Marx's 'prices of production' can, indeed, be treated as equivalent concepts, as in Robinson (1964, p. 8). Provided, however, that this does not lead one to lose sight of the basic difference between Marshall's demand- and supply-determined 'equilibrium prices' (and 'equilibrium amounts') and the classical notion of demand and supply as simply causing market prices to gravitate towards the non-demand- and supply-determined 'natural prices'. As we can read in Ricardo (1821), 'The opinion that the price of commodities depends solely on the proportion of supply to demand, or demand to supply, . . . has been the source of much error' in political economy (p. 382).
 14. This is a rather simplified account of Marx's view of the subject, as it can be extracted from *Capital*, III, Chapter 10 (the main simplification consisting in having avoided any reference to the awkward concept of 'market values'). For a fuller account see Lippi (1979, pp. 11–19).
 15. As a matter of fact, an excess of current demand over current production of corn can be taken care of by a rise in the money price of corn relative to the money wage. In Kalecki's words, 'if the output of consumption goods for workers is at capacity level any increase in capitalists' consumption or investment will merely cause a rise in prices of these goods. In such a case it is the rise in prices of consumption goods for workers which will increase profits in Department III [consumption goods for workers] up to a point where they are equal to the higher amount of wages in Department I [investment goods] and II [consumption goods for capitalists]. Real wages will fall, reflecting the fact that an increased wage bill meets an unchanged supply of consumption goods' (Kalecki, 1954, pp. 47–8, n. 1; see also Keynes, 1936, pp. 122–5, where 'a redistribution of income in favour of the saving classes as an effect of the increased profits resulting from the higher prices' is made to follow – alongside a postponement of consumption and a depletion of stocks – from the hypothesis that 'the expansion of employment in the capital-good industries is . . . entirely unforeseen'). The redistributive way to the equality between profits and investment (*plus* capitalists' consumption) is barred to us by our having taken the wage in terms of corn as given. As to the depletion of the stocks of corn, it must be observed that (as shown by the normal-price equations in Section IV) in our economy no stocks are systematically carried over. This being also the reason why the difference $(Y - (L_c w + L_i w))$, represented by the line *OS* in Figure 10.3, has not been called *ex post* (i.e., planned *plus* unplanned) invest-

ment, as somebody might have expected. The latter description is appropriate only for $Y \geq Y_1$.

mechanism – of Marx's view of the general rate of profits as the 'centre' ment, as somebody might have expected. The latter description is appropriate only for $Y \geq Y_1$.

16. 'Thus if entrepreneurs consider investing a capital k in the construction of capital equipment, they will estimate in the first place the anticipated gross profit p . . . The anticipated gross profitability P/K [but read instead p/k] may be estimated from the actual gross profitability of existing plant. We have already denoted the volume of capital equipment at a given time by K and the aggregate gross profit by P ; consequently the gross profitability of existing plant is P/K . Thus we may conclude that p/k is estimated on the basis of P/K ' (Kalecki, 1933, p. 6). It should be noted that Kalecki's P/K differs from ours not only because of (a) our peculiar assumption about the economic life of the tractors, and the consequent vanishing of the distinction between gross and net profits, but also because of (b) our assumption that each commodity is produced in only one way and (c) our reckoning of the value of capital at normal prices (at which commodities are assumed to be actually sold).

As pointed out by Professor Steindl (1981), the above conception was later modified (starting with Kalecki, 1943; the changes introduced in Kalecki, 1968, will be left out of account) to the effect that investment decisions were made to depend (*inter alia*) on the change of P and K per unit of time, rather than on their absolute value. In Kalecki (1954) we are, however, warned that, although the ultimate result of connecting investment decisions to the change in P is very much the same as that of connecting them to the change in output, as in the 'acceleration principle', yet the rationale of the former connection is not to be sought in 'the necessity of expanding capacity in order to increase output' (p. 100), but in the circumstance that 'a rise in profits from the beginning to the end of the period considered renders attractive certain projects which were previously considered unprofitable' (p. 97). As to the change in K , Kalecki observes: 'the net increment of capital equipment per unit of time affects adversely the rate of investment decisions, i.e. without this effect the rate of investment decisions would be higher. Indeed, an increase in the volume of capital equipment if profits, P , are constant means a reduction in the rate of profits' (Kalecki, 1954, p. 98, emphasis added).

17. The view that the degree of utilisation of productive capacity relevant to the determination of normal prices and the general rate of profits is the normal, or planned, one – which, if actually prevailing, would make producers 'content with what they are doing' (Harrod, 1966, p. 81) – was at the basis of the argument in Vianello (1985), where it was denied that current over or underutilisation of productive capacity may affect 'the rate of profits which is considered a sufficient reward for the employment of capital, and represents the guiding light for investment and pricing decisions' (p. 84). The notion of a normal degree of utilisation was, however, described as not belonging exclusively in the producers' mind, but having a factual counterpart in the long-period tendency of produc-

tive capacity to adjust to the level and composition of aggregate demand. The outcome of this conception was a transplantation into a Kaleckian world – characterised by the existence of a short-period adjustment towards which the actual ratio of profits to the value of capital gravitates (only one method of production was assumed to be employed in each industry).

The above conception was criticised by R. Ciccone (1986) on the ground that, on the one hand, 'the achievement of a particular size of capacity *relative* to that of demand appears in itself to be a process that is liable to be frustrated for long periods of time', such periods being conceivably 'longer than those required for normal prices to show themselves as the central positions of actual prices' (p. 25) and, on the other, that the planned degree of utilisation of productive capacity pulls itself up by its own bootstraps, requiring no other basis than the sheer circumstance of being planned (see p. 26). I hope to be able to comment extensively on this article in the near future (in particular on Dr Ciccone's critique of Joan Robinson's theory of income distribution, which forms the main object of the article, references to my study being only incidental). What I wish to declare straight away is, however, that it was only after reading Dr Ciccone's article that I realised I had no need to bring in the tendency of productive capacity to adjust when arguing away the alleged influence of current on expected profitability.

18. 'That commodities are unsaleable means only that no effective purchasers have been found for them . . . But if one were to attempt to give this tautology the semblance of a profounder justification by saying that the working-class receives too small a portion of its own product and the evil would be remedied as soon as it receives a larger share of it . . . , one could only remark that crises are always prepared by precisely a period in which wages rise generally . . . From the point of view of these advocates of sound and "simple" [!] common sense, such a period should rather remove the crisis. It appears, then, that capitalist production comprises conditions independent of good or bad will, conditions which permit the working-class to enjoy that relative prosperity only momentarily, and at that always only as the harbinger of a coming crisis' (Marx, 1885, pp. 414–15). As pointed out by a note marked with the initials of the editor, Frederick Engels (Marx, 1885, p. 415, n. 47), Marx's criticism is chiefly addressed to Rodbertus's theory of crises. To correct the one-sidedness of the above passage as a statement of Marx's own position, it may prove useful to read it in conjunction with the following: 'Contradiction in the capitalist mode of production: the labourers as buyers of commodities are important for the market. But as sellers of their own commodity – the labour power – capitalist society tends to keep them down to the minimum price' (Marx, 1885, p. 320, n. 32).
19. On Engels's Sismondianism and its influence on Marx's early economic conceptions see Ginzburg (1985, pp. 94–101). According to the author, it was in 1845 that Marx, while persisting in the rejection of the Law of Markets, came to accept the Ricardian theory of profits, a change on which the reading of J. S. Mill's 1844 *Essays on Some Unsettled Questions of Political Economy* may have had a decisive bearing (see Ginzburg, 1985, p. 101).

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Part III
Savings, Investment
and Money

11 Savings, Investment and Finance in Kalecki's Theory

J. A. KREGEL

'Thus capitalists, as a whole, determine their own profits by the extent of their investment and personal consumption . . . capitalists as a whole do not need money in order to achieve this' (Kalecki, 1971, p. 13).¹

I INTRODUCTION

The first part of the above quotation will be recognised as Kalecki's well-known aphorism that capitalists 'get what they spend', that they cannot decide to earn more, they can decide only to spend more. Workers can neither decide to earn more, nor spend more than they earn: they 'spend what they get'. This aphoristic representation of Kalecki's position emphasises its difference from Keynes's explanation of the same phenomenon. Keynes relied on the propensity to consume and the marginal efficiency of capital to explain aggregate expenditure via the concept of effective demand predicated on monetary factors determining the rate of interest; the distribution of income had only secondary importance. Kalecki, on the other hand, gave centre stage to the role of income distribution in determining aggregate expenditure and, as the second half of the opening quotation indicates, considered money to be unnecessary to his results.

This is clear expression of the irrelevance of money in Kalecki's analysis is especially important in light of recent interest in Keynes's and Kalecki's use of the concept of 'finance', interpreted as the

requirement of being in the possession of money in order to effectuate expenditures. In contrast to Kalecki's affirmation, Asimakopulos (1983) has suggested that lack of 'finance' might constrain capitalists' income by limiting their decisions to make expenditures. His review of Kalecki's work in this respect concludes that Kalecki's clear position expressed in the second part of the quotation given above is at best a simplification, if not a misstatement, because Kalecki 'did not pay sufficient attention to the time required for the operation of the full multiplier' (Asimakopulos, 1983, p. 225). Asimakopulos argues that the validity of Kalecki's statement requires the implicit additional assumption, which he considers as being equivalent to the full operation of the multiplier, that when capitalists change their investment expenditure '*desired* saving - must be adjusted by this amount' (Asimakopulos, 1983, p. 224) and this can occur only over a span of time sufficiently long for the multiplier process of income creation to have brought *ex ante* and *ex post* saving into equilibrium.

As suggested above, I have always been of the opinion that the basic difference between Kalecki and Keynes's theories is to be found in the emphasis the former gives to the role of distribution in determining expenditure and the latter accords to monetary factors; Keynes treating distribution almost as a by-product and Kalecki looking on monetary factors as part of the institutional environment. However, I have recently become acquainted with Professor Patinkin's view that the major difference between Kalecki and Keynes is to be found in the former's concern for 'the cyclical behaviour of investment, on the implicit assumption that there always exists equality between planned savings and investment' (Patinkin, 1982, p. 78). Although I believe that Keynes, like Robertson, Hawtrey, Hayek and others, was initially (and always remained) primarily concerned with the cyclical behaviour of the system (although Robertson clearly felt that Keynes's 1936 book was beyond the pale, cf. Anyadike-Danes, 1985), Patinkin's view on the equilibrium of *ex ante* savings and investment is of more direct relevance to the present discussion for it would appear to be the precise opposite of Asimakopulos's view. If Patinkin is right, it would be simply redundant for Kalecki to have made any additional assumption about the time required for the multiplier to operate to adjust desired savings to investment for they are always equal.

However, while I differ from Professor Patinkin's view of Kalecki's singular emphasis on the problem of the cycle, and disagree with Prof Asimakopulos's insistence on the importance of finance in allowing

desired saving to be brought into equality with investment via the temporal operation of the multiplier, I am not sure that I agree with Professor Patinkin's characterisation of Kalecki as presuming the *ex ante* equality of saving and investment. Yet I am inclined to agree with Kalecki's proposition that 'capitalists get what they spend and workers spend what they get' is independent of money. So, in order to maintain a consistent preference ordering and at the same time create debate, I shall attempt to resolve the disagreement between Asimakopulos and Patinkin in favour of Kalecki by disagreeing with both of them.

II DISTRIBUTION OF INCOME AND THE PROPENSITY TO CONSUME

The best starting point is to note that a number of recent and authoritative commentators on Kalecki's work (Sawyer, 1985, Sebastiani, 1985) who have attempted to trace Kalecki's position on money and finance have noted the rather rudimentary fashion in which money enters Kalecki's theory. In simple terms, Kalecki assumes that whenever individual capitalists are inclined to spend in excess of their budget constraints in order to invest, the banks oblige by creating the appropriate amount of commercial bank credits. It should be noted that this always refers to an individual relationship between capitalist and banker for, as Kalecki reminds us, 'Capitalists do many things as a class but they certainly do not invest as a class' (Kalecki, 1971, p. 152). However, since capitalists as a class get what they spend, the credits granted by the banks accrue to capitalists as a class who deposit them in bank accounts and thus, as Kalecki points out, the banking system simply serves to intermediate borrowing by one part of the capitalist class from another.²

Since capitalists voluntarily carry out these expenditure decisions with bank created finance, it must be true that the capitalists' deposits with the banks are also voluntary. Further, if workers do not save, it must be true that capitalists' savings are also voluntary – i.e., desired. Capitalists are not forced to spend, they are not forced to hold bank deposits, nor are they forced to earn more when they spend more. Since an increase in expenditure increases profits (the sole source of savings in Kalecki's theory), it must follow that desired savings equal investment: *ex ante* savings equal investment at every moment of time, for the capitalist class. Patinkin would appear to be right on this

issue, as long as we keep clearly in mind the qualification that we are referring to the capitalist class taken as a whole.

I qualify this adjudication because the relation between the level of expenditure and the level of income that Kalecki uses is rather different from Keynes's income – expenditure analysis, although it can be compared to it. If only workers consume all of their income we have a consumption function $C = wN = W$ which could be written in Keynesian form, $C = c(Y)$ if we define c as W/Y , and w is the money wage and N the level of employment. Then, as Nina Shapiro (1977, p. 544, n. 13) has suggested, under classical savings assumptions, Keynes's propensity to consume may be represented by the reciprocal of the economy-wide degree of monopoly. The value of the multiplier can then be explained by either Keynes's propensities or by the distribution of income as given by the degree of monopoly. It does not seem surprising that many of Keynes's followers, involved in the discussions of the new theories of imperfect competition, found Kalecki's emphasis on distribution more satisfying theoretically than Keynes's more ephemeral propensities. Interpreted as a proxy for the distribution of income, Asimakopulos would also appear to be right in insisting that the multiplier is an integral part of the validity of Kalecki's aphorism. The question at issue would appear to be one of timing. Asimakopulos argues that the multiplier process will take some calendar time, and that in the interval between the initial investment expenditure and the full multiplication of incomes desired savings do not equal investment, whereas Patinkin seems to suggest the opposite.

Let us see what Kalecki says on the matter.

'The question may still arise, where the capitalists find the 'means' to increase the production of investment goods or their personal consumption. *If we abstract from the 'technical' elements of the money market*, we may say that the capitalists as a whole do not need money in order to achieve this since, as shown above, the expenditure of some capitalists is converted into profits for others; the outlay on construction of a fixed asset is by no means 'frozen', as some people think, and 'released' only as the capital invested is gradually written off – but it is already returned in the course of construction in the form of profits accruing to the firms whose sales (either of investment or consumer goods) are directly or indirectly connected with this construction. If during a particular period more money is spent, e.g. out of bank deposits, then *pro tanto*

more money flows back into the banks in the form of realised profits, so that the sum of deposits remains unchanged' (Kalecki, 1971, p. 13, emphasis added).

Kalecki then goes on to discuss the technical factors. We shall return to them in Section V, below.

If we identify our 'particular period' as the 'construction' period for investment projects, then *for the capitalist class* within the construction period credits and debts to the banking system cancel out; since these are indeed just debts and credits among capitalists, or of the same capitalist, there is no need for the net creation of money in the form of bank credit since the 'finance' required for capitalists' additional purchases of investment goods is provided by the increased profits from the sale of investment goods. But these debts and credits also represent the increased incomes resulting from the increased investment expenditures. If the debts and credits cancel within the capitalist class, then the incomes also accrue within the capitalist class in the construction period: no 'time' is required for Kalecki's multiplier to work, it is instantaneous within the defined period. Neither money, nor time, is required.

III THE ROLE OF FINANCE IN THE DISCUSSION OF THE INFLUENCE OF SAVING ON INVESTMENT

A more important point should be noted, however: Kalecki is not here concerned with the problem of finance *per se*; rather his argument represents the equivalent of Keynes's proposition that abstinence is unnecessary to increase the equilibrium level of output. As is usual in Kalecki's worker, the argument is put in terms of a change in the distribution of income. Kalecki argues that it is not necessary to redistribute income from wages to profits to produce an increase in output (i.e., it is not necessary for workers to abstain). Indeed in his 1935 article Kalecki argues that expansion can occur in the absence of wage reductions meant to increase profits, indeed that profits can increase only if there is no *ex ante* redistribution of income from wages to profits.

This may help explain why the treatment of finance is so rudimentary. Kalecki's aim is to counter the traditional position that wages must be reduced in order to increase profits and thus investment, by showing that even if wage reduction increase profits there is no

necessity that the increased profits will be used to expand investment. He then goes on to reinforce his criticism by demonstrating that output can increase without any change in the distribution of income. But here the question naturally arises of where the capitalists get the money to pay for the investment expenditures which increase output if they do not have the extra *ex ante* profits generated by a reduction in wages. In order to get the argument off the ground Kalecki, is forced to presume the existence of a banking system that finances the capitalists increased investment expenditures. He goes on to say that the actual process by which this occurs is unimportant, for once the money is spent on new investment it all comes back to the capitalist class in the form of profits anyway: it is not the money it is the expenditure that is important. Thus the point at issue is not the availability of finance, but whether investment expenditures are independent of prior changes in the distribution of income in order to increase profits. This, of course, is precisely the point that Keynes attempted to make in terms of investment and an *ex ante* change in the propensity to save. In Kalecki's approach it is put in terms of an *ex ante* change in the distribution of income, not changes in desired savings propensities, but the point at issue is exactly the same.

Thus, although Patinkin's characterisation in Keynesian terms of Kalecki's position as implying that *ex ante* saving is *always equal to ex ante* investment is formally correct (because investment expenditure creates an equivalent amount of profits saved by the capitalist class), we should not lose sight of the fact that Kalecki's active force was the distribution of income, not propensities and efficiencies. The point that Kalecki was trying to demonstrate was that investment could increase without reducing wages to increase profits. This proposition, however, is usually represented in Keynesian terms, by the *divergence* of investment from *ex ante* savings brought into *ex post* equality by the operation of the multiplier.³

If we think of the share of wages, instead of the propensity to save, it is clear that Kalecki argued against the fall in the ratio of W/Y , while Keynes argued against a rise in S/Y , as being the prerequisite for expansion. But the traditional arguments also produced an 'endogenous' increase in the funds available to finance the increase in investment which was supposed to occur, either from increased profits resulting from lower wages or from the higher money savings out of incomes increasing the supply of loanable funds. Any argument which was to have force against the traditional position then

also had to explain how, in the absence of these endogenous sources of finance, the increased expenditures which were supposed to occur might be financed. Kalecki thus assumed that the money was somehow made available by the banking system in order to allow his alternative argument to be worked out, just as Keynes had implicitly assumed that the finance was available to allow investment to determine saving. But this was needed only as an enabling assumption since the logical point at issue does not in any sense rely upon it. It is in this sense that Kalecki argues that money is unnecessary, for it is not required to enforce additional savings on the working class. Output can increase quite independently of this process of prior abstinence or monetary inflation producing forced savings.

IV MONEY, FINANCE AND TIME

If money is not crucial to the argument that additional savings are unnecessary to the expansion of output it is also possible to see why the 'time' required for the multiplier to work is unimportant for the question of the independence of investment from saving; the temporal operation of the multiplier has no influence on saving out of wages and the share of wages is determined, independently of the temporal operation of the multiplier, by the degree of monopoly. Thus the question under discussion, how to best bring about an expansion from slump conditions (the bottom of the cycle in Kalecki's case, a low-level equilibrium in Keynes's) is separate from the problem of maintaining the expansion once under way. This later point, which Asimakopulos appears to stress, concerns 'technical monetary factors', as Kalecki called them, but both authors clearly recognised that whether a boom busts, or fails to produce full employment equilibrium, is independent of how to get the economy off the floor.

If we recognise the question under discussion as the primacy of investment over prior or *ex ante* saving as the source of expansion, then I think we can also accept the unimportance of money and temporal operation of the multiplier, on the one hand, as well as the inappropriateness of considering Kalecki's theory as one in which *ex ante* savings equal investment given his exposition of the problem in terms of income distribution rather than the relation between saving and investment, on the other. Having thus explained my disagreement with the interpretations of both Patinkin and Asimakopulos, as

well as my agreement with Kalecki's original statement, it is appropriate to proceed to the 'technical' monetary factors, which have so far been left to one side.

V THE TECHNICAL MONETARY FACTORS

Kalecki notes that: 'the increase in production of investment goods or in capitalists consumption, i.e. in real profits, must be reflected in the increase in aggregate production. This increase (together with the usual rise of prices which accompanies it) engenders a higher demand for money in circulation' (Kalecki, 1971, p. 13). The technical factors thus concern the fact that capitalists transactions demand for money will increase, and if prices rise across the board, workers demand will also increase. It is in satisfying the requirements for increased transactions balances that arise from the increase in output that Kalecki locates the 'technical factors'. It is thus the increase in the demand for money that accompanies increasing output that we must refer to discover the influence of finance on the validity of Kalecki's statement about the independence of capitalists' expenditure.⁴

On this point Keynes's and Kalecki's positions are similar, for both recognise that any net increase in expenditure will increase income and thus increase transactions demands irrespective of whether it is necessary for the capitalists to acquire preventive 'finance' from banks prior to investment expenditure. This increase in the transactions demand for money is expressed in Kalecki's assumption that the rate of interest is an increasing function of gross profitability. And it is here that the 'technical' problems may cause difficulty: 'If [the rate of interest] were to increase sufficiently fast for the influence of the increase in gross profitability to be fully offset, an upswing would prove impossible. There is thus a close connection between the phenomenon of the business cycle and the reponse of the banking system to the increase in demand for money in circulation at a rate of interest which is not prohibitive to the rise in investment' (Kalecki, 1971, p. 14). This means, of course, that the banks hold the key to expansion in their willingness to meet the increase in transactions demands by what Kalecki called 'credit inflation' (Kalecki, 1971, p. 13). If they do not, the rate of interest may rise sufficiently to choke off the expansion. Money is thus not important in the argument that initiating the expansion is independent of a prior reduction in real wages producing an increase in real profits (the capitalists as a class

can generate their own expansion if they want to), but the minute the expansion starts the responsibility for its continuation passes to the banks who can expand the supply of money sufficiently to keep the rate of interest from rising or choke off the expansion by allowing the rate of interest to rise.

Aside from the difference in the theoretical importance of the two questions, a number of other problems arise when we consider Kalecki's analysis of the second question. First, Kalecki provides no explanation of the cause of the price rises which bring about the necessity of 'credit inflation'. There would seem to be no clear explanation in Kalecki's theory for the 'usual rise in prices' which accompanies expansion if we reject a monetarist explanation via an excess supply of money or a Marshallian explanation via increasing costs. In the absence of price rises we must thus presume that the predominant cause for the increase in transactions demands is 'the increase in aggregate production'.

This leaves the question of why an increase in transactions demands due to capitalists increased incomes should cause an increase in the rate of interest. Since Kalecki assumes that the banks finance the expenditures of capitalists as a class by intermediating between spending and earning capitalists and cannot limit this spending it seems that an assumption of a given supply of money, such as Keynes used, would be inconsistent (cf. Sawyer, 1985, pp. 196-7). The question thus becomes why Kalecki was willing to assume that banks freely expanded the money supply, without affect on interest rates, to accomodate capitalists expenditure, but would not do the same for their increased transactions demands due to the increased income resulting from the expenditure. The answer would appear to lie (this is without any explicit textual support) in Kalecki's implicit use of a pure credit money. The finance of capitalists' investment or consumption expenditures means that the expansion of credit is just equal to the increased expenditures on 'real' output, satisfying bankers preference for 'real bills'⁵. But there will be no equivalent real output behind the creation of purchasing power (recall Kalecki calls it credit 'inflation') to satisfy the increase in transactions demands. In order to increase the quantity of money in a pure credit system the banks would have to create credits on 'signature', credit intended to finance neither investment or consumption, but simply to hold. An increase in transactions balances would thus take the form of increased borrowing from the banks, the rate of interest paid on the loans representing the cost of owning a deposit to hold. However, in a pure

credit system it is difficult to see why an increase in borrowing should cause interest rates to rise, or if such lending were considered more risky and thus supplied at higher interest rates, why this should affect the cost of borrowing to finance investment.

Neither is the problem resolved by referring to an increase in transactions demand from workers who do not save and thus do not hold deposits (or have deposits with zero average balance in the 'particular period') since expansion of workers' transactions balances above zero would violate the assumption of no saving out of wages. The only way workers can make their net holdings of deposits positive is by reducing consumption. If they are at subsistence this is impossible; if they are simply spendthrift, then belt-tightening means that capitalists' loans cannot be repaid for some credits come to rest in workers', rather than capitalists' deposits. In this case capitalists' profits and savings will not automatically equal expenditures. However the increase occurs, it is the change in expenditure caused by the reduction of workers' consumption, not interest rates, which is the cause of difficulty.

This is clearly a 'technical monetary problem', but it is a problem that results from (a) an unexplained assumption concerning the relation of changes in output on prices and (b) the implication of a simplified pure credit money system. It is a problem which could be resolved, for example, by assuming (as Kalecki was to do in Kalecki, 1939) constant costs to resolve the first problem and by government deficit spending financed by borrowing from the banks to resolve the second (Kalecki suggests selling them Treasury bills (Kalecki, 1939, p. 32)). Without the Keynesian apparatus of liquidity preference and a given money supply it is difficult to explain the rise in interest rates that might choke off investment. A more detailed explanation of the factors determining short and long interest rates, including the principle of increasing risk, was eventually provided in Kalecki (1954).

Before concluding, it is important to point out that although equilibrium arrives in Kalecki's scheme when the rate of profit comes into equality with the rate of interest, a parallel should not be drawn with Keynes's equilibrium condition of the equality of the marginal efficiency of capital and the rate of interest. In Kalecki's version profitability increases and then the rate of interest rises to catch up with it, whereas in Keynes's version the marginal efficiency falls and runs into a rate of interest which is falling less rapidly. The mechanisms are different because of the absence of money in deference to distribution in Kalecki's determination of the level of expenditure. If there is a parallel, it is to be found in Keynes's analysis of the cycle in

Chapter 22 of the *General Theory*. There, Keynes argues that attempts to cut off a boom via rises in interest rates will fail because expectations of profit will always rise by as much or more than the rise in interest costs. The 'crisis' or turning point of the boom comes when full employment is approached and expectations are not fully realised; rising interest rates then overtake falling marginal efficiencies and the slump is born.

VI CONCLUSION

I thus conclude by disagreeing with Patinkin that Kalecki assumed *ex ante* equality of saving and investment in any but the most formal sense⁶ which has no implication for the problem he was trying to resolve: whether or not expansion could take place without a redistribution of income from workers to capitalists. I must also then disagree that Kalecki may be distinguished from Keynes because he emphasised the cycle rather than the low-level equilibrium proposition. The difference is rather that Keynes argued that expansion from low-level equilibrium did not require *ex ante* saving in terms of an increase in the propensity to save. Both attempted to argue that investment preceded abstinence, Kalecki representing prior abstinence as a reduction in labour's share of income rather than a change in a saving propensity.

On the same grounds, I reject the importance of the multiplier's operation or the time that it takes to operate, irrespective of whether or not we agree that Kalecki presumed a multiplier to operate. Nor is the conception of finance as the freedom to be a deficit spending capitalist unit of fundamental importance. Under this head, I would place what Kalecki called 'technical' factors and Keynes emphasised as the importance of the banking system in assuring the stability of interest rates by expanding the money supply in step with the demand for it (however caused). This is what I believe Asimakopulos discusses under the liquidity of the banking system, but it would appear to have more to do with the non-existence of an endogenous creation of money base than with the time for the multiplier to work through. It is here that Graziani's (1984) concerns come forward, for he raises a similar 'technical' monetary question within a pure credit money system noting that even at the level of borrowing of firms there will be an increase in transaction demands not only by capitalists and workers to finance their expenditures, but also by firms who need money to finance their payment of interest to the banks.⁷

NOTES

1. Compare Petty's affirmation: 'For if men were excellently Versed in accounts Money were not necessary at all', quoted in Roncaglia (1985, p. 30).
2. This mirrors a cardinal proposition of Keynes's theory which allows individual savings to differ from investment, while it is impossible for aggregate savings to differ from investment.
3. It is also important to remember the prevalence at that time of the argument that 'forced savings' would accompany changes in output and preserve the equality of savings and investment: Kalecki's approach clearly shows this to be invalid.
4. But, if I have understood Asimakopulos's position, he maintains Kalecki's initial assumption throughout, and does not consider the problem of increased transactions demands in his analysis.
5. It should be also noted that this is independent of the reactions of interest rates in the capital markets: 'To put it in a more concrete fashion: if some capitalists increase their investment by using . . . bank credit, the spending of the amounts in question will cause equal amounts of saved profits to accumulate as bank deposits. The investing capitalists will thus find it possible to float bonds to the same extent and thus to repay the bank credits' (Kalecki, 1971, p. 84). Since the deposits accumulate within the 'period', the bonds could also be floated within the period without effect on bond prices and thus on interest rates.
6. Compare Kalecki's statement with reference to his counter-example to the traditional argument that profits must rise before investment rises: 'In the case presently considered, the profits, to put it paradoxically, are invested even before they come into being. Profits that are not invested cannot be retained because they are annihilated by the ensuing fall in production and prices. The creation of the purchasing power for financing additional investment increases the output from the low level reached in the depression and thus creates profits equal to this investment' (Kalecki, 1971, p. 29). Only formally would one want to argue that *ex ante* saving (profits) equal investment in such a case.
7. This problem can obviously be solved by including the banks with the capitalists as a whole, but that does not answer the question of who will create the assets required to meet the increased transactions demands for money.

It is interesting to note that one of Keynes's criticisms of Hicks's review of the *General Theory* involved the effect of increased output on the rate of interest via an increase in transactions demands; a proposition Hicks called orthodox. Keynes objected because Hicks had inferred from it that Keynes was making an implicit assumption about the elasticity of supply of consumption goods, noting that it in fact concerned the elasticity of supply of money, (Keynes, 1973, pp. 72-80).

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12 Some Aspects of Kalecki's Theory of Profits: its Relationship to Marx's Schemes of Reproduction

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I INTRODUCTION

In this study, the relationships between Kalecki's and Marx's schemes of reproduction are examined. In particular, I point out that Kalecki's views on finance are closely related to Marx's treatment of the monetary aspects of the reproduction process. In developing his schemes of reproduction, Marx paid most attention to the monetary aspects of the process. Earlier in the first volume of *Capital* (Marx, 1954), Marx held that even the simple circulation and exchange of commodities could not possibly take place without money (cf. Marx, 1954, pp. 88–96). In Volume II of *Capital* (Marx, 1956), this point of view is reaffirmed when production, circulation and reproduction are dealt with at the macro level (cf. Marx, 1956, p. 358). But in later expositions and generalisations of Marx's schemes the monetary aspects are frequently ignored.¹

In Kalecki's theory, at the aggregate level, investment determines profits, and not the other way around. Kalecki also made it clear that the required funds to finance investment have a revolving nature. It is the banking system which advances (creates) those funds, and they

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flow back to banks at the end of the expansion process which is generated by investment. To present his theory of profits, Kalecki used the Marxian schemes of expanded reproduction (cf., for example, Kalecki, 1968a, pp. 46-7).

In Sections II and III, I briefly expound Kalecki's well-known theory of profits and then deal with Marx's schemes in order to show their strict relationship (Sections IV-VI). In the concluding section (Section VII) I shall point out that, both for Marx and Kalecki, the 'liquidity preference' of the capitalist class as a whole plays a crucial role in the process of economic growth. Marx's and Kalecki's views are, in this respect, very close to Keynes's.

This study thus intends to provide a contribution, though partial, to the attempt to establish a closer link between the classical tradition of economic thought, as represented by Marx, and the Keynesian tradition. Kalecki's theory, quite naturally, represents an obvious 'bridge' between these two traditions, as Joan Robinson has many times pointed out. (For Joan Robinson on Kalecki, see, for example, Robinson, 1977).

II KALECKI'S THEORY OF PROFIT

By starting from the identity

$$P + W = I + C_k + C_w$$

where P is gross profits, W is wages plus salaries, I is gross investment, C_k is capitalists' consumption, and C_w is workers' consumption. Kalecki - by assuming that workers consume their income entirely ($W = C_w$), obtained

$$P = I + C_k \quad (12.1)$$

Aggregate gross profits are equal to gross investment plus capitalists' consumption. Kalecki addressed the question:

What is the significance of this equation? Does it mean that profits in a given period determine capitalists' consumption and investment, or the reverse of this? The answer to this question depends on which of these items is directly subject to the decisions of capitalists. Now it is clear that the capitalists may decide to consume and to invest more in a given period than in the preceding

one, but they cannot decide to earn more. It is therefore, their investment and consumption decisions which determine profits, and not *vice versa* (Kalecki, 1968a, pp. 45–6).

Kalecki explained his view by referring to Marx's schemes of reproduction. He considered an economy in which there are three departments: Department 1 that produces investment goods (I); Department 2 that produces consumption goods for capitalists (C_k); Department 3 that produces consumption goods for workers (C_w). In the first two departments, gross profits are given by

$$P_1 = I - W_1$$

and

$$P_2 = C_k - W_2$$

respectively. W_i ($i = 1, 2$) is wages paid to workers in Department i .

The third department, after having paid wages to its workers, is left with ($C_w - W_3$), which is bought by workers of the other two departments, so that

$$P_3 = C_w - W_3 = W_1 + W_2$$

And, therefore,

$$\begin{aligned} P &= P_1 + P_2 + P_3 = \\ &P_1 + P_2 + (W_1 + W_2) = \\ &I + C_k^2 \end{aligned} \quad (12.2)$$

Aggregate profits in the economy are thus determined by capitalists' expenditure decisions. Were they to decide to spend less than ($I + C_k$), the economy as a whole would experience a lower level of profits as well as a lower level of production and employment.

This, however, raises a question. If the economy has to grow from one period to the next, from where do capitalists take the funds to finance their increased investment and/or consumption? This question is very similar to Marx's question in his schemes of expanded reproduction. But not only are the two questions similar; the answers by Marx and Kalecki are also very close to one another. Let us first consider Kalecki's argument.

In an economy which does not experience any growth, past realised profits are used to finance capitalists' consumption and current gross investment (equal, of course, to replacement investment):³

$$P_{(t-1)} = I_{(t-1)} + C_{[k, (t-1)]}$$

and

$$I_{(t)} = I_{(t-1)} \quad \text{and} \quad C_{[k, t]} = C_{[k, (t-1)]}$$

The capitalist class as a whole owns the required funds to finance its desired expenditure. But if we suppose that, from $(t-1)$ to t , investment and consumption grow at any rate $g > 0$, a problem of financing arises. One way to achieve this is by the creation of money by the banking system. For the banking system as a whole, which creates new money and plays its intermediary role, Kalecki observed:

The question may arise wherefrom capitalists take the means to increase at the same time the production of capital goods and their own consumption . . . [W]e may say that these outlays are 'financing themselves'. Imagine, for instance, that some capitalists withdraw during a year a certain amount from their saving deposits, or borrow that amount at the Central Bank, in order to invest it in the construction of some additional equipment. In the course of the same year that amount will be received by other capitalists under the form of profits (since, according to our assumptions, workers do not save), and put again into a bank as a savings deposit or used to pay off a debt to the Central Bank. Thus, the circle will close itself (Kalecki, 1935, p. 343).⁴

The increase in investment (and/or consumption) at the aggregate level is financed by banks, which become less liquid. The banking system plays a very crucial role in the process of growth of the economy. If banks have – for whatever reason – a high 'liquidity preference' and do not lend to industrial capitalists, or if they lend less than is needed to sustain expansion, the process of growth is necessarily stopped or slackened. At the end of the expansion process, banks will be left with an earned profit (the interest they charge on loans) and the same liquidity position as at the beginning, but they must be 'bullish' enough to start the process, otherwise the inducement to spend for industrial capitalists is curbed and cannot possibly produce its real effects. Banks are capitalist firms as well; they may have a high 'liquidity preference' if they expect that lending is not profitable enough or too risky.

III THE CAPITALIST CLASS

In Kalecki's conceptual framework, industrial capitalists' decisions determine the level of aggregate profits, production and employment. These decisions, in turn, are crucially affected by the decisions which are made by financial capitalists, who must create the required amount of money to finance the growth of investment and consumption expenditures.

If we combine the industrial capitalists and financial capitalists into a 'capitalist class', we have the situation where this class determines the level of its own income through its degree of liquidity preference and its decisions to invest and consume. The capitalist class as a whole finances its own income by accepting a decrease in liquidity, even though at the end of the process its initial liquidity position is restored and it will earn a higher level of profits. In other words, it is the capitalist class which must throw into circulation the amount of money required to make it possible to realise the higher level of profits, that is to say, the higher level of produced surplus.

IV MARX'S THEORY OF PROFIT

Marx had already arrived at the main conclusions reached by Kalecki – that is to say that it is the capitalist class as a whole which, through its expenditure decisions and its degree of liquidity preference, determines its realised profits. However an important qualification has to be made. In Kalecki's theory, capitalists' spending decisions and their liquidity preference ultimately determine the levels of aggregate production and profits in any period. There is no necessary reason why the economy as a whole should produce to capacity.

In Marx's theory, the levels of aggregate production and profits are determined by the same factors as in Kalecki. But Marx assumed that capitalist entrepreneurs are normally induced to produce to capacity. In this context, changes in capitalists' expenditure decisions determine only changes in the level of aggregate profits. It is not possible here to give full explanation of this difference between Marx and Kalecki in relation to the determination of aggregate output; it will suffice to point out that it essentially depends on their different hypotheses on the prevailing market form.⁵ In any case, such a different conclusion with regard to the level of aggregate output can be overlooked here in so far as we are concerned only with the determination of aggregate profits.

V MARX'S SCHEMES OF REPRODUCTION

Let us now consider Marx's approach to the issue in his schemes of reproduction. Marx first dealt with the problem under the hypothesis of simple reproduction and then by allowing for a positive rate of growth in the economy (expanded reproduction). I shall follow Marx, and refer to very simple schemes of reproduction. In particular, I consider an economy in which there are only two sectors (consumption goods and investment goods) and only two classes (capitalists and workers), in which commodities exchange according to their values (embodied labour),⁶ and in which money is gold so that prices of commodities are expressed in terms of the value of gold.⁷

Let us start with the case of simple reproduction. The capitalist process, at the macro level, can be depicted by using the well-known Marxian formula, though slightly changed as the velocity of circulation of money used as a medium of exchange, V , is explicitly introduced (Marx assumed $V = 1$).

$$M - C/V \dots P \dots C'/V - M' \quad (12.3)$$

The capitalist class, in order to buy means of production and hire workers (C), advances a money capital M . Through the process of production (P) capitalists produce commodities (C') whose value is larger than C . The monetary value of C' is $M'V (> MV)$. ($C' - C$) is capitalists' surplus-value (profits).

In order that profits be realised, C' must be sold and transformed into money; M' is the amount of money which is required to make it possible to sell all produced commodities at their value and to realise the profits $(C' - C) > 0$. In other words, at the end of the process the capitalist class has to draw from circulation an amount of money M' . M' is larger than M and, thus, the capitalist class seems to be able to draw from circulation a quantity of money which is larger than the amount advanced. Only in this way does it realise the produced surplus $(C' - C)$. Where does this additional money come from? (cf. Marx, 1956, pp. 334-5).

Marx's answer is that the additional quantity of money, $(M' - M)$, necessarily comes from the capitalist class itself which throws money into circulation to finance its consumption (cf. Marx, 1956, pp. 338-9). That the money which is required for the realisation of capitalists' surplus has to be advanced by capitalists themselves is not paradoxical:

So far as the entire capitalist class is concerned, the proposition that it must itself throw into circulation the money required for the realisation of its surplus-value . . . not only fails to appear paradoxical, but stands forth as a necessary condition of the entire mechanism. For there are here only two classes: the working class disposing only of its labour-power, and the capitalist class, which has a monopoly of the social means of production and money. It would rather be a paradox if the working class were to advance in the first instance from its own resources the money required for the realisation of the surplus-value contained in the commodities (Marx, 1956, p. 425).

In his schemes of reproduction, Marx showed that, at the end of each period, the capitalist class actually gets back the total amount of money advanced and, hence, also the additional money advanced to buy the social surplus. But where can capitalists find this additional money? In its general lines, Marx's answer is simple: the additional quantity of money is already in the hands of the capitalist class in the form of money hoards. Marx assumes that capitalists own a quantity of money, M_T , which is equal to or larger than M' . He assumed that 'at the beginning of the reproduction a supply of money corresponding to the exchange of commodities is in the hands of capitalist classes I and II', and, more precisely, 'the only assumption essential here' is 'that in general there is money enough for the exchange of the various elements of the mass of the annual reproduction' (Marx, 1956, p. 477).⁸ Only the quantity of money M is used to buy means of production and hire the labour force at the beginning of the period; the quantity $(M_T - M)$ remains hoarded. But, in order for the social surplus $(C' - C)$ to be sold, a quantity of money - less than or equal to $(M_T - M)$ - has to be dishoarded and thrown into circulation.⁹

This additional money which is dishoarded is used to finance capitalists' consumption. It follows, then, it is capitalists' consumption decisions which determine the value of the aggregate realised surplus. Consequently, it is capitalists' consumption decisions which determine the level of aggregate profits. The capitalist class makes its consumption decisions before the actual realisation of profits; they are based on expected values, namely on expected profits. Consumption is financed by advancing additional money.

[O]ne thing continues uninterruptedly, namely, the consumption of the capitalist, which anticipates, and whose value is computed

on a definite proportion of the customary or estimated revenue. (Marx, 1956, p. 424).

The value of the aggregate supply is $C' = (C + S)$, where S is the value of the total surplus produced. In order that the total product, C' , be exchanged at its value, capitalists as a whole must demand consumption goods whose value is equal to S and throw into circulation (dishoard) an amount of money $(M' - M)$, so that the total quantity of circulating money advanced is $[(M' - M) + M]$.

Were capitalists to decide to consume $S' < S$ and, accordingly, to advance for their consumption a quantity of money

$$M'' < (M' - M)$$

the level of aggregate profits would be negatively affected. In such a case, the aggregate monetary demand $(M + M'')V$ is less than the aggregate monetary value of supply $(C' = MV)$, and the entire product cannot be sold at its value. Therefore, either stocks of commodities pile up or the market prices of commodities fall below their values. In both cases, aggregate profits must fall below their level S ; they will be necessarily equal to $M''V$.¹⁰

In conclusion, the level of aggregate profits, in the case of simple reproduction, crucially depends on capitalists' consumption decisions. Those decisions necessarily imply a decision to reduce their levels of money hoards, to pass from a higher to a lower 'liquidity preference'. If these decisions are 'adequately' made, at the end of the period the capitalist class obtains the entire surplus produced and finds itself with the same liquidity position as at the beginning of the period.

VI MARX AND EXPANDED REPRODUCTION

In the case of expanded reproduction, Marx followed the same reasoning as above and arrived at the conclusion that aggregate profits are determined both by capitalists' consumption and investment expenditure, and by their 'liquidity preference':

We know from the analysis of simple reproduction that capitalists I and II must have a certain amount of money at hand in order to be able to exchange their surplus-product. In that case the money

which served only as revenue to be spent for articles of consumption returned to the capitalists in the same measure in which they had advanced it for the exchange of their respective commodities. Here the same money reappears, but performing a different function (Marx, 1956, p. 503).

A share of the additional money put into circulation, say $(M' - M)_c$, is now spent on consumption goods by capitalists and another share, say $(M' - M)_i$, is spent on investment goods. The value of total profits is

$$S' = [(M' - M)_c + (M' - M)_i]V \quad (12.4)$$

and

$$S' = S, \text{ if } [(M' - M)_c + (M' - M)_i] = (M' - M)$$

Capitalists' profits therefore now depend on their consumption and investment expenditure, just as in Kalecki's analysis.

In so far as simple reproduction is considered, the required amount of money $(M' - M)$ does not change over time: the level of aggregate profits is constant. When expanded reproduction is considered, however, the surplus produced is growing over time and, consequently, a growing quantity of additional money is required in order that the aggregate demand keep pace with aggregate supply and aggregate profits grow.

Where does this (growing) additional quantity of money come from? Let us first consider Marx's own answer, which will then be generalised:

The sum total of the prices of the circulating commodities has been increased . . . because the mass of commodities now circulating is greater . . . The additional money required for the circulation of this greater quantity of commodities of greater value must be secured either by greater economy in the use of the circulating quantity of money . . . or by the transformation of money from the form of a hoard into that of a circulating medium . . . When all these measures do not suffice, additional gold must be produced (Marx, 1956, pp. 349-50).

The additional quantity of money may thus come from three different sources:

- an increase in the velocity of circulation of money (a greater economy in the use of circulating money);
- a decrease in capitalists' liquidity preference (the transformation of money hoards into circulating money);
- an increase in the supply of money (increased production of gold).

I do not consider the first possibility as I have assumed a constant velocity of circulation of money as a medium of exchange throughout this study; I shall concentrate on the latter two possibilities. As we have already seen, to transform hoards into circulating money corresponds to a decrease in capitalists' liquidity preference: 'idle balances' are transformed into 'active balances'; capitalists as a whole are more willing to reduce their liquidity position.

However, considering hoards and capitalists' propensity to throw them into circulation cannot represent a fully satisfactory solution to our problem in the case of expanded reproduction. If the quantity of gold (money) is given, dishoarding can represent only a temporary solution. If accumulation and growth proceed, the existing money hoards will tend to be exhausted, and this leads to the conclusion that accumulation and growth must stop because of scarcity of money. In order to avoid such unrealistic conclusion, it is necessary to allow for the possibility of increases in the total supply of money, the third case considered by Marx. Provided that capitalists' 'liquidity preference' and the velocity of circulation of money as a medium of exchange do not change, the process of expanded reproduction can proceed if the supply of money grows at the same rate as total production. If capitalists' liquidity preference were to rise, the increase in the supply of money would not imply the realisation of the growing surplus produced. In any case capitalists' 'liquidity preference' thus remains a crucial variable.

In the schemes of reproduction considered here money is gold, so that an increase in the supply of money corresponds to an increase in the production of gold. However, this restrictive assumption can be released and nominal money and banks can be introduced. Marx himself pointed out that he did not take account of credit and banks in the schemes only for simplicity's sake. (cf. Marx, 1956, p. 425). Once the banking system is introduced, the relevance of decisions concerning liquidity positions becomes even more evident. Now an increase in the supply of money corresponds to a decrease in the liquidity preference of financial capitalists and, hence, of the capitalist class as a whole. Banks are more willing to become less liquid.¹¹

Thus, in Marx – as in Kalecki – the level of aggregate profits in a growing economy depends on two sets of decisions: expenditure decisions and financing decisions. In particular, in so far as increasing expenditures on investment goods and/or consumption goods cannot possibly occur without financing, aggregate profits ultimately depend on decisions concerning the liquidity positions.

In order that a growing surplus produced be sold at its value and growing aggregate profits be realised, the banking system as a whole must be willing to initially make its position less liquid. Banks' decisions as to their liquidity depend on their expectations about the profitability of their loans to industrial capitalists.

VII CONCLUSION

The way in which Marx's schemes have been interpreted here makes it clear that there exists a deeper link between Marx's and Kalecki's analyses than the mere fact that aggregate profits necessarily equal aggregate investment plus capitalists' consumption in a closed economy without government. Capitalists' expenditures determine the level of aggregate profits, but capitalists' expenditures crucially depend on finance, more precisely on the liquidity preference of those who own idle money or can create new money.

It is not at all difficult to perceive the significant relationship of this approach to Keynes's approach, especially in his 1937 articles, after the publication of *The General Theory*. In 'The "Ex Ante" Theory of the Rate of Interest' (Keynes, 1973), Keynes pointed out:

[T]he terms of supply of the finance required by *ex ante* investment depend on the existing state of liquidity preferences . . . in conjunction with the supply of money as governed by the policy of the banking system (Keynes, 1973, p. 217).

And,

[T]he transition from a lower to a higher scale of activity involves an increased demand for liquid resources which cannot be met without a rise in the rate of interest, unless the banks are ready to lend more cash or the rest of the public to release more cash at the existing rate of interest . . . This means that, in general, the banks

hold the key position in the transition from a lower to a higher scale of activity (Keynes, 1973, p. 222).

The 'liquidity preference' of banks essentially depends on their state of confidence and their expectations of prospective returns. The interplay of industrial firms' expectations and investment decisions with banks' expectations and lending decisions determines the level of income and employment and it represents the fundamental cause of instability for a capitalist economy.¹²

NOTES

1. However, Rosa Luxemburg, who concentrated much of her attention on Marx's schemes of reproduction did not overlook the importance of monetary aspects (see Luxemburg, 1963, Chapters IV-IX). A study by Nell (Nell, 1983) is one of the few recent works which deal with money in Marx's schemes of reproduction. Nell arrives at conclusions regarding the relation between profits, investment and finance that are not dissimilar from those reached by this study, though Nell does not give money hoards and capitalists' liquidity preference the same importance as in the present study.
2. 'Thus, total profits will be equal to the sum of profits in Department I, profits in Department II, and wages in those two departments: or, total profits will be equal to the value of production of these two departments - in other words, to the value of production of investment goods and consumption goods for capitalists' (Kalecki, 1968a, p. 47). Cf. also Kalecki, 1968b.
3. At the micro level, of course, some capitalists would be spending more than their past profits, and others less. The latter lend to the former. This intermediary role can be played by banks.
4. Kalecki here assumes that the 'circle will close itself' within a period (one year); that amounts to saying that the multiplier effect will fully operate within a period. It is not necessary, however, to make such an assumption.
5. Marx's assumption of free competition leads him to the conclusion that the economy is normally pushed to produce up to capacity; the only exception is represented by periods during which the system is experiencing a general overproduction crisis. Kalecki's assumption of industrial oligopolistic markets does not imply that the economy should necessarily produce to capacity. Though for very different reasons, there exists an analogous difference between Marx's and Keynes's analyses of effective demand. (On these problems, cf. Sardoni, 1986 and 1987.)
6. From the following it will be clear that the hypothesis of commodities exchanging according to their values instead of their prices of production

does not affect the analytical conclusions of this study in any significant way.

7. The value of gold is determined, like all other commodities, by embodied labour.
8. This assumption 'is not affected in any way by the fact that a portion of the commodity-value consists of surplus-value' (Marx, 1956, p. 447).
9. In his analysis of the problem in the schemes, Marx complicated the picture by introducing hoarding of newly produced gold. In so doing, however he encountered some difficulties which were pointed out by Rosa Luxemburg (see Luxemburg, 1963, Chapter v). In reality, there is no need to introduce the production of new gold to assume the existence of money hoards, as Marx himself had already made it clear in the first volume of *Capital*. (See Marx, 1954, p. 134 and Sardoni, 1987, Chapter 3.) I shall return to this problem when dealing with expanded reproduction, where the production of new gold money becomes more crucial.
10. We might suppose, of course, that capitalists decide to consume $S'' > S$ and advance $M''' > M' - M$. In such a case aggregate monetary profits rise to $S'' = M'''V$ but real profits are still S . This depends on the fact that we assumed, following Marx, that the economy is producing to capacity, so that an aggregate demand exceeding aggregate supply triggers an inflationary process.
11. Changes in banks' 'liquidity preference' may determine changes in the rate of interest or in the volume of loans at a given rate. In both cases, investment will be affected.
12. On this, cf. Minsky (1982). Cf. Minsky also on the relevance of financial aspects in Keynes's theory (Minsky, 1975 and Minsky, 1982, especially pp. 59-70 and 203-30).

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13 Kalecki and Fiscal Policy

RUGGERO PALADINI

I INTRODUCTION

There are two essays by Kalecki explicitly dedicated to economic policy, and more particularly to the fiscal policy from a theoretical point of view: an article in the *Economic Journal* (September 1937) 'A Theory of Commodity, Income and Capital Taxation', and the 1944 essay 'Three Ways to Full Employment', in *The Economies of Full Employment* written in collaboration with other researchers of the Institute of Statistics of Oxford University. I would like to present a rapid synthesis of these two works, and then discuss two particular aspects: the modified profit and the wealth tax on the one hand, and the problem of the multiplicative effects of these taxes and Haavelmo's theory, on the other. My conclusion highlights some observations on the role of fiscal policy in economic development as seen by Kalecki.

II KALECKI (1937)

The 1937 essay begins: 'Mr. Keynes' theory gives us a new basis for the enquiry into the problems of taxation. The analysis of the influence of various types of taxes on effective demand leads, as we shall see, to quite unexpected results, which may be of practical importance' (Kalecki, 1937, p. 444). Capital is given, and it is only partly exploited; there are $\frac{1}{2}$ unemployed workers and monetary wages are also given. Kalecki introduces his typical hypothesis of unit propen-

sity to consume out of wages, and of a balanced budget (noting however that the results can easily be extended to cases of a positive or a negative balance).

Kalecki makes it clear that the equality of savings and investments in this case amounts to: profit = consumption of the capitalists + investments; the profits (gross of depreciation) are determined by investments and by the propensity to consume of the capitalists:

Now if investments in a period are given (as a 'result of previous investment decisions which require a certain not very short time for completion') and if the capitalists' propensity to consume is not influenced by expectations, then 'the gross profit $P = C_c + I$ can be altered by the change of basic conditions only within a certain time-lag, and one which is not very short' (Kalecki, 1937, p. 445).¹

Let us now introduce a tax *ad valorem* on wage-goods only. Entrepreneurs maximise profits by equalising marginal costs with marginal revenues; the effect of the new tax is to increase the marginal costs, but since the tax is spent for unemployment doles and for salaries to public employees, demand rises as well; hence production, profits, consumption of the capitalists and investments, all stay unchanged. The only difference is that as the national product at market prices is greater, the transaction demand for money will necessarily be higher, which would then tend to raise the interest rate. Kalecki, however, assumes that the money offer for transactions may be elastic enough to prevent the phenomenon. Essentially the only real effect that has come about is an income redistribution from employed to unemployed wage-earners.

Let us now introduce a tax on profits; obviously the level of production, at which profits are maximised, does not change, and neither do investments nor the consumption of the capitalists. What does rise, though, is the consumption of the wage-earners either employed or not. The gross profits must therefore rise by the amount of the income tax: $P = (C_c + I) + T_i$.

One ought to consider, however, the effect of taxation on the profitability of investment. In this respect there are essentially two negative effects. The first is the decrease in the difference between net yield and cost of capital (which includes the risk); the second is that the cost itself rises: 'if liquidity preference does not change, it is clear that income tax must raise the rate of interest, otherwise the net reward for lending would be diminished' (Kalecki, 1937, p. 448).

This negative effect can, however, be balanced, at least partly, by the fact that the growth of gross profits generates expectations of future increments. Kalecki refers to the *General Theory*, wherein Keynes states that 'the facts of the present situation enter in a sense disproportionately into the formation of our long-term expectations' (Keynes, 1936, p. 148), to conclude that there is a ready way of compensating for this negative effect.

The increase in consumption by wage-earners and by the unemployed will, however, be reduced by the increase in prices induced by the increase in production. It follows that the changes of the real wage bill will depend upon the opposite effects of the increase in employment and in prices.

Let us now introduce a tax on capital: in this respect, we can partly repeat what was said about the profit tax, but with one important difference: 'the increase of the rate of capital taxation does not tend to lower the net profitability (which covers the risk) or to raise the rate of interest' (Kalecki, 1937, p. 449).² No matter what a capitalist may do, whether he invests or not, whether he gives out on loan or not, he will pay tax anyway; 'thus the net profitability of investment is unaffected by capital taxation. Unlike income-tax, capital-tax is not a cost of production in the long term either' (Kalecki, 1937, pp. 449-50). Indeed the incentive to invest is now stronger than ever before.

'Curiously enough, capital taxation makes gross profit rise not only by the total amount of this taxation, but also the income $C_c + I$, which remains to capitalists after they have paid the taxes, increases significantly' (Kalecki, 1937, p. 450). It is then probable that the wage bill in real terms will now rise, more than had happened with profit tax.

Kalecki's conclusion is as follows 'It follows from the above that capital taxation is perhaps the best way to stimulate business and reduce unemployment. It has all the merits of financing the state expenditure by borrowing, but is distinguished from borrowing by the advantage of the State not becoming indebted. It is difficult to believe, however, that capital taxation will ever be applied for this purpose on a large scale; for it may seem to undermine the principle of private property, and therefore in this case, as in general, "any government which had both the power and the will to remedy the major defects of the capitalist system would have the will and the power to abolish it altogether" [quotation from Robinson, 1936]' (Kalecki, 1937, p. 450).³

III KALECKI (1944)

In his 1944 essay Kalecki discusses three ways of attaining full employment: (a) public spending for investments (not in competition with that of private enterprise) or subsidies to mass consumption through deficit financing; (b) stimulation of private investment via reduction of rate of interest or of profit tax; (c) income redistribution in favour of the lower income classes.

Kalecki holds that the second method – i.e., the stimulation of private investment – is not suitable. Indeed, even managing to generate an increase in investment of such a magnitude so as to raise the aggregate demand up to the full-employment level, the fact remains that investment can easily have created an excess of productive capacity which may negatively affect further investments. A renewed incentive to invest should thus be prompted.

We should not think that a decrease in the rate of interest may bring about an increase in the capital – output or in the capital – labour ratios. Indeed the process of capital deepening happens by way of innovations. Furthermore, there are limits to the possibility of reducing the interest rate, particularly the long-run interest rate. A more suitable method would be the reduction of the profit tax or the substitution of it with a tax allowing instantaneous rate of depreciation of invested capital, or perhaps the substitution of it with a capital tax. Now such methods, which we will discuss later, do not have any effect on techniques.

In reality, as Kalecki points out, the use of private investment as stimulus for global demand is very similar to that of public investment. There is no point in constructing five bridges over the same river with the purpose of employment creation only; rather, it would be much better to subsidise mass consumption.

Coming back to the first method (deficit spending for investment or subsidies) Kalecki, after demonstrating that it can create a volume of savings of such a magnitude so as to finance the deficit (which will be anyway less than the initial expenditure because of the growth of tax revenues), then discusses its effects on interest rates, inflation and the burden of the debt. He points out that a suitable monetary policy can afford to maintain a stable interest rate whatever the level of deficit. Then he comes to consider the possibility that the deficit spending may stir up an inflationary process.⁴ The answer is that there will be inflation only if productive capacity is insufficient (Kalecki here rests

on the hypothesis of a closed economy). We will return later to discuss the possibility that inflation may derive from an increase in bargaining power.

As far as the burden of the public debt is concerned, in the first place Kalecki remarks that it constitutes an internal transfer; moreover, if income rises at a rate high enough,⁵ then it is not even necessary to increase the rate of income-tax. If nevertheless this proved to be necessary, it would be preferable to finance the interest on debt with a wealth-tax: in this way the aggregate available income of capitalists would not be altered, nor the profitability of investment affected either. Still, so as not to lower the rate of profit on investment, the author suggests the modification of profit tax in the aforementioned direction; indeed, by deducting the amounts invested from income tax, the rate of return remains unchanged.

The third way of obtaining full employment is via redistribution of income from the higher income classes to the lower ones, which have a greater propensity to consume. Kalecki notes that even if profit tax were used not to subsidise mass consumption but to finance public investments, there would still be an increase in aggregate demand, because a part of the income now taxed would have been saved otherwise. This conclusion, however, holds except where private investments were discouraged; to exclude this eventuality a 'modified' profit tax should be introduced.

The way of using the balanced budget to attain full employment brings about, however, an amount of public expenditure much higher than what would be necessary with deficit spending. Since the increase in taxes carries with it redistributive effects, the political aversion against 'full-employment via taxation' is stronger than that against the 'policy of the deficit spending'. As a result, the policy of the balanced budget should be followed as far as the political situation allows; beyond this point, deficit spending should be brought in.

Redistributive policies can be realised via policies of price control. If wages were to rise more than productivity, then subsidies could be granted to firms in order to maintain price stability. These subsidies should be financed with profit-tax managing to avoid investment being discouraged. These then would have to be directed to raise the productive capacity in such a way as to keep up with the increase in working population and the increase in labour productivity.

IV THE MODIFIED PROFIT TAX AND THE WEALTH TAX

One certainly cannot say that these two valuable essays by Kalecki enjoyed great success. Particular attention was concentrated on the modified profit tax as well as on the wealth tax. This was done, firstly, by Paul Streeten and by Nicholas Kaldor,⁶ but in both cases the ensuing discussion concerned these authors much more than Kalecki, whose name in fact often disappeared entirely. To my knowledge, only in March 1964 did an article appear on wealth tax in which the main reference was Kalecki, but this is more the exception than the rule since the article was by Thomas Balogh, a co-author of *The Economics of Full-Employment* (the 1937 article is not mentioned).⁷

It should therefore be remembered that the current debate⁸ on fiscal reform – concerning the proposals of modification of the corporate income tax, by taking into consideration as taxable income the flow of funds or the cashflow – find an antecedent in the ‘modified’ profit tax of Kalecki. This is further confirmed by the fact that the theoretical context in which the discussion was developed was about optimal taxation, and Kalecki’s approach was clearly aimed to leave the rate of return on investment unaltered.

As far as wealth tax is concerned, one can certainly say that the steps taken by Kalecki do not open up an unexplored territory to the Italian reader. Other very similar arguments, indeed, were developed either by Cosciani and Fasiani,⁹ and they were also implicit in Einaudi’s approach to ordinary income taxation.

There is a brief sentence in Kalecki’s 1937 article which is worth examining more thoroughly, and which I have reported before, about the fact that capital tax is not a cost of production even over the long run. At a first sight, this statement is rather perplexing. In fact, over the long period capital is not given anymore but, plausibly, it increases (at least if the trend is positive). Should we therefore entrust ourselves to mistaken expectations of entrepreneurs? If we exclude this possibility, we then have to agree that the ‘lump-sum’ characteristic of the capital tax holds for unperiodal (or aperiodal) models only. In multiperiodal models of the life-cycle type, wealth tax certainly is not neutral.

Kalecki does not share the utilitarian tenet which is at the base of these theories. Capitalists do not accumulate for their own future consumption nor for future consumption of their heirs; rather, their aim is to increase capital and to leave it to their heirs, so that the

latter can continue their own work. From this point of view capital tax differs from profit tax even over the long period and greatly stimulates investment. On the other hand, however, the average rate of return is lowered, and in an open system this can bring about movements of capital towards countries with higher rates of return. Kalecki did not consider this point since in the work in question – as in (1944) – he was reasoning in terms of a closed system.

V THE MACROECONOMIC DIMENSION

Let us come now to the more strictly macroeconomic aspects of Kalecki's theses. Here we meet an even more baffling situation, since, while the author was fully aware of the surprising results of his article (1937), a veil of silence has nevertheless been spread over them.¹⁰ Perhaps his work came too early, perhaps the title was not particularly illuminating, perhaps Kalecki was mainly regarded as a business-cycle theorist. Indeed, despite the initial references to Keynes, the author's hypothesis are typically 'Kaleckian' and perhaps this, too, may have urged readers with a different background not to proceed further.

Nevertheless Kalecki had worked out a balanced-budget multiplier which was independent from the marginal propensity to consume of the class whose income is taxed. Given the hypothesis of a constant capitalist's marginal propensity to save out of net income (S_c), together with the hypothesis that the capitalist's income is a constant share p of the national product, then the income gross of profit tax would be:

$$Y_1 = I/ps_c \quad (13.1)$$

while after the tax (and the spending on subsidies) we would have:

$$Y_2 = I/p(1 - t_i)s_c \quad (13.2)$$

so

$$Y_2 - Y_1 = t_i Y_2 = T_i/p$$

and therefore the rise in income would be a multiple of tax revenues.

If taxes were also to be burdened on wages (at the same rate) the result would be the 'famous' unitary multiplier.

VI CONCLUSION

While the role of fiscal policy is fundamental in a short period, Kalecki argues, no analogous role is exerted on the long-run growth, as it clearly emerges from Kalecki (1954) and other successive essays.¹¹ The point is that in Kalecki the cycle is endogenous while the trend is fundamentally exogenous, and the main drive which opposes the trend towards stagnation is the process of innovation. One could perhaps argue that the stabilisation policy, by levelling out the oscillations, makes for a less uncertain and therefore more favourable climate for investment. If we accept Kalecki's fundamental hypotheses – that workers have a much greater propensity to consume than capitalists; that investement is determined by profit (or, more correctly, by the rate of profit) and by the degree of utilisation of capacity – the logical conclusion is that the rise of the rate of growth through budget policies is impossible.

Appendix

The relationship between the short-Kaleckian model and the traditional Keynesian one can be rapidly illustrated:

Let Q = real national income; C_L = consumption of the workers; C_k = consumption of the capitalists; W = wages; P = profits; I = investments; G = direct public expenditure; D = doles; a_L = workers' propensity to consume; a_k = capitalists' propensity to consume; t_w = wage tax (rate); t_p = capitalists' income tax (rate); t_k = capital tax; t_{cL} = workers' consumption tax (rate); t_{ck} = capitalists' consumption tax (rate).

We have the following equations:

$$Q = C + I + G \quad (\text{A13.1})$$

$$C_L = \frac{a_L(W(1-t_w) + D)}{L + t_{cL}} \quad (\text{A13.2})$$

$$C_k = \frac{a_k(P(1-t_p) - T_k)}{1 + t_{ck}} \quad (\text{A13.3})$$

$$W + P = Q \quad (\text{A13.4})$$

$$C = C_L + C_k \quad (\text{A13.5})$$

$$W = L + \lambda Q \quad (\text{A13.6})$$

Equation (A13.6) is (other than linear for simplicity) purely taxonomical, where $\lambda > 0$ and $L \begin{matrix} \geq \\ < \end{matrix} 0$. The Kaleckian approach lets

$$L = 0 \text{ and } \lambda = \frac{\text{nominal wages}}{\text{productivity}}$$

The solution for income is

$$Q = \frac{\frac{a_L L(1-t_w) + D}{1+t_{cL}} - \frac{a_k L(1-t_p) + T_k}{1+t_{ck}} + I + G}{I - \frac{a_L \lambda(1-t_w)}{1+t_{cL}} - \frac{a_k(1-\lambda)(1-t_p)}{1+t_{ck}}}$$

If

$$(I) \quad a_L = a_k = a$$

$$(II) \quad t_w = t_p = t_y$$

$$(III) \quad t_{cL} = t_{ck} = t_c$$

we then have,

$$Q = \frac{a(D - T_k) + (I + G)(1 + t_c)}{1 + t_c - a(1 - t_y)}$$

If instead,

$$(I) \quad a_L = 1; \quad a_k = 0$$

$$(II) \quad t_{ck} = 0; \quad t_w = 0$$

$$(III) \quad L = 0$$

we obtain,

$$Q = \frac{\frac{D}{1 + t_{cL}} + I + G}{1 - \frac{\lambda}{1 + t_{cL}}}$$

which is Kalecki (1937). It could seem that D 's multiplier may be inferior to G 's. It is not the case, though, if the operation is made with a balanced budget. In general, the analyses of multiplicative effects are carried out with equation (A13.8) and to a lesser extent with equation (A13.9). It is probable, however, that a greater level of realism would be obtained via analysis of A13.7, even if the results would be then less clear cut.

NOTES

1. I do not need to mention that these ideas had been well elaborated by Kalecki in the 1933 publication of his essay on the business cycle. Rightly so, Denicolò and Matteuzzi (1985, p. 9) find it 'difficult to share D. Patinkin's statement according to which Kalecki realised only ten years after that the profit equation . . . may imply a multiplier'.
2. This point is relevant and it is a very interesting observation that the rate of interest depends upon the liquidity component, and therefore that income tax, unlike property tax, may distort it.
3. This conclusion highlights a typical theme of Kalecki: the difference between what would be convenient, on the economic ground, to the capitalists and their own political interest as the dominant class.
4. The implications for the process of hyperinflation of the deficit spending in a situation of full-employed capacity were considered by Kalecki in a conference at Cambridge in 1955, then published as (1962).
5. Even though the Domar's condition on the 'burden of the debt' does not occur, the point raised is very similar.
6. See Streeten (1953), Kaldor (1955).
7. See Balogh (1964).

8. See Di Majo (1985).
9. See Fasiani (1935), Cosciani (1940).
10. In (1943) Kalecki holds that English capitalists' preference is for public works rather than subsidies and grants.
11. See for example Asimakopulos and Burbridge (1974), Matteuzzi (1981).

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14 The Principle of Increasing Risk versus the Marginal Efficiency of Capital

FERDINANDO MEACCI

O. Lange (1939), E. A. G. Robinson (1947), L. Klein (1951), J. Robinson (1964, 1966, 1971, 1976, 1977) and others have claimed that Keynes's *General Theory* was independently discovered by Kalecki. To all of them Patinkin (1982, p. 77) has replied that Kalecki's theory 'fails to present an integrated analysis of the commodity and money markets', and that his 'central message has to do not with the forces that generate equilibrium at low levels of output, but with the forces that generate cycles of investment'.

Although the scope of this study is narrower than that of this far-reaching controversy, it is not extraneous to it. In particular, following Patinkin himself who admits that 'this is not to deny that Kalecki's theory enables us to make certain improvements on Keynes's', I shall try to discuss the extent to which Kalecki's criticisms of Keynes's notion of the marginal efficiency of capital and his own efforts to overcome the shortcomings of this notion constitute an improvement of Keynes's theory, not to speak of economic theory as such. I shall conclude that while the critical side of Kalecki's contribution provides such an improvement (though to a lesser extent than Kalecki believed), his positive side conceals the same ambiguities that he singled out in Keynes's analysis of the propensity to invest. As a result, Kalecki's observation about the analysis of investment being 'the central *pièce de résistance* of economics' (see Kalecki, 1968, p. 263) might be interpreted in the sense that this analysis is a *pièce de résistance* of Kalecki's economics itself.¹

This study starts by revisiting the notion of the marginal efficiency of capital and by putting forward some observations on the concept of capital involved in it as a sort of introduction to the two sides of Kalecki's contribution mentioned above, as well as to the critical evaluation of their respective content.

I

Keynes's definition of the marginal efficiency of capital (MEC) is widely known and apparently clear:

I define the marginal efficiency of capital as being equal to that rate of discount which would make the present value of the series of annuities given by the returns expected from the capital-asset during its life just equal to its supply price (Keynes, 1936, pp. 135–6).

The use in the same sentence of the term 'capital' along with the term 'capital-asset' calls for an explanation, since capital has various meanings and, before Keynes, the two terms were very rarely used together. Keynes provides such an explanation for his own purposes a few lines later than the passage quoted above:

This gives us the marginal efficiencies of particular types of capital-assets. The greatest of these marginal efficiencies can then be regarded as the marginal efficiency of capital in general (Keynes, 1936, p. 136).

By dropping the words 'in general', Keynes leaves the reader with the expression 'marginal efficiency of capital' which, accordingly, can be defined as 'the greatest of the marginal efficiencies of particular types of capital assets'. Now a problem arises as to the consistency of the use of the term 'capital' as a *quid pro quo* for the term 'capital-asset'. For Keynes uses the same term elsewhere in the *General Theory* as a synonym for 'capital equipment' (see particularly Chapters 4, 6, 7). Now the term 'capital-asset' refers to a reality which is broader than – and different from – that covered by the term 'capital equipment'. Not only is the notion of property essential in the former and inessential in the latter, but while it is in the nature of the former (be it related to financial instruments or to real investment goods) to

provide a *yield* (a function performed within the realm of *exchange*), it is in the nature of the latter to provide an *output* (a function performed within the realm of *production*).² Neither of the two terms, however, seems perfectly able to reflect the meaning of the term capital featured in the MEC expression. For, from MEC being equivalent to 'the rate of return expected to be obtainable on money if *it* were invested in a newly produced asset' (Keynes, 1936, p. 136, emphasis added), it should be argued that the capital appearing in the MEC expression as defined and explained in Chapter 11 is, properly speaking, what was called by Marx (1867–94, II, Ch 1; III Chs 21–28) money capital. This notion has little to do with capital assets (money capital and capital assets are usually exchanged for each other) as well as with capital equipment (the latter is not only exchanged for money capital but is exclusively confined to the realm of production).³ It should, however, be noted that by linking the first with the second part of the sentence quoted above, the particle 'it' helps the reader of Chapter 11 to regard MEC as the mechanism by which money capital is converted into capital equipment (Chapter 11 seems to be framed within the theory of production rather than that of exchange) but should not induce to confuse what Marx (1867–94, II, Ch. 4), in his own way, kept clearly apart – i.e., the notion of *money* as distinguished from the notion of *money capital*. For, though Keynes here lends a hand in confusing the two notions, we in turn should not confuse them in a different sense by thinking that, since money and money capital are two different things, money should not be regarded as a capital asset. Indeed, not only are capital assets and money capital two different things, but the notion of money as a capital asset is one of the chief contributions of the *General Theory*, a complete explanation of this being given in Chapter 17 where Keynes returns to the essential of this subject. In this chapter, not only is the notion of ownership of particular types of capital assets (regardless of whether they consist of capital equipment or not) brought to the centre of the stage, along with a deepened notion of their yield (here redefined as the own rate of interest of the capital asset itself) but money – as distinguished from money capital – is brought to the centre of the same stage along with the notion of the marginal efficiency of money as such.⁴ Here not only is money understood as something different from money capital but – what matters most – its nature is shown to be such that it can prevent or retard the formation of money capital itself and, accordingly, its transformations into any kind of (productive or financial) capital asset (investment). As a

result, the flow of investment is considered a 'flighty bird' not only in the sense that the composition of its volume is liable to shift (with a remarkable impact on *net* investment – i.e. on 'the net addition to all kinds of capital equipment')⁵ – from productive assets of one kind to productive assets of another but also from financial to financial assets as well as from productive to financial assets and vice versa. Accordingly, MEC is here redefined in terms of the 'comparative attractions of holding different forms of wealth', while these attractions are said to lie completely 'in the minds of owners of wealth' (Keynes, 1936, p. 241). The role played, amongst these owners, by the owners of money enables us to link the apparently diverging arguments of Chapters 17 and 11, i.e., the role of money to the role of money capital, as well as the marginal efficiency of the former to the marginal efficiency of the latter. However, what the two chapters have in common is not only a sort of a bridge between money and money capital; they also share, unfortunately, an overlapping of the static with the dynamic analysis of MEC. While the former is mostly confined to the passages where definitions are worked out, Keynes uses the latter to explain what happens to particular values of MEC when 'there is an increased investment in any given type of capital' (Keynes, 1936, pp. 136, 228). While, under static analysis, MEC is defined in individual terms as 'the greatest of all marginal efficiencies of particular types of capital assets', under the dynamic analysis of Chapter 11 it turns out to be an average of individual MECs decreasing as total investment increases. While under static analysis one understands that MEC thus changes from capital asset to capital asset and from individual to individual (asset prices can stay at rest only on condition of conflict of expectations: see Shackle, 1972, p. 437) Keynes, who seems to be as confident on the consistency of aggregating *intentions* as unaware of the historical time in which the process of calculating MECs is carried out in practice,⁶ concludes that 'we can then aggregate these schedules for all the different types of capital, so as to provide a schedule relating the rate of aggregate investment to the corresponding MEC in general which that rate of investment will establish' (Keynes, p. 136). It is at this point that Kalecki's criticism arises.

II

In his review of the *General Theory* originally published in Polish in 1936 under the title *Parę uwag o teorii Keynesa*, Kalecki set out an intriguing criticism of Keynes's MEC. According to Kalecki Keynes's analysis

does not say anything about the sphere of investment *decisions* of the entrepreneur, who makes his calculations in 'disequilibrium' on the basis of *existing* market prices of investment goods. It shows only that if the expected profitability, calculated on the basis of this price level, is not equal to the rate of interest, a change in the level of investment will occur. This will transform the existing situation into one in which expected profitability *is equal to* the rate of interest. Using the terminology of Swedish economists, one can say that Keynes's theory determines only the *ex post* level of investment but that it does not say anything about *ex ante* investment (Kalecki, 1936, (1982, p. 251)).

By hinting at the *ex ante-ex post* view of investment, Kalecki helps the reader to detect a weakness implied in Keynes's analysis. In doing so, however, he displays an exaggeration implied in his own strictures against it. First of all Keynes begins his exposition of the MEC notion by arguing in terms both of its microfoundations and of its forward-looking aspect. What he sets out right at the beginning of Chapter 11 is thus the framework in the context of which investment decisions are taken. Beside, when he later returns to the 'essentials' of this subject in Chapter 17, it is 'in the minds' of the owners of particular capital assets that MEC is said to come into its own, the owners being constantly keen to find out whether it would pay them to *acquire* or to *dispose of* particular assets, money included. It should, however, be noted that, if not in the *General Theory*, where the expressions *ex ante-ex post* never appear, or in its Chapter 11, where the expression 'decision to invest' is not explicitly used, Keynes makes clear at least in a letter to Hawtrey that the investment he deals with when he is concerned with either the concept of aggregate demand or MEC is 'intended investment', and that no equivalence between intended and actual investment necessarily exists:

I mean that the intended investment will be governed by the marginal efficiency of capital and the rate of interest, although the

actual amount will not . . . In chapter 5 I mean that intended investment depends on long-term expectation but I do not mean that long-term expectation is the only influence determining the quantity of actual investment as distinguished from intended investment. You must also remember in this context that investment includes dis-investment . . . In chapter 11, again it is intended investment which is immediately diminished by a rise in the rate of interest (Keynes, 1936, p. 581).

From all this one should conclude that, however badly Chapter 11 may be worded, Keynes, far from saying nothing about *ex ante* investment as Kalecki claims, deals with both the *ex ante* and the *ex post* aspect of it. Unfortunately, he does it in such a way as to induce the reader – Kalecki in the first place – to confuse one with the other so that the reader – if not Keynes himself – gets easily lost in the shift, which was pointed out above, from the static to the dynamic analysis of MEC.⁷ It should also be noted that, if we apply Garegnani's distinction between *theory* and *method* to this specific case (see Garegnani, 1976), we could conclude that what is at stake in Keynes's muddle is not only an issue of theory, it is also an issue of method. For, while the object of Keynes's static approach is *individual* behaviour ('when a man buys an investment or capital-asset . . .'), the object of his dynamic analysis turns out to be its (intended or unintended) outcome in the *economy as a whole* ('a schedule relating the rate of *aggregate* investment to the corresponding MEC in general'). The real mistake made by Keynes when he is concerned with a decreasing aggregate investment (the investment demand function) thus turns out to be of the same kind as that made by Kalecki when the latter claims that what takes place in MEC as aggregate investment increases is a change of an opposite kind (i.e., a boost to MEC via the mechanism of the multiplier – 'a version of Achilles and the tortoise' according to Keynes's counter-criticism).⁸ For what the two authors have fundamentally in common and display with equal ease in the two cases is the method that Shackle (1972, p. 430) calls 'diachronic mechanism', this method being based on 'the unstated axiom that history is governed by its own past, that what happens is implicit in what has happened'. The weakness of this method as applied to the investment demand function lies instead in its failure to take account of *novelty* (an essential aspect of historical time as well as of the mechanism that coordinates individual plans) as a force that continually shifts and deforms all our functions.

The unsatisfactory state of Keynes's analysis of MEC lies, accordingly, not so much in the fact that it implies 'an approach which is basically static to a matter which is by its nature dynamic' (Kalecki, 1936 [1982, p. 252]) but in its muddling the static with the dynamic approach, the individual with the aggregate solution to the problem of investment. Unlike Kalecki, Joan Robinson was here more to the point when, in Kalecki's footsteps, she turned her pen against Keynes:

Keynes's schedule of the marginal efficiency of capital collapses future time into the present moment, confusing the forward-looking expectations of profits of individual firms with the profits that will be realized for industry as a whole. Moreover, he projects the argument into the long run and assumes that a larger stock of capital will entail a lower rate of profit, thus relapsing into the 'classical' theory he intended to combat (Robinson, 1977, p. 15).

As for Kalecki, it is true that his review anticipated much of what his followers, Joan Robinson included, were later able to see more clearly. However, he was himself absorbed by the *ex post* side of investment to an extent unrivalled by Keynes in that he eventually made of the 'diachronic mechanism' something Keynes never did – i.e., the method on which most of his models are based.⁹ This is all the more surprising since Kalecki not only was able to distinguish the 'three stages' of investment activity (i.e., investment orders, the resulting production of investment goods and, finally, their deliveries)¹⁰ but was also aware of the role of historical time in an actual economy as well as in Keynes's theory¹¹ and, accordingly, should have been even more aware of the role of uncertainty in affecting the course of investment.

III

By claiming that 'Keynes's theory determines only the *ex post* level of investment' Kalecki, as we have seen above, sees a mistake where there is only a misunderstanding or, to put it in a different way, misunderstands Keynes's misunderstanding. According to this initial muddle, Kalecki views Keynes's investment demand function as an useless tool for explaining what checks the willingness to invest (*ex ante* investment). He therefore attempts to find out the force which

restrains and eventually extinguishes this willingness along different lines from Keynes's. He thinks these lines are to be found in the 'principle of increasing risk' (Kalecki, 1937).

Before coming to the explanation of this principle, Kalecki dwells on what he calls 'the efficiency of investment', of which he gives a definition that he claims to be 'identical' with Keynes's MEC:

With a *given* amount of capital k and a given method of production the entrepreneur is able to estimate the series of future returns (differences between revenues and effective costs) $q_1, q_2 \dots q_n$ during the prospective life of the factory. We shall call the rate ϵ at which the series of returns must be discounted in order to obtain the amount invested k 'the efficiency of investment', whilst by prospective profit p we denote the product $k \cdot \epsilon$ (Kalecki, 1937, p. 440).

Here a careful reader might immediately wonder whether by 'amount invested' Kalecki means what is literally implied in the past participle 'investment' – i.e., a money capital *already* transformed into the factory – or whether it ought to be intended – as Kalecki actually states a few lines below – as an amount *to be invested* – i.e., a money capital ready to be transformed in any available capital asset. Unfortunately, the interpretation would be misleading in both cases. For an amount invested is one thing, an amount to be invested another, and the net present value of the capital asset in which a given amount of money capital has already been – or is about to be – invested is still another. While the first case (amount invested) implies that the decision to invest has already been taken and implemented (so that Kalecki's distinction between decisions to invest and investment is blurred right at the beginning of his argument), in the second case the new expression (amount to be invested) is used in order to find out 'the optimum amount to be invested' once, the method of production being given, the principle of increasing risk is assumed to be operating. Now, apart from Kalecki drawing first an horizontal MEI curve on the ground that the method of production is given and showing later that a change in the rate of interest 'does not affect the method of production' (a circular reasoning: see Kalecki, 1937, p. 444), he can well claim that the influence of this change on the scale of investment refers only to 'investment plans' and not to 'the situation arising out of their realization', Kalecki, 1937, p. 445); but, again, just because one thing is the investment activity of an isolated

individual and another the aggregate investment in the economy as a whole, Kalecki should have said not 'investment plans' but 'the investment plans of an individual', being understood that what matters most from the point of view of Kalecki's business cycle theory or Keynes's 'net' investment as a component of effective demand is not so much what the former calls 'investment plans' but just 'the situation arising out of their realization'. In the end, Kalecki's MEI seems to conceal the same weakness that he himself singles out in Keynes's MEC. This weakness consists in misunderstanding – to use Joan Robinson's words again – 'the forward-looking expectations of profits of individual firms with the profits that will be realized for industry as a whole'.

It should, however, be noted that the term 'profit' is more properly used with reference to Kalecki's MEI than to Keynes's MEC. For, as Hawtrey pointed out in his correspondence with Keynes, the prospective yield of an *instrument* is one thing, the prospective yield of an *enterprise* another (Keynes, 1936, p. 595), the term 'profit' relating to the yield of the latter rather than to that of the former.¹²

Thus, after pointing out that Keynes does 'not distinguish between the state of mind of the promoter of a capital enterprise and that of the purchaser of share's (Keynes, 1936, p. 575), Hawtrey maintains that while 'promoters' are concerned with the yield of different kinds of equipment, whatever the enterprise, 'purchasers of shares' are concerned with the profits of enterprises, whatever their equipment (Keynes, 1936, p. 606). Now the distinction between an instrument and an enterprise can be used to break down the element of risk into the risk connected with the prospective yield of an instrument and the risk connected with the ownership of an enterprise; the former is more independent from the wealth and commitments of its owner than the latter. But Kalecki is more concerned with the latter than with the former. In this sense, he argues that 'the greater is the investment of an entrepreneur the more is his wealth position endangered in the event of an unsuccessful business', while 'the amount invested k must be considered as a fully illiquid asset in the case of a sudden need for capital' (Kalecki, 1937, p. 442).

Granted that the 'sudden need for capital' arises independently and is a different phenomenon from 'the event of an unsuccessful business', one should add that here Kalecki overlooks the role played by the Stock Exchange in a modern economy: a point that, if properly understood can in turn be used against Hawtrey's criticism of Keynes's alleged confusion between 'the state of mind of the

promoter of a capital enterprise and that of the purchaser of shares'. In Chapter 12 of the *General Theory* Keynes argues that the difference between an old-fashioned economy, where the separation between ownership and management has not yet taken place, and a modern economy with its organised investment markets lies in the fact that the presence in the latter of the Stock Exchange makes largely revocable for any individual willing 'to revise his commitments' those 'decisions to invest in private business' which were in the former 'largely irrevocable not only for the community as a whole but also for the individual'. From this derives the central observation of Chapter 12 that 'the daily revaluations of the Stock Exchange, though they are primarily made to facilitate transfers of old investments between one individual and another, inevitably exert a decisive influence on the rate of current investment' (Keynes, 1936, p. 151). What these observations, along with Keynes's surrounding discussion, imply is, against Hawtrey, that far from creating confusion between 'promoters' and 'purchasers of shares', Keynes provides, at least in this chapter, a fair description of their interaction in a market economy; and, against Kalecki, that the danger of illiquidity, on which much of the principle of increasing risk is based exists, if at all, only in economies different from those that Kalecki thinks he is dealing with. Accordingly, the principle of increasing risk should be regarded as one of the reasons why a Stock Exchange is unavoidable in economies where uncertainty is the crux of the matter and where money can be either hoarded or lent rather than as one of the forces that restrain the annual flow of investment (when a Stock Exchange is available for individuals to make disinvestments).

The argument on which this conclusion is based has little to do with the arguments, mostly based on the legal form of the enterprise, that were put forward by Kalecki's early critics (Buchanan and Calkins, 1938). For it is true that, when the liability is limited, the owner of an enterprise risks only what he has committed in it. But this is irrelevant in Kalecki's discussion, for the latter is based on the growing proportion of the commitment, whatever it be, to the owner's total wealth, which is what it is when the owner *qua* entrepreneur decides to increase his investment in the enterprise. Indeed, the switch from a proprietorship with unlimited to a proprietorship with limited liability should be considered as a means by which individuals shield their total wealth from the principle of increasing risk, hence again as a proof of the existence of this principle rather than as the slackening of a constraint on the annual flow of investment. On the other hand, it

remains true – following Kalecki's early critics – not only that 'additional capital may be obtained from additional stockholders' (Buchanan and Calkins, 1938, p. 456) but also that the element of risk should be included in Kalecki's MEI as much as Keynes says it is included in his MEC.¹³

This brings us back to the economies of the firm and to the difference between own and borrowed funds, and especially to the different forms in which the two kinds of funds can be advanced. Whether the forms be shares or bonds, owners and creditors can at any moment turn their assets into money through the Stock Exchange while it is only when own funds are not reflected in shares and borrowed funds in bonds, or when an organised investment market does not exist, the assets are likely to be exchanged at a loss (being still understood that the 'sudden need for capital' is unrelated to the 'event of an unsuccessful business'). But this loss, which in the case of a sudden need for capital might as well turn out to be a windfall profit, is to be understood as the difference between what the entrepreneur would fetch in an organised investment market and what he actually does where no such market exists.

Kalecki's neglect of the role of the Stock Exchange seems to be due to the influence exerted on him by his Polish colleague Breit (1935). The latter used to speak of the 'lender' as though it could be only a 'bank' (Chilosi, 1982). This is not the only weakness that links Kalecki to Breit. The latter's theory of the lender's risk and of the rate of interest increasing with the amount borrowed, though unrelated to the principle of increasing risk, was not denied by Kalecki. Actually, as the latter states in his article, 'if the entrepreneur is not cautious in his investment activity, it is the creditor who imposes on his calculation the burden of increasing risk charging the successive portions of credit above a certain amount with rising rate of interest' (Kalecki, 1937, p. 442). However, the proportion between the amount to be invested and the borrower's total wealth as well as the possibility of a sudden need for capital by the borrower may be irrelevant from the lender's viewpoint for the economics of the *investor* is one thing, the economics of the *investment* another, it being understood that if the lender doubts the success of the investment, he is more likely to abstain from lending rather than to lend at an increasing rate. In particular, when the lender deals in bonds rather than in mortgages, his attitudes and requirements are different from what they would be otherwise. For, in the case of bonds, not only is no guarantee needed but the lender's risk 'has nothing to do

with any distrust of the borrower's honesty or capacity. It arises from the logical situation of the lender' (Shackle, 1972, p. 193). This situation consists in the lender's uncertainty as to the price that will be fetched should he decide to sell the bond before its expiration date; or, to put it as Hicks did in his review of the *General Theory*, it consists in 'the risk of capital losses due to changes in the rate of interest' (Hicks, 1936). Actually, interest itself is viewed by Keynes, according to Shackle (1972, p. 226), as the price men will pay for 'freedom from fear of capital loss'. A bank – it should be added – is not indifferent to this kind of risk inasmuch as its practices consist in lending long at fixed interest rates.

NOTES

1. This seems to be admitted by Kalecki himself when he says that, unlike his views on the distribution of national income, 'there is a continuous search for new solutions in the theory of investment decisions' (Kalecki, 1971, p. vi).
2. Above the division of economic theory into theories of production and theories of exchange see Baranzini and Scazzieri (1986).
3. This distinction is blurred by Kalecki himself in his review of the *General Theory* where his explanation of Keynes's MEC runs as follows: 'If for instance we buy *machinery worth 1.000 zloty* and we forecast that it will be used for 5 years . . . its marginal efficiency will be the discount rate by means of which one gets 1.000 zl as the actual value of the income of these 5 years' (Kalecki, 1936 (1982, p. 251), emphasis added).
4. It is interesting to note that it is in his attempt to clear up Chapter 17 of the *General Theory* that Lerner (1952) comes to the distinction between the marginal efficiency of *holding* an asset and the marginal efficiency of *investing* in an asset, while it is because he fails to single out the element of ownership implied in the notion of an asset (defined by him as 'the source of a productive service': see Lerner, 1937) as well as the relationship between money, money capital and capital assets that he considered Keynes's MEC as a *quid pro quo* for the notion of 'marginal productivity of capital' and was eventually led to replace it with his new notion of 'marginal efficiency of investment'.
5. See, for an analysis of this notion, Keynes (1936, Chapter 7), where it is remarked that 'investment, thus defined, includes, therefore, the increment of capital equipment, whether it consist of fixed capital, working capital or liquid capital' (the latter term referring to 'undesigned increments, or decrements, in the stock of unsold goods').
6. 'If there is an increased investment in any given type of capital during

- any period of time, the marginal efficiency of that type of capital will diminish' (Keynes, 1936, p. 136).
7. It is a curious aspect of Kalecki's criticism of Keynes's MEC that it is based on Kelecki's inability to single out in Keynes's thought the very relationship between a micro and a macro approach to economic problems that constitutes a benchmark of his own thought. For a further discussion of the relationship between the decision to invest, on the one hand, and the volume of investment, on the other, as well as between the theory of money and the theory of the cycle see the studies by Kregel and Nell, Chapters 14 and 9 in this volume.
 8. See Keynes's letter to Kalecki dated 22 April 1937 in Patinkin (1982, p. 100).
 9. See for instance Kalecki (1939, 1954) and, for an overview of Kalecki's theory of the business cycle, Steindl (1981).
 10. See Kalecki (1935) and other papers mentioned in the previous note.
 11. As we know from a *post scriptum* added to a letter sent to Keynes and dated 20 March 1937, Kalecki had just received from Keynes a reprint of the latter's 1937 *Quarterly Journal of Economics* article which contains, according to Shackle, the essentials of the *General Theory* as a theory based on the role of uncertainty in human affairs (see Patinkin, 1982, pp. 97-8).
 12. Keynes concedes in his correspondence with Hawtrey that MEC refers to instruments rather than to enterprises: 'Your point that I have been inconsistent in my terminology about profit is correct . . . I agree . . . that it is the prospective yield of each separate instrument which is relevant' (Keynes, 1936, p. 585). It should be added here that the term 'yield', that so often appears in Keynes's treatment of MEC, was in turn adopted by the latter, following a similar criticism by Hawtrey, *in lieu* of the term 'quasi-rent' which was repeatedly - and wrongly - used in a preliminary draft of the *General Theory*.
 13. See Keynes's letter to Kalecki dated 30 March 1937 in Patinkin (1982, pp.98-9).

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Part IV

Trend and Business Cycle

15 Kalecki's Economic Dynamics: A Personal View

R. M. GOODWIN

As the 1986 Perugia conference amply demonstrated, Kalecki's stature as an economist is now receiving the consideration it deserves. His presentation of his theory to the Econometric Society in 1933, after finding little resonance in Poland, was an event of great significance, though its initial impact seems to have been negligible. Fortunately Kaldor was present; unfortunately, for Kalecki, so also was Regnar Frisch. The greatness of that original paper resides in its successful combination of two essential ingredients: basing the theory on carefully chosen, empirically observable facts and, then, ingeniously constructing from these building blocks a precise, soluble mathematical model. I was introduced to this splendid piece of work in Jacob Marshak's seminar of 1936–7 at Oxford. As a youthful Marxist, I was captivated by it: here was an exact, compelling and comprehensible explanation of the dynamics of capitalist reality – something I found neither in textbooks nor in lectures.

To make the theory manageable, the original presentation was in the form of a second order, linear difference equation, and it was solved with specification of parameter values. In this case, as with the analogous differential form, the coefficient of the first order term determines the cyclical stability: if positive, the cycle dies away; if negative, it expands without limit. Kalecki very sensibly chose the value zero thus avoiding the dilemma, since his aim, in the Marxian tradition, was to explain how and why capitalism was, by its very nature, bound to oscillate. His solution combined theoretical necessity with practical convenience since it determined the one parameter for which he had no evidence. Alas, Frisch was there to point out that since the Greeks it has been accepted that one can never say an

empirical quantity is exactly equal to a precise number. Given his aim, this was a deadly blow to Kalecki, and in my view, in spite of some effort, he never really satisfactorily resolved the problem. It is interesting that Frisch also failed. In the Cassel *Festschrift*, he developed a suggestion of Wicksell, to the effect that the system is asymptotically stable but kept alive by shocks, an hypothesis still very fashionable. But this will not do either, since, for reasons I need not go into, it will not explain the observed economic fluctuations. Frisch should have known better, since what is required had already been derived by a Dutch mathematician, van der Pol. What is necessary is a particular non-linear configuration. Interestingly enough this crucial distinction, which eluded Kalecki, was arrived at from sheer logic by Kaldor, in total innocence of the awesome difficulties of non-linear dynamical equations.

In sharp contrast to the bulk of academic economics, what is required is that the equilibrium must be unstable, so that the system will *never* be found there or be found approaching it. For large values of the variable the system must be asymptotically stable. It follows then that there must be at least one closed orbit separating the stable from the unstable region. One thus has a stable equilibrium motion, towards which the system is always tending and which is a generalisation of the idea of a stable equilibrium point (the notion had been developed long ago by Poincaré).

I was convinced that Kalecki was basically sound in his approach, but also did not know what to do about it. In the same year as Kalecki's paper, there had been a brief, concise note by a French mathematician Ph. LeCorbeiller, telling economists about the vital importance of these particular non-linearities. I had found the note interesting but was not illuminated. Then by a very fortunate coincidence I worked in the same physics laboratory as LeCorbeiller: he very patiently inducted me into some of the mysteries of non-linear dynamics. For the maintenance of oscillation two non-linearities are sufficient, but to be necessary and sufficient, one at least is required. These non-linearities must be quite clearly and correctly specified – and this is the essential point which Kalecki never quite got clear. There are many types of oscillators, but a common one involves a cubic function, yielding two strong non-linearities.

There is one further point I would like to make. As Serena Sordi, Chapter 16, has pointed out, following Steindl, even the later form of Kalecki's model must be interpreted as a finite difference equation. The problem with difference equations is: what do we mean by them?

Is time a continuous or a discrete variable? Does one assume that nothing happens between t and $t + 1$? This is grossly unrealistic, but the alternative involved in a finite difference with continuous time, means horrendous difficulties. I find it acceptable only if we regard such aggregative macromodels not as realism, but as illustrative of the nature of the problem and indicative of possible solution types. With that proviso, we are then dealing with a discrete time dynamic model. It has in recent time become known, what was unsuspected in the great number of 'period' analyses, that frightful problems arise even with the simplest of such models. Such an endogenous, completely deterministic model as Kalecki's for some values of the parameters, can give rise to highly erratic, totally unpredictable behaviour. In such a chaotic state, its solution may depend on initial conditions; it can even bifurcate from oscillatory to monotonic behaviour and then bifurcate back again as also from stability to instability. Thus even in the absence of exogenous shocks, the solution can be erratic and quite unpredictable. Since Kalecki's theory requires essentially finite differences *and* non-linearity, it precisely fits potentially into the group of chaotic models, the so-called strange attractors.

16 Some Notes on the Second Version of Kalecki's Business-cycle Theory

SERENA SORDI

I INTRODUCTION

The study of the forces determining the investment process has been one of the 'leitmotifs' of Kalecki's work. There we can find a continuing attempt to improve the analysis of investment decisions – 'the central *pièce de résistance* of economics' (Kalecki, 1968, p. 263).

The purpose of this study is to discuss some problems related to Kalecki's approach to the analysis of investment decisions. In doing this, particular attention will be given to the second version of Kalecki's trade-cycle theory which, being the most developed, allows one to analyse and to understand the basic relation between investment decisions and investment realisation better than is the case with the other versions.

Many arguments could be advanced as to why these problems merit further examination.

Firstly, recent developments in macrodynamics – e.g., Malinvaud in 'Profitability and Unemployment' (1980) and Lucas, particularly in 'An Equilibrium Model of the Business Cycle' (1975) – have called forth fresh looks at the investment equation in such models. In the light of this, it may be worthwhile to look at a classical macroeconomist and his struggle with the same problem – i.e., with the problem of incorporating the investment equation in a macrodynamic model.

Secondly, given the difference between successive versions of Kalecki's trade-cycle theory so well stated by Steindl (1981), it may

be useful, in order to understand better this difference, to attempt to perform a mathematical analysis of the *difference equation* at the base of the second version of Kalecki's trade-cycle theory along the lines of what has been done by Frisch and Holme for the *differential-difference equation* at the base of the first version.

Finally, attention has usually been concentrated on the first, and 'most famous', version of Kalecki's theory. However, it seems worth turning our attention to the second version where Kalecki devotes two whole chapters to the analysis of the determination of investment decisions, and in consequence the problem of a certain 'micro-macro' contrast between the analysis of the determination of investment decisions on the one hand and the rest of the model on the other is more evident.

So that we can develop these points a little further; Section II is devoted to a summary of Steindl's discussion, while in the Mathematical Appendix the difference equation at the base of the second version of Kalecki's theory is analysed with regard to both stability and cyclical properties. Then, in Sections III and IV and in the Statistical Appendix attention is concentrated on an analysis of (1) the second version of the investment decisions equation and (2) the estimation procedure utilized by Kalecki for the latter.

II TWO DIFFERENT VERSIONS OF KALECKI'S THEORY OF THE TRADE CYCLE

The difference between successive versions of Kalecki's trade-cycle theory has been shown by Steindl in an article entitled 'Some Comments on the Three Versions of Kalecki's Theory of the Trade Cycle' (1981).

Given that our purpose is to concentrate attention on the second version of Kalecki's theory, it is sufficient here to summarise Steindl's discussion with regard to the first two versions. Indeed, the first version being the 'most famous' version of Kalecki's theory, it is important to compare the second version with it; moreover, although the third version presents further new elements in the analysis of investment decisions, the resulting equation of the dynamics of investment is a difference equation not fundamentally different from the one in the second version.

At first sight, the first two versions of Kalecki's business-cycle

theory (1935a, 1935b; 1954) seem very similar. As shown by Steindl, however, a deeper analysis allows one to individualise crucial differences.

1. First Version (1935)

In '*A Macrodynamic Theory of Business Cycles*', whenever an investment is made, *three stages* are discerned by Kalecki:

(a) investment orders or decisions (D):

$$\frac{D_t}{K_t} = f\left(\frac{P_t}{K_t}\right), \text{ with } f' > 0$$

where K is the stock of fixed capital and P the total profits

(b) production of investment goods (A):

$$A_t = \left(\frac{1}{\tau}\right) \int_{t-\tau}^t D_t dt$$

where τ is the gestation period of any investment project so that $\int_{t-\tau}^t D_t dt$ is the amount of unfilled orders at time t

(c) deliveries (L):

$$L_t = D_{t-\tau}$$

2. Second Version (1954)

In '*Theory of Economic Dynamics*', whenever an investment is made, only *two stages* are discerned by Kalecki:

(a') investment decisions (D):

$$D_t = aS_t + b \frac{\Delta P_t}{\Delta t} - c \frac{\Delta K_t}{\Delta t} + d$$

where S is the total saving; $\Delta P/\Delta t$ and $\Delta K/\Delta t$ the change per unit of time in profits and the stock of fixed capital respectively; and d a constant

(b') investment realisation (I):

$$I_t = D_t - v$$

Apart from the equations describing the investment process, however, the other equations are the same in both versions of the model. Indeed, considering the simplified case in which it is assumed that the economy is closed with no role for government, workers do not save and inventories are stable throughout the cycle, we can write the following definitional relationships:

$$Y_t = C_t + I_t$$

$$S_{kt} = S_t$$

$$P_t = C_{kt} + I_t$$

where Y is the national income; C the total consumption; S_k capitalists' savings; and C_k capitalists' consumption.

Moreover:

$$C_{kt} = qP_{t-\lambda} + C_c, \text{ with } 0 < q < 1, C_c > 0, \lambda \geq 0$$

In the first version, the time-lag λ between profits and capitalists' consumption is taken equal to zero. Moreover, given the assumptions, investment coincides with the production of investment goods so that we have:

$$P_t = \frac{C_c + A_t}{1 - q}$$

Thus:

$$\begin{aligned} \text{(a)} \quad \frac{D_t}{K_t} &= f\left(\frac{P_t}{K_t}\right) = f\left(\frac{1}{K_t} \frac{C_c + A_t}{1 - q}\right) = \\ &= g\left(\frac{C_c + A_t}{K_t}\right) \end{aligned}$$

from which, taking a linear approximation,

$$\frac{D_t}{K_t} = m \left(\frac{C_c + A_t}{K_t} \right) - n$$

we obtain the investment decisions equation:

$$D_t = m(C_c + A_t) - nK_t$$

where m and n are both positive constants.¹

Differentiating both sides with respect to time, we obtain:

$$\dot{D}_t = m\dot{A}_t - n\dot{K}_t$$

where $\dot{x} = dx/dt$

In both versions, it is assumed that the total depreciation is constant and equal to U so that, for the first version, we can write:

$$\dot{K}_t = L_t - U = D_{t-\tau} - U$$

Then, inserting in the investment decisions equation this expression for \dot{K} and the one for A [$= (1/\tau)(D_t - D_{t-\tau})$], we obtain the business cycle formula analysed by Kalecki in his 1935 article:

$$\dot{D}_t = \left(\frac{m}{t} \right) D_t - \left(\frac{m}{\tau} + n \right) D_{t-\tau} + nU \quad (16.1)$$

In the second version, where the time-lag between profits and capitalists' consumption is assumed to be positive, we have:

$$P_t = qP_{t-\lambda} + C_c + I_t$$

Thus:

$$\begin{aligned} P_t &= q(C_{kt-\lambda} + I_{t-\lambda}) + C_c + I_t = \\ &= q(qP_{t-2\lambda} + C_c) + qI_{t-\lambda} + C_c + I_t = \\ &= \dots\dots\dots = \\ &= I_t + qI_{t-\lambda} + q^2I_{t-2\lambda} + \dots + C_c + qC_c + \dots \end{aligned}$$

The series of coefficients $1, q, q^2 \dots$ is quickly decreasing so that after a time the influence of investment on profits becomes negligible. For this reason, it is possible, as an approximation, to say that profits follow investment with a time-lag and to write:

$$P_t = f(I_{t-\omega}),$$

where ω is the time lag involved.

As a consequence, profits are determined fully by lagged investment by the following relation:²

$$P_t = \frac{C_c + I_{t-\omega}}{1-q}$$

Moreover:

$$\frac{\Delta K_t}{\Delta t} = I_t - U$$

so that we can write the equation of the dynamics of investment analysed by Kalecki in his 1954 book:

$$I_{t+\tau} = (a-c)I_t + \left(\frac{b}{1-q}\right)\frac{\Delta I_{t-\omega}}{\Delta t} + cU + d \quad (16.2)$$

Writing equation (16.1) now in terms of deliveries of investment goods and taking, both in equation (16.1) and in equation (16.2), deviations from equilibrium levels, we obtain:

$$l_t = \left(\frac{m}{\tau}\right) l_t - \left(\frac{m}{\tau} + n\right) l_{t-\tau} \quad (16.3)$$

$$l_{t-\tau} = (a-c)i_t + \left(\frac{b}{1-q}\right)\frac{\Delta i_{t-\omega}}{\Delta t} \quad (16.4)$$

where $l = L - U$ and $i = I - (cU + d)/(1 - a + c)$

Usually, the change in notation made by Kalecki from d/dt to $\Delta/\Delta t$, has been considered as a change of little importance and, in consequence of this, the equation (16.4) has been studied with the term $\Delta i/\Delta t$ replaced by \dot{i} - i.e., for the case in which $\Delta t \rightarrow 0^3$. As underlined by Steindl (1981, pp. 128-30), it is however important to understand that even in this case a crucial difference between the two equations is still present. Indeed, even if we consider the case in which, in (16.4), the time-lag between capitalists' consumption and

profits is equal to zero and in which $\Delta t \rightarrow 0$, we can rewrite the two equations as:

$$I_{t-\tau} = A I_t + B \dot{I}_t \quad (16.5)$$

$$i_{t+\tau} = A' i_t + B' \dot{i}_t \quad (16.6)$$

where $A = (m/\tau)/(n + m/\tau)$, $B = -1/(n + m/\tau)$, $A' = (a - c)$, $B' = b/(1 - q)$.

Although in this case both equations are of mixed difference-differential type, a crucial difference is self-evident (Steindl, 1981, p. 129): in equation (16.5) there is a *backward* argument whereas in equation (16.6) a *forward* one.

This change in the time-lag structure surely has important consequences, for example, with regard to the stability properties of the two models.

Thus, following Steindl,⁴ it seems more correct not to make any direct analogy between the two versions of the business-cycle equation, to maintain the difference operator which appears in equation (16.4), and to try to understand what the economic rationale is for the dissimilarity of the two equations.

As we have seen, the only aspect under which the two versions of the model differ is the analysis of the determination of investment decisions. It is thus necessary to look there – i.e., in the two investment decisions equations (a) and (a') – for reasons that can explain the crucial dissimilarity between the two business cycle equations.

On the basis of the analysis developed by Steindl, it is not difficult to understand that behind the two equations (a) and (a') there are two *different, alternative* approaches to the analysis of the determination of investment decisions. Indeed, whereas in (a') the investment decisions depend only on recent changes of the explanatory variables, in (a) investment decisions are assumed to depend on all investment decisions undertaken in a period of the past of a length equal to the gestation period. Indeed, we can write:

$$D_t = mC_c + \left(\frac{m}{\tau}\right) \int_{t-\tau}^t D_t dt - nK_t$$

The integral on the right-hand side of the equation accounts for the presence of the differential operator in the first version of the business-cycle equation, whereas no reasons can be found for justifying the presence of this operator in the second version. On the

contrary, it does not seem to be satisfactory at all to replace the finite difference operator with a differential in this equation because this would mean, for example, that changes in profits from one day to the next influence investment decisions.

An important implication of this conclusion drawn by Steindl is that, in order to study the cyclical and stability properties of the second version of Kalecki's business-cycle model, it is not correct to apply Frisch-Holme's analysis to the difference-differential equation with the forward argument, but it is necessary to 'readapt' that type of analysis to the case of a difference equation.

In view of this, an indication of how such a readaptation might be possible is given in the Mathematical Appendix (pp. 265-270).

However, given the crucial role played by the investment decisions equation in Kalecki's trade-cycle theory, it seems more important now to turn our attention to this equation rather than to the equation of the dynamics of investment.

III. THE INVESTMENT DECISIONS EQUATIONS (1954)

Kalecki's aim, in the successive refinements of his theory, has been that of bringing the model closer to reality and, as appears evident from equations (a) and (a'), the result of this effort is reflected in a more realistic analysis of the determination of investment decisions: the profit rate as the unique determinant of investment decisions is replaced in (a') by more factors which, using Steindl's terminology, represent the influence on investment decisions both of 'available financial resources' and 'marketing prospects'.⁵

To understand in which way these two sets of determinants are represented in the investment decisions equation $D = aS + b\Delta P/\Delta t - c \Delta K/\Delta t + d$, it is useful to follow Kalecki's line of argument, which runs as follows. Suppose that at the beginning of the period firms have pushed their investment decisions up to a point where they cease to be profitable either because of limited markets for their products or because of 'increasing risk' and limitation of the capital market. In this situation, new investment decisions will be made only if changes occur in the economic situation which extend the boundaries set to investment plans by these factors. In this way, the problem of explaining the determination of investment decisions becomes that of individualising the changes which can serve this purpose.

In Kalecki's opinion, three categories of such changes - (1) savings

out of profits, (2) change in profits, (3) change in the capital stock – can serve this purpose so that the presence of the three terms in the right-hand side of the investment decisions equation is easily explained. In order to motivate his choice, Kalecki develops all his argument with reference to a single firm. In his opinion, changes in categories (2) and (3) extend the boundaries set to investment by the limitation of the market for the firm's product because they represent an increase in sales and, with a negative influence, an increase in competition. On the other hand, savings out of profits extend the boundaries set to investment plans by the limitation of the capital market and 'increasing risk' because, firstly, the amount of the entrepreneurial capital held by the firm determines to a large extent its possibility of gaining access to the capital market, and, secondly, reduces the 'risk' involved in investing with borrowed capital.

Once the investment decisions are determined on the basis of these three factors, they are followed by investment with a time-lag equal to τ . The investment in fixed capital equation can thus, be written:

$$(b') I_{t+\tau} = aS_t + b \frac{\Delta P_t}{\Delta t} - c \frac{\Delta K_t}{\Delta t} + d$$

where I is the investment in fixed capital.

Kalecki's purpose, in *Theory of Economic Dynamics*, is not only to construct a cycle theory but also to show that the theory explains the 'known facts'.⁶ For this reason, Kalecki never limits his attention to a theoretical analysis of the equations of the model, but the theoretical analysis is always supported by an empirical application. Although the purpose of the statistical analysis, as underlined by Kalecki in the 'Foreword', is only 'illustrative', the empirical evidence obtained from the estimation of the equations is always interpreted as reinforcing the theory. We thus cannot limit our attention to Kalecki's theoretical analysis of the determination of investment decisions, but it is crucial to analyse also Kalecki's estimation procedure which, in particular for the investment equation, presents rather peculiar aspects and allows one to focus on a problem that does not appear evident from a theoretical analysis of the equation.

IV KALECKI'S ESTIMATION PROCEDURE

As we have seen, the investment equation to be estimated is of the form:

$$I_t = aS_{t-\tau} + b \frac{\Delta P_{t-\tau}}{\Delta t} - c \frac{\Delta K_{t-\tau}}{\Delta t} + d$$

i.e.:

$$(b') \quad I_t = aS_{t-\tau} + b \frac{\Delta P_{t-\tau}}{\Delta t} - cI_{t-\tau} + d'$$

where $d' = d + cU$, and where the coefficients a , b and c , are all positive.

Although this is the investment equation which issues from Kalecki's theoretical analysis and which has been briefly analysed in Section III, it is not the equation utilised by Kalecki for empirical application. In fact, before estimating the equation, Kalecki prefers 'to alter it somewhat', and all the empirical analysis is based on the 'altered' equation.

To obtain the 'altered' equation, we write (b') as:

$$I_{t+\tau} + cI_t = aS_t + b \frac{\Delta P_t}{\Delta t} + d'$$

or:

$$\frac{I_{t+\tau} + cI_t}{1+c} = \left(\frac{a}{1+c} \right) S_t + \left(\frac{b}{1+c} \right) \frac{\Delta P_t}{\Delta t} + d''$$

where $d'' = d'/(1+c)$.

The left-hand side of the equation we have obtained is a weighted average of investment in fixed capital at time t and $t + \tau$ which, in Kalecki's opinion, can be assumed to be equal to an intermediate value $I_{t+\theta}$, where θ is a time-lag such that:

$$0 < \theta \leq \tau,^7$$

with $\theta = \tau$ for $c = 0$.

We thus obtain:

$$I_{t+\theta} = \left(\frac{a}{1+c} \right) S_t + \left(\frac{b}{1+c} \right) \frac{\Delta P_t}{\Delta t} + d''$$

which is the 'altered equation' estimated by Kalecki.

To analyse Kalecki's estimation procedure, we consider the case in which the time-lag θ is equal to one - i.e., the case in which the equation to be estimated is:

$$(b'') I_t = \left(\frac{a}{1+c} \right) S_{t-1} + \left(\frac{b}{1+c} \right) \frac{\Delta P_{t-1}}{\Delta t} + d''$$

Applying equation (b'') to the same American data for the period 1929-40 used by Kalecki, and which are given by him in the Statistical Appendix, by means of ordinary least squares, we obtain the following regression equation (Statistical Appendix, p. 272):

$$I_t = 0.590 S_{t-1} + 0.277 \Delta P_{t-1} + 2.146$$

(5.43) (2.67) (2.01)

where all coefficients are significant and more than 80 per cent of the variance of investment is accounted for by the use of total savings and change in profits as explanatory variables.

It is important to notice that the evidence given by this regression equation supports Kalecki's investment theory. Indeed, firstly, all explanatory variables prove to have a significant influence on investment; secondly, the estimates of both coefficients are positive and that of $a/(1+c)$ is less than one;⁸ and, thirdly, the estimated coefficients, when inserted in the business-cycle equation, are such as to give rise to a damped cyclical solution.

However, the problem is now to understand the usefulness of the alteration of the equation made by Kalecki; usefulness that, at first sight, appears to be doubtful. Indeed, estimating the 'altered' equation, we cannot identify the coefficients a , b , and c of the original equation, and, therefore, we cannot get an idea of the relative importance of the factors which, according to Kalecki's theory, determine investment behaviour.

To this end, it is useful to estimate the equation in its original form, making use of the same data.

The result of this estimation (Statistical Appendix p. 272) is a regression equation where the coefficients of total savings and of the lagged investment in fixed capital are not significant at all – i.e., the empirical evidence given by the estimation of the investment equation in its original form gives rise to important problems of Kalecki's investment theory. As none of these problems arise if we estimate the 'altered' equation, at first sight the role of Kalecki's estimation procedure might seem to be, to a large extent, that of ensuring support for his brilliant theoretical intuition rather than of submitting the theory to an empirical investigation. In this regard, therefore, it would be fair to compare Kalecki's attitude with respect to econometrics with that of Keynes as the latter is revealed, for example, by Keynes's reactions to Colin Clark's findings.⁹

However, even if Kalecki does not explain the reasons that induced him to carry out the alteration, it is not difficult to identify the most important problem which makes it difficult to employ the original equation for an empirical application.

As we have seen, on the basis of the analysis of the behaviour of a single firm, three factors are singled out by Kalecki as determining investment decisions: savings out of profits, change in profits, and change in the capital stock held by the firm. The latter, given the assumption of a constant depreciation, independent of the level of the capital stock, makes the investment in fixed capital of the firm depend on past investment.

However, the model being a macro model, the investment equation is written by Kalecki in aggregate terms with total savings, change in total profits, and total investment in fixed capital as explanatory variables.

The total savings series used for the estimation of the equation is obtained from the national accounting identities as the sum of private investment, export surplus, and budget deficit.¹⁰ As a consequence, two of the explanatory variables – total savings and investment in fixed capital – are highly collinear and this suffices to account for the two coefficients not significantly different from zero in the regression equation.

V CONCLUDING REMARKS

The purpose of this study has been to analyse Kalecki's approach to the determination of investment decisions.

The investment decisions equation plays a crucial role in all versions of Kalecki's theory of the trade cycle and accounts for dissimilarities between successive versions of the business-cycle equation. For example, the presence of a finite difference operator in place of a differential operator in the second version of Kalecki's equation of the business cycle is not casual. On the contrary, it is the consequence of a different, alternative approach to the analysis of the determination of investment decisions. For this reason, one conclusion of this study is that, in order to study the cyclical and stability properties of the second version of Kalecki's model of the business cycle on Frisch-Holme lines, it is necessary to 'readapt' that kind of analysis to the case of a difference equation.

However, it also seems possible to draw a more important conclusion from the analysis we have developed.

Kalecki's model, in the first as in the second version, is a *macrodynamic* model where, as we have seen, in order to obtain the business-cycle equation, accounting identities are employed. This is in contrast with the analysis of the determination of investment decisions which refers, explicitly, to single 'firms'. This is self-evident in Chapter 8 – 'Entrepreneurial Capital and Investment' – of Kalecki's 1954 book, for example, where the author analyses the influence on investment decisions of the 'accumulation of firm's capital out of profits'. One possible conclusion of this study may well thus be that in Kalecki's model which we analysed there is 'micro-macro' contrast between the analysis of the determination of investment decisions on the one hand and the rest of the model on the other. This contrast may well account for the problems which arise in the estimation of the equation in its original form.

However, given the crucial role played by the investment decisions equation in all versions of Kalecki's *macrodynamic* theory of the business cycle, this is not an encouraging conclusion.

Mathematical Appendix

To study qualitatively the difference equation:

$$i_{t+\tau} = A'i_t + B' \frac{\Delta i_t - \omega}{\Delta t}$$

where $0 < A' < 1$ and $B' > 0$

we could assume that the two time-lags τ and ω are equal.

In this case, choosing appropriately the time unit so as to have $\omega = \tau = 1$, we would obtain a second order linear difference equation,

$$\begin{aligned} i_{t+1} &= A'i_t + B'\Delta i_{t-1} \\ &= (A' + B')i_t - B'i_{t-1} \end{aligned}$$

which could easily be analysed with regard to both the stability and cyclical properties:

$$(A' + B')^2 - 4B' < 0$$

cycle condition

$$1 - B' > 0$$

stability condition

However, these are not reasons for assuming that the two time-lags are equal. In fact, it seems more plausible to assume that the time-lag τ , the 'gestation period', is greater or equal to the time-lag ω , and to analyse, as the most interesting case, the case in which $\tau > \omega$.

To show how this can be done, let us assume that τ is an integer multiple of ω and choose the time unit so as to have $\omega = 1$.

In this case, we have:

$$\omega = 1$$

$$\tau = h\omega = h$$

$$\Delta t = t - (t - 1) = 1$$

where $h = 1, 2, \dots$, so that the difference equation becomes:

$$i_{t+h} = A'i_t + B'\Delta i_{t-1}$$

with characteristic equation:

$$q^h = (A' + B') - B'q^{-1}$$

where $q = \alpha \pm i\beta$ ($\beta \geq 0$)

The case of real roots of the characteristic equation can be analysed by means of Sturm's method.

To this end, let us write the characteristic equation, with $\beta = 0$, in the following way:

$$f(\alpha) = \alpha^{h+1} - (A' + B')\alpha + B' = 0$$

The use of Sturm's method (cf. Baumol, 1970, pp. 230-46) requires, firstly, the calculation of the polynomials $f_1(\alpha)$, $f_2(\alpha)$, . . . , $f_{h+1}(\alpha)$, where:

$$f_1(\alpha) = \frac{df}{d\alpha}$$

and $f_2(\alpha)$, . . . , $f_{h+1}(\alpha)$, which are derived from $f(\alpha)$ and $f_1(\alpha)$, by a process of long division, are such that:

$$f(\alpha) = f_1(\alpha)g_1(\alpha) - f_2(\alpha)$$

.....

$$f_{h-1}(\alpha) = f_h(\alpha)g_h(\alpha) - f_{h+1}(\alpha)$$

Secondly, the number of real roots which lie between $\alpha = \alpha_1$ and $\alpha = \alpha_2$ is given by the difference:

$$V(\alpha_1) - V(\alpha_2)$$

where $\alpha_1 < \alpha_2$ and where $V(\alpha_i)$ is the number of variations in sign of the Sturm polynomials for $\alpha = \alpha_i$.

As an example, we consider the case in which $h = 2$ - i.e., the case in which the gestation period is twice the time-lag ω .

In this case, we have:

$$f(\alpha) = \alpha^3 - (A' + B')\alpha + B' = 0$$

$$f_1(\alpha) = 3\alpha^2 - (A' + B')$$

from which:

$$\begin{array}{r|l} \alpha^3 - (A' + B')\alpha + B' & \frac{3\alpha^2 - (A' + B')}{(1/3)\alpha} \\ \hline -\alpha^3 + (1/3)(A' + B')\alpha & \\ \hline & - (2/3)(A' + B')\alpha + B' \end{array}$$

so that:

$$f_2(\alpha) = \frac{2}{3}(A' + B')\alpha - B'$$

In the same way, dividing $f_1(\alpha)$ by $f_2(\alpha)$, we find f_3 which, being the equation of the third order, is simply a constant:

$$f_3 = (A' + B') - \frac{27B'^2}{4(A' + B')^2} \cong 0$$

It is then possible to determine the condition for real roots of the characteristic equation.

We have:

	$\alpha = -\infty$	$\alpha = +\infty$
$f(\alpha)$	<0	>0
$f_1(\alpha)$	>0	>0
$f_2(\alpha)$	<0	>0
f_3	<0 >0	<0 >0
$V(\alpha)$	2 3	1 0

so that all roots are real if and only if:

$$f_3 > 0$$

Indeed, in this case we have:

$$V(-\infty) - V(+\infty) = 3.$$

Thus:

$$(A' + B')^3 - \frac{27B'^2}{4} > 0 \quad \text{condition for (three) real roots}$$

Assuming that $\beta > 0$, we can study the case of complex roots of the characteristic equation.

In the general case ($h > 1$), from:

$$\rho^h = (A' + B') - B'\rho^{-1}$$

and:

$$\varrho = \alpha + i\beta = r(\cos \omega + i\sin \omega)$$

we obtain:

$$r^h(\cos \omega h + i\sin \omega h) = (A' + B') - B'r^{-1}(\cos \omega - i\sin \omega)$$

For this equality to hold, we must have:

$$(a) r^h \cos \omega h = (A' + B') - B'r^{-1} \cos \omega$$

$$(b) r^h \sin \omega h = B'r^{-1} \sin \omega$$

From (b), we obtain:

$$r = \left(\frac{B' \sin \omega}{\sin \omega h} \right)^{1/(1+h)}$$

and, inserting this expression for r in (a):

$$\begin{aligned} \left(\frac{B' \sin \omega}{\sin \omega h} \right)^{h/(1+h)} \cos \omega h &= \\ &= (A' + B') - B' \left(\frac{B' \sin \omega}{\sin \omega h} \right)^{-1/(1+h)} \cos \omega \end{aligned}$$

from which:

$$\begin{aligned} \Phi(\omega; h) &= \left[\cos \omega h + \left(\frac{\sin \omega h}{\sin \omega} \right) \cos \omega \right] \left(\frac{\sin \omega}{\sin \omega h} \right)^{h/(1+h)} = \\ &= (A' + B') B'^{-h/(1+h)} \end{aligned}$$

Following Frisch-Holme's procedure (1935), it is now possible to find the condition for cyclical fluctuations.

To this end, consider the graph of the function $\Phi(\omega; h)$ which is shown in Figure A 16.1 where $h > 1$ and $0 < \omega < \pi/h$.

Assuming that the characteristic roots are complex, we have found that the condition $\Phi(\omega; h) = (A' + B') B'^{-h/(1+h)}$ must hold. With the help of the graph we have drawn, we now see that this is possible, in the range $(0, \pi/h)$, if and only if:

$$\Phi(0; h) > (A' + B') B'^{-h/(1+h)}$$

thus:

$$\Phi(0; h) = (1+h) \left(\frac{1}{h} \right)^{h/(1+h)} > (A' + B') B'^{-h/(1+h)} \quad \text{cycle condition}$$

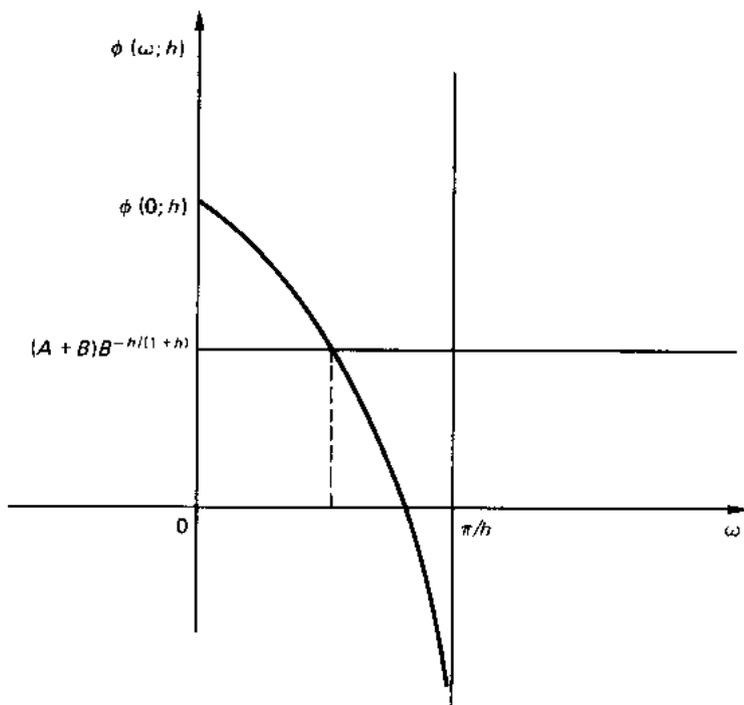


FIGURE A16.1

For example, when $h = 2$ – i.e., in the case we have analysed with regard to the problem of the existence of real roots – the cycle condition becomes:

$$(A' + B')^3 - \frac{27B'^2}{4} < 0$$

i.e.:

$$f_3 < 0$$

Thus, both conditions we have obtained imply that when the condition $f_3 < 0$ is satisfied we have one real and two complex roots of the characteristic equation.

In the case in which the cycle condition holds, the cycle is damped, of constant amplitude, or explosive, according to whether:

$$r \begin{cases} < 1 \\ = 1 \\ > 1 \end{cases}$$

thus:

$$B' < \frac{\sin \omega h}{\sin \omega} \quad \text{stability condition}$$

The stability condition we have obtained makes it possible to understand Kalecki's statement according to which the condition of importance for having cyclical fluctuations is $A' < 1$ (see Kalecki, 1954, pp. 121–31).

At first sight, this condition appears to be certainly not sufficient in order to have cyclical fluctuations.

However, there is a very special case in which the condition $A' < 1$ is both necessary and sufficient for having cyclical fluctuations of the investment level, namely the case in which these fluctuations are neither explosive nor damped.

In this case, we have:

$$B' = \frac{\sin \omega h}{\sin \omega}$$

and:

$$\Phi(\omega; h) = (\cos \omega h + B' \cos \omega) B'^{-h/(1+h)}$$

so that the cycle condition becomes:

$$\Phi(0; h) = 1 + B' > A' + B',$$

which is satisfied if and only if $A' < 1$.

Thus, although Kalecki, after the criticism by Frisch and Holme (Cf. Velupillai, 1984), never considered explicitly again the case of fluctuations of constant amplitude, this is the only case in which, on the basis of the assumptions made about the values of the coefficients, the second version of Kalecki's 'pure business-cycle equation' gives rise surely to cyclical fluctuations of the investment level.

Statistical Appendix

The data used for the estimation of the equation are given by Kalecki in the Statistical Appendix where the derivation of the S and $\Delta P/\Delta t$ series is also briefly discussed.

The S series, in nominal terms, is obtained from the accounting identities as the sum of gross private investment, export surplus, and budget deficit and, then, the values thus obtained are deflated by the price index of investment goods.

The $\Delta P/\Delta t$ series, in nominal terms, is obtained using data running from mid-year to mid-year - i.e., for example, the term $\Delta P_{t-1/2}/\Delta t$, is calculated as:

$$P_{t-1/2} - P_{t-3/2}$$

To obtain these data running from mid-year to mid-year, the average of profits in two successive years could be used as a first approximation. However, to take this approximation is not satisfactory in this case because the profits series is to serve for the calculation of the change in profits per unit of time.

In this case, on the basis of the approximation, we would obtain:

$$\begin{aligned} P_{t-1/2} - P_{t-3/2} &= \left(\frac{P_t + P_{t-1}}{2} \right) - \left(\frac{P_{t-1} + P_{t-2}}{2} \right) = \\ &= \frac{P_t - P_{t-2}}{2} \end{aligned}$$

that is, the change in profits at time $t - 1$ would not have any relation with the level of profits at time $t - 1$. For this reason, it is necessary, in Kalecki's opinion, to correct somehow the average of profits in two successive years, and this is done by him postulating that the following relation between profits and private wages plus salaries (WS) holds:

$$\frac{P_{t-1/2}}{WS_{t-1/2}} = \frac{1}{2}(P_t + P_{t-1}) / \frac{1}{2}(WS_t + WS_{t-1})$$

Making use of *monthly* data on wages and salaries, it is thus possible to calculate a sort of 'correction factor' (CF) which, applied to the average of profits of two successive years, should give a better approximation to profits running from mid-year to mid-year:

$$P_{t-1/2} = \frac{1}{2}(P_t + P_{t-1})CF_{t-1/2}$$

where:

$$CF_{t-1/2} = \frac{WS_{t-1/2}}{(1/2)(WS_t + WS_{t-1})}$$

Finally, the series so obtained is deflated by the price index of investment goods.

It is now possible to estimate Kalecki's investment equation.

The result of the application of the equation to the I , S , and $\Delta P_t/\Delta t$ series for the period 1929–40 is the regression equation we have given above, where all estimates are significant, and where $R^2 = 0.830$.

The equation in its original form, making use of the same data, can be estimated for the period 1930–40.

The result of this estimation is the following regression equation:

$$I_t = 0.332 S_{t-1} + 0.344 \Delta P_{t-1} + 0.341 I_{t-1} + 2.006$$

(0.87) (2.41) (0.71) (1.80) ($R^2 = 0.830$)

where, contrary to what we expected, total saving and lagged investment prove to have no influence on investment at all.

To conclude, it is important to notice the arbitrariness of the selection of the time-lag θ between investment decisions and investment realisation.

Kalecki, for the selection of this time-lag, does not apply the 'goodness of fit' criterion but, firstly, assumes that θ cannot be shorter than half a year and longer than one year; secondly, renounces choosing the 'right' θ within these limits; and, thirdly, produces two variants of the investment equation based on the two limit values of the interval of plausible values of θ .

We have, through all our statistical analysis of the equation, limited the attention to the case of a unitary time-lag.

NOTES

1. See Kalecki (1935a, p. 331; 1935b, pp. 291–2). In the latter article, it is shown that also the coefficient n of the linearised equation must be positive.
2. See Kalecki (1954, pp. 53–5).
3. See, for example, Allen (1959, pp. 259–61).
4. In noting this crucial dissimilarity, Steindl makes reference to an unpublished paper by Gomulka where the author shows that the difference – differential equation with the forward argument yields explosive minor cycles for all positive A' , B' , and τ . (See Steindl, 1981, p. 129.)
5. According to Steindl, in the second version of Kalecki's theory, there are two separate sets of determinants of investment decisions: 'financial resources available to the firm on the one hand, and its marketing prospects on the other. Financial resources are represented by the current saving of the business. This will seek an outlet and therefore it

will normally induce investment decisions . . . The marketing prospects of the firms are adversely affected by the increase in capital which means more competition, and more claims for the available volume of profits' (Steindl, 1981, pp. 126-7).

6. This is stressed by Goodwin in his review of Kalecki's book. (See Goodwin, 1956, p. 508.)
7. In Kalecki's opinion, since 'c is likely to be a small fraction, θ is of the same order as τ ' (Kalecki, 1954, p. 104).
8. This is also required by Kalecki's theory. (See Kalecki, 1954, pp. 105-6.)
9. Keynes's attitude with regard to Colin Clark's findings is described by Patinkin (1976, pp. 1102-4). According to Patinkin, Keynes's use of data in the *General Theory* reveals important characteristics of his attitude with regard to econometrics. Indeed, this use 'shows, first of all, Keynes's basic concern with integrating his theoretical analysis with the data of the real world. Furthermore, it shows him as a person with strong intuitive feelings for the proper order of magnitude of the various data - indeed, so strong and so confident that he did not hesitate to pit these feelings against the systematic estimates made by specialists in the field. Not unrelatedly, it also shows him as a person who was not too meticulous in his handling of data, and who sometimes succumbed to the temptation to bend the data to fit his preconceptions' (Patinkin, 1976, p. 1103). Although the problem merits further examination, it would seem possible to say that the same characteristics are revealed by Kalecki's use of data in *Theory of Economic Dynamics*.
10. For the case in which the economy is not closed and government expenditure and taxation are not negligible, we have:

$$P(\text{net of direct taxes}) + WS(\text{net of direct taxes}) + T(\text{direct and indirect}) = GNP$$

and:

$$I + ExS + G + C_k + C_w = GNP$$

where WS are total wages and salaries; T taxes; GNP gross national product; I private investment; ExS export surplus; G government expenditure on goods and services; and C_w workers' consumption. Subtracting from both sides of both identities taxes minus transfers (Tr), we obtain:

$$P(\text{net of taxes}) + WS(\text{net of taxes}) + Tr = GNP - (T - Tr)$$

and:

$$I + ExS + Bud + C_k + C_w = GNP - (T - Tr)$$

where Bud is the budget deficit.

Subtracting now from both sides the term $WS(\text{net of taxes}) + Tr$, we obtain:

$$P(\text{net of taxes}) = I + ExS + Bud - S_w + C_k$$

where S_w is workers' saving.

Finally, subtracting from both sides capitalists' consumption and adding workers' savings, we obtain:

$$S_w + S_k = S = I + ExS + Bud$$

(see Kalecki, 1954, pp. 48–9).

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17 Kalecki's Economics and Explanations of the Economic Crisis

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I INTRODUCTION

In this study, we seek to outline those aspects of Kalecki's writings which are relevant for explaining the prolonged world recession since 1973, and to make some assessment of the validity of the explanations implicit in Kalecki's work for recession. Much of Kalecki's work on developed capitalist economies was written in the 1930s and 1940s, and was strongly influenced by the economic crisis of the interwar period, and in some respects, we are attempting to apply explanations developed in response to one worldwide recession to another. There have, of course, been significant changes in economies and relationship between national economies since the 1930s. Kalecki would probably have amended the details of his analysis to take account of such structural changes in economies, and may well have found different explanations for the current crisis than those he used for the interwar crisis. Other writings of Kalecki which are heavily drawn on below are those which arise from his wartime discussions of the prospects for capitalist economies in the postwar period.

In this study, we focus on possible explanations of the post-1973 general world recession. In this context, we will use terms such as 'high levels of unemployment', 'worldwide recession' and 'economic

* Some of the ideas in this paper were developed whilst I was Visiting Fellow at the International Institute of Management, Berlin. The study has been slightly revised to take into account some of the comments made at the 1986 Perugia conference.

crisis' interchangeably. Our main concern is to explain high levels of unemployment, and to a lesser extent the slower growth after 1973. Whilst Kalecki was particularly concerned to understand the causes of unemployment and crisis, he provided an analysis of the workings of capitalist economies rather than specifically an explanation of crisis. However, the backdrop to his analysis is the presumption that unemployment and excess capacity is the norm under *laissez-faire* capitalism.

There is a danger in an exercise such as this of reading into an author under consideration one's own views. In the case of Kalecki, there is rather less danger of this than, say, Keynes for Kalecki's writing is less voluminous and less ambiguous than Keynes's. However, it should be said that some of the explanations which I explore below are based on very brief discussion by Kalecki, and in that way I may well be giving too much emphasis to ideas on which Kalecki placed only minor importance.

Kalecki clearly saw capitalist economies, particularly those run on *laissez-faire* lines, as prone to unemployment and crisis. Such economies are seen as inherently cyclical, and liable to booms and slumps. Full employment of labour would, at best, be achieved only at the top of a business cycle, and during most, if not all, of the cycle there would be significant levels of unemployment. Hence, it is not surprising that his writings contain many ideas which are relevant to the explanation of unemployment. A key element in Kalecki's analysis is that unemployment is the norm, with full employment occurring only occasionally, which is in sharp contrast to the approach of neoclassical monetarists. In the latter case, full employment is seen as the norm, and departures from full employment have to be ascribed to some interference with the market mechanism (minimum wage legislation, trade union power, etc.). Many approaches given the label of 'Keynesian' can be seen as seeking to find causes of temporary malfunction (e.g., failure of market coordination) which can be overcome by appropriate government action. This could suggest that we should reverse the direction of argument – that is, try to explain the long postwar boom as a departure from conditions normally associated with capitalist economies.

At the economic level, Kalecki generally saw capitalist economies suffering from insufficient aggregate demand. He drew the contrast between demand-constrained capitalist economies and resource-constrained centrally planned economies (Kalecki, 1970). Further, he viewed developing economies as suffering from inadequate capital

stock rather than insufficient aggregate demand. One obvious starting point is thus an examination of the components of aggregate demand. In our discussion below we pay particular attention to investment and savings, although there is also some discussion on the role of government budget deficits. Kalecki also foresaw that in the postwar world there would be constraints on the achievement of full employment arising from international trade imbalances and complications. Space precludes discussion of the impact of international trade difficulties on the general level of economic activity.¹

The general emphasis on aggregate demand has to be conditioned by three important considerations. First, whilst Kalecki did not see inadequate or inappropriate capital equipment as a problem which usually faced developed capitalist economies, such inadequacies cannot be ruled out. In periods of postwar reconstruction and also in developing economies, Kalecki viewed inadequate capital equipment as a constraint on the achievement of full employment. After a period of prolonged recession with low levels of investment there would be good reason to think that the postwar reconstruction 'paradigm' could be appropriate (I have the UK economy particularly in mind here). But more generally there is no reason to believe that Kalecki would think that a *laissez-faire* economy would generate the right amount and mix of capital equipment.

Second, prolonged periods of full employment generate sociopolitical forces which eventually lead to the end of full employment. Kalecki (1943) argued that 'the assumption that a Government will maintain full employment in a capitalist economy if it only knows how to do it is fallacious'. Thus it cannot be assumed that governments will operate to secure full employment, and further it focuses on the sociopolitical changes which would accompany prolonged full employment.

Third, the level of aggregate demand is strongly influenced by the distribution of income, and the distribution of income is determined by the degree of monopoly. Changes in the distribution of income can thus bring about changes in the level of aggregate demand.

The discussion below is organised as follows. We begin with a discussion on the role of investment and the factors which could in Kalecki's approach lead to a decline in investment, and thereby in aggregate demand (Sections II-III). One of the factors discussed here will be the relationship between the level of savings and investment, and we will devote some further space to a discussion of savings. This is followed by a brief consideration of the degree of monopoly, and

then of government expenditure (Sections IV-V). The next section (Section VI) outlines the reasons why Kalecki would reject the 'real wages are too high' argument as an explanation of unemployment. The final section (Section VII) reviews the notion that sociopolitical factors brought the pre-1973 long boom to an end. In each section there is discussion of Kalecki's views and some indication of the broad trends in relevant macroeconomic variables over the past two decades or so. Section VIII is a brief conclusion.

II INVESTMENT EXPENDITURE

Investment expenditure was clearly the key component of aggregate demand as far as Kalecki was concerned. The aggregate of decisions on investment expenditure can be seen as arising from the interaction between the incentive to invest and the availability of finance. The incentive to invest arises from changes in the rate of profit, on the basis that the desired capital stock depends on the level of profitability so that changes in the stock of capital equipment (net investment) depend on changes in profitability. The long-term rate of interest, which is relevant to long-term investment decisions, was taken by Kalecki as roughly constant, and to the extent to which it varied that it moved in sympathy with the rate of profit over a trade cycle. Another incentive for investment is derived from the pace of technical progress. In the absence of technical progress, the economy would move to a stationary state, and the effect of technical progress is continually to raise the stock of capital equipment which firms want to use. Kalecki further postulated that a faster underlying pace of technical progress would tend to give rise to higher rates of investment.²

The influence of finance on investment expenditure can be seen as operating both on the cost and the availability side. On the cost side, the main consideration arises from differences in the costs of internal finance and external finance, with the usual assumption that firms would prefer internal to external finance. Kalecki (1954, p. 159) argued that an increase in rentier savings (i.e., in external finance as far as firms are concerned) would have a depressing effect on investment decisions.

In terms of availability of finance, the crucial elements will be the volume of savings and the willingness of banks to extend loans. Savings in one period will influence investment decisions made in that

period, which lead to investment expenditure is a future period.

One version of Kalecki's investment equation (Kalecki, 1971, Chapter 10) for fixed investment begins from:

$$F_{t+s} = a S_t + b dP/dt - c dk/dt + d \quad (17.1)$$

where F is investment in fixed capital, S gross savings, P profits, K capital stock.

The second and third terms reflect the change in the rate of profitability and the effect of changes in internal finance (profits). The first term reflects availability of finance from savings, but $a < 1$ reflects incomplete reinvestment of savings. The size of a can depend on the composition of savings as, for example, between corporate savings and other savings. The term d reflects 'development factors'. For short-term analysis of the trade cycle, d may be treated as a constant. But in the long term it will change, reflecting the impact of technical progress.

Investment expenditure could be stimulated by government subsidy, lower interest rates, etc. but after a while such stimulation would run into a number of difficulties. There is a level of net investment which would lead to the stock of capital equipment growing at the same rate as output, thereby maintaining a constant capital-output ratio. An attempt to promote a higher rate of investment would lead to excess capacity and/or capital deepening – i.e., a rising capital-output ratio. Unless the share of profits in output rose in sympathy, a rising capital-output ratio would imply a falling rate of profit. Then in order to maintain investment levels, more subsidies would be needed to offset the declining rate of profit which would be dampening down investment (see, for example, Kalecki, 1945). This argument can be qualified in a number of ways – e.g., the rate of growth of output may rise with more investment, there is a floor to the rising capital-output ratio. But the point here is that Kalecki was sceptical of the efficacy of raising investment expenditure to ensure full employment. He also thought that it was rather wasteful, in that the capital equipment created was not directly useful in adding to social welfare, whereas alternatives such as promoting consumer expenditure would be.³

A decline in investment expenditure is expected to lead to a decline in aggregate demand, and such a decline would not be offset by an increase in consumer expenditure. A decline in investment expenditure would be seen as arising from a combination of:

- (a) decline in the expected rate of increase of economic activity;
- (b) decline in profitability, which could arise from some combination of decline in profits–output ratio and increase in the capital equipment–output ratio;
- (c) decline in underlying rate of technical progress;
- (d) increase in the proportion of savings undertaken outside the corporate sector;
- (e) reduction in the willingness of banks to extend credit and expand the money supply in response to demand for loans to cover investment expenditure.⁴

The discussion of investment by Kalecki was generally in the context of the business cycle, and hence focused on variations in investment during it. Here we assume that the forces identified by Kalecki in the context of the business cycle would also be relevant over a longer-term perspective.

The empirical evaluation of these arguments is not straightforward. A decline in profits, for example, may arise as a consequence or as a cause of a decline in investment. The observed rate of technical progress may decline as a result of a lower rate of investment as well as influencing the pace of investment.

In Table 17.1, we have provided some very summary statistics on the level of investment (relative to GDP) for a number of major OECD countries. These figures would suggest three conclusions. First, the decline in gross investment expenditure is more important than net investment from an aggregate demand point of view, and these figures suggest that there is a decline in investment which may have contributed to a decline in aggregate demand. The use of ratios of gross investment to GDP may understate the role of investment decline, since a decline in investment will usually cause a decline in GDP, perhaps leaving the ratio of investment to GDP little changed.

Second, the rising ratio of depreciation to GDP is indicative of a rising capital–output ratio (assuming that the rise in depreciation is not purely a consequence of the stock of capital equipment being depreciated at a faster rate). We return to the question of the capital–output ratio below.

Third, the decline in net investment (relative to GDP) would have serious consequences for the growth of the capital stock. Indeed, the falling net investment–GDP ratio combined with a rising capital–output ratio would suggest a sharply falling growth of output (provided that the average capital–output ratio is indicative of the incremental ratio).

It is, however, likely that gross and net investment (relative to GDP) was still much higher after 1973 than in the interwar period. For example, in the interwar period in the UK gross investment never exceeded $10\frac{1}{2}$ per cent of GDP and net investment never rose above 4 per cent of GDP, with depreciation averaging just over 6 per cent.⁵

It would seem that figures such as those in Table 17.1 would lead to a rather neutral conclusion. The declines in gross investment to GDP ratios would not seem large enough to infer that investment expenditure was dragging down GDP. On the other hand, the ratio of gross investment to GDP could be roughly constant and yet investment be the force leading to slowdown in growth of output. Some further (and rather rough) calculations indicate that in each of the largest seven OECD economies, prior to 1973 investment tended to grow faster than output, but after 1973 (gross) investment tends to grow slower than output.

In Kalecki's approach, a decline in expected level of economic activity would arise from some objective changes in the economy (e.g., decline in actual level or in profitability). In some variants of the post-Keynesian approach, expectations can change without corresponding changes in actual events. If these changes in expectations were adverse, then they could lead to a decline in investment. I would suggest that there is little evidence to suggest that expectations changed for the worse prior to 1973 so as to provide an explanation of the worldwide recession.⁶ There are many statements made in the late 1960s and early 1970s to the effect that worldwide recession would be unlikely, reflecting confidence in the triumph of the Keynesian revolution.⁷ Further, economic forecasts made in 1973 did not indicate any expectation of the onset of recession.⁸

The share of profits in value added is further discussed below when the degree of monopoly is considered. However, Table 17.2 provides some figures on factor shares. In Table 17.2, employees' compensation and wages and salaries differ by employers' contributions to social security and private welfare schemes. The major feature is the growth of those contributions in all countries largely at the expense of corporate and entrepreneurial income. For an aggregate demand point of view, these changes would have a particularly deflationary effect. The rise in employers' contributions does not directly add to spending power of workers, even though they are counted as part of labour income. On the other side, the decline in corporate income, via effect on the rate of profit, could be expected to depress investment expenditure.

There has, of course, been much discussion on the relationship

between technical progress and unemployment, with the frequently expressed view that current high levels of unemployment arise from a high rate of technical progress, usually with some reference to the impact of microelectronics on job prospects. We can distinguish two types of effect of technical progress on employment. First, insofar as technical progress is labour-replacing, there is a reduction in the demand for labour corresponding to any particular level of output. Second, technical progress can stimulate demand both for consumption goods and investment goods. Kalecki's emphasis (as indicated for example in the quote given in note 2) was on the investment-demand stimulating properties of technical change. However, I take the view that Kalecki generally viewed technical change as being labour-replacing (Sawyer, 1985b, pp. 155–6).⁹ As far as I know Kalecki did not directly discuss the impact of the rate of technical change on employment, but rather discussed its impact on output, growth and capacity utilisation.

The suggestion which would emerge from Kalecki's approach is that a slower rate of technical change would lead to lower levels of investment, and thereby of growth and capacity utilisation.¹⁰ The impact on employment of slower technical change is the interaction of the lower level of demand and the higher (than otherwise) employment requirement per unit of output. The empirical evaluation of the various arguments of the impact of technical change on employment and growth appears particularly difficult. The general slowdown in the rate of growth of labour productivity might support the view that technical progress had slowed down, but clearly that type of evidence is capable of many other interpretations.

Kalecki discussed changes in the relationship between internal and external funds for corporate investment in terms of entrepreneurial savings (rentier savings), under the implicit assumption that workers did not undertake net savings. In the postwar world there has generally been a substantial rise in the proportion of household income which is saved, and in the proportion of savings which is accounted for by households. There is not a close identification between savings of households and those of workers, for simple savings by households (as defined for use in national accounts) would include savings out of self-employment income and out of corporate dividends.

The changes in savings behaviour are summarised in Table 17.3. One general feature which appears from these figures is the decline in the ratio of corporate savings to GDP. There is a general rise in

household savings (relative to GDP), which is offset to some degree by a decline in government savings. However, the general picture is an increase of external funds (as far as corporate sector concerned) and decrease of internal funds.

The rise in household savings would have a double deflationary effect on aggregate demand. For not only does the rise in savings reduce consumer demand but also – for the reasons explored above – tends to lower the (financial) incentive for investment.

In one sense, the rise in household (and we are here presuming workers') savings could be seen to contradict some elements of Kalecki's analysis, in the sense that he often assumed that workers' savings could be approximated as zero. But provided that savings propensity out of labour income is much below the propensity out of property income then much of his analysis would carry through. However, we are then faced with the point raised by Pasinetti (1962) in relation to Kaldor's (1955) theory of income distribution, namely that workers' savings will lead to them having some ownership of capital. However, particularly in the UK, a very large part of the rise in household savings is attributable to the rise of (largely compulsory) contributions to pension funds. This means that the rise in savings may not be permanent for eventually increased pensions (in value and/or volume) will be paid out, thereby reducing the net savings contribution of pension arrangements.

The last point to be dealt with is the possible reduction in the willingness of banks to extend credit and expand the money supply in response to demand for loans to cover investment expenditure. The current recession has, of course, seen many governments adopt some kind of monetary control. The targetting of various definitions of the money supply has not been conspicuously successful, but nevertheless it would be expected to hold back to some degree bank lending.¹¹ In Kalecki's approach, the expansion of investment (over the previous level) requires the extension of bank credit to finance that investment. Hence attempts to control money supply and/or bank lending could be expected to place some constraints on investment.¹²

III SAVINGS BEHAVIOUR

Kalecki, along with many classical economists, viewed the propensity to save out of labour income to be much lower than the propensity to save out of property income, and with the former propensity often

TABLE 17.1 Investment data

	GFCF: GDP (%)	Net investment GDP (%)	Depreciation: GDP (%)
(i) United Kingdom			
1964-6	18.27	10.20	8.06
1967-9	18.73	10.48	8.24
1970-2	18.44	9.44	8.99
1973-5	19.78	9.52	10.26
1976-8	18.31	7.23	11.07
1979-81	17.07	5.09	11.98
(ii) United States			
1964-6	18.45	8.70	9.74
1967-9	18.07	8.11	9.95
1970-2	18.14	7.42	10.72
1973-5	18.17	6.69	11.48
1976-8	18.34	6.15	12.19
1979-81	18.73	5.60	13.12
(iii) Germany			
1964-6	26.04	16.54	9.50
1967-9	22.91	12.90	10.01
1970-2	25.66	15.41	10.25
1973-5	21.96	11.16	10.80
1976-8	20.42	9.33	11.09
1979-81	22.22	10.52	11.70

(iv) Japan

1964 - 6	30.66	17.19	13.45
1967 - 9	33.25	19.70	13.55
1970 - 2	34.65	20.90	13.75
1973 - 5	34.55	21.13	13.42
1976 - 8	30.84	17.87	12.97
1979 - 81	31.71	18.10	13.61

(iv) France

1964 - 6	23.30	13.54	9.76
1967 - 9	23.53	13.95	9.58
1970 - 2	23.54	13.76	9.78
1973 - 5	23.78	13.53	10.25
1976 - 8	22.33	10.92	11.49
1979 - 81	21.38	9.89	11.49

(vi) Italy

1964 - 6	20.09	11.76	8.33
1967 - 9	20.27	12.39	7.88
1970 - 2	20.49	12.36	8.13
1973 - 5	21.23	11.94	9.29
1976 - 8	19.42	9.30	10.12
1979 - 81	19.63	9.75	9.88

NOTE: GFCF - Gross Fixed Capital Formation.

SOURCES: Calculated from OECD National Accounts.

TABLE 17.2 Factor shares: three-year averages

Factor Shares as a Percentage of Total Factor Income		Wages and salaries (%)	Employees' compensation (%)	Corporate income (%)	Entrepreneurial income (%)
(i) United Kingdom					
1964-6		68.45	74.41	8.44	18.99
1967-9		68.35	75.01	7.27	19.41
1970-2		68.46	75.51	6.77	18.77
1973-5		69.63	78.20	5.25	17.89
1976-8		67.67	77.81	7.15	16.87
1979-81		68.69	79.20	5.01	18.36
(i) United States					
1964-6		64.26	70.44	10.66	20.43
1967-9		65.99	72.96	9.36	19.18
1970-2		67.85	76.01	7.16	18.27
1973-5		66.48	76.12	6.75	18.40
1976-8		64.83	75.71	8.28	17.39
1979-81		64.85	76.33	6.40	18.62
(iii) Japan					
1965-6		50.92	55.14	8.83	35.69
1967-9		48.66	52.92	12.61	34.25
1970-2		51.44	56.26	13.83	29.57
1973-5		57.39	62.85	7.55	29.37
1976-8		60.28	67.09	7.44	26.08
1979-81		60.11	67.94	7.96	25.61

(iv) Germany

1964 - 6	56.74	65.40	4.33	29.54
1967 - 9	56.18	65.16	4.24	30.12
1970 - 2	58.74	69.10	3.13	27.49
1973 - 5	60.20	72.24	3.47	24.49
1976 - 8	58.97	71.79	3.91	25.21
1979 - 81	59.60	73.01	2.84	16.24

(v) France

1964 - 6	46.95	61.44	6.20	32.49
1967 - 9	46.68	61.62	7.18	31.48
1970 - 2	48.02	63.35	7.09	29.61
1973 - 5	50.46	66.98	5.18	27.77
1976 - 8	52.34	70.89	3.64	25.86
1979 - 81	52.50	72.13	3.47	25.42

(vi) Italy

1964 - 6	43.06	58.16	3.84	38.85
1967 - 9	41.41	57.06	5.16	38.98
1970 - 2	44.09	60.98	2.77	37.47
1973 - 5	47.34	65.62	1.60	35.45
1976 - 8	49.88	68.59	1.42	35.06
1979 - 81	50.14	67.44	3.04	36.12

TABLE 17.3 Savings and consumer expenditure data

	CS: GDP (%)	GS: GDP (%)	HS: GDP (%)	HS-EC GDP (%)	CE: GDP (%)	AC (%)
(i) United Kingdom						
1964-6	4.37	2.39	4.21	1.68	64.17	97.44
1967-9	2.66	4.73	3.44	0.68	62.89	98.92
1970-2	2.38	5.25	3.75	0.83	62.22	98.69
1973-5	1.33	0.87	5.44	1.92	62.29	96.99
1976-8	3.31	- 0.97	5.29	1.31	59.58	97.84
1979-81	0.71	- 1.20	7.37	3.08	60.21	95.14
(ii) United States						
1964-6	3.99	1.35	5.28	2.77	62.17	95.73
1967-9	3.11	1.12	5.38	2.55	61.59	96.01
1970-2	1.94	- 0.07	5.78	2.39	62.79	96.33
1973-5	1.53	- 0.34	6.49	2.60	62.78	96.00
1976-8	2.47	- 0.39	4.78	0.20	63.52	99.69
1979-81	1.54	- 0.006	4.53	- 0.24	63.90	00.38
(iii) Germany						
1964-6	5.01	5.47	7.41	5.31	56.00	86.08
1967-9	4.25	4.34	7.91	5.81	56.33	86.58
1970-2	2.73	5.37	8.83	6.36	54.68	87.28
1973-5	0.78	3.11	9.35	6.48	55.08	90.62
1976-8	1.18	1.89	8.09	5.13	56.64	92.37
1979-81	0.45	1.37	8.44	5.27	56.30	(93.30)

(iv) Japan

1964 - 6						57.80	(86.41)
1967 - 9						54.90	85.25
1970 - 2					9.48	53.23	83.92
1973 - 5					10.19	54.99	79.12
1976 - 8					14.50	57.30	81.04
1979 - 81					13.41	57.97	83.72

(v) France

1964 - 6						61.25	90.87
1967 - 9						61.25	91.36
1970 - 2					6.15	60.28	89.72
1973 - 5					5.79	61.01	88.60
1976 - 8					6.90	62.08	89.92
1979 - 81					7.85	63.49	91.77

(v) Italy

1964 - 6						62.79	91.97
1967 - 9						63.00	93.18
1970 - 2					5.48	62.56	89.39
1973 - 5					4.61	63.18	89.24
1976 - 8					7.43	62.15	88.94
1979 - 81					7.72	61.71	89.54

NOTES: CS Corporate savings, GS Government savings, HS Household savings, EC Employers' contributions to pension funds, etc., CE Consumer expenditure, APC Average propensity to consume out of household 'disposable income'.

SOURCE: Calculated from OECD *National Accounts*.

approximated as zero. A rise in the savings out of labour income could be expected to have a depressing effect on aggregate demand for a number of reasons. There would be the straightforward impact on aggregate demand through a reduction in consumer expenditure. The reduction of aggregate demand would, *inter alia*, reduce profitability and thereby the incentive to invest. Further, whilst savings out of corporate profits might stimulate investment (by increasing the internal finance of the corporation), this would not be the case with external funds, as indicated above.

A feature of the development of the welfare state has been the growth of social security and private welfare provision. Particularly important here is the growth of pension arrangements. In many countries, there has been a rise in the share of labour income in national income and a decline in the share of property income. An inspection of Table 17.2 indicates that the major cause of a general increase in employees' compensation (as a proportion of factor incomes) is the increase in employers' contributions to social security and private pension provision. The importance of contributions to pension funds as a source of personal savings can be seen from Table 17.3 by the difference between household savings with and without employers' contributions to pension schemes. These statistics would suggest that the general rise in employees' compensation to the extent to which it arose from a rise in employers' contributions (which are counted as part of employees' compensation in the national accounts) would not contribute to an increase in aggregate demand.¹³ Further, the increased importance of personal savings relative to corporate savings would in the context of Kalecki's analysis have a depressing effect on investment, for the reasons outlined above.

IV DEGREE OF MONOPOLY, ETC.

One of the central concepts in Kalecki's macroeconomics is that of the degree of monopoly. We begin by summarising the degree of monopoly approach in the following set of equations. We start from:

$$(p - mc)/p = f(X) \quad (17.2)$$

where p is price, mc marginal costs and X a vector of terms reflecting market power (e.g., market concentration, barriers to entry).

This equation reflects the intuitively appealing idea that the greater is market power, the larger is the mark-up of price over marginal costs. Using the assumption of constant average variable costs as a first approximation, equation (17.2) can be written as:

$$(p - ac) \cdot q/p \cdot q = f(X) \quad (17.3)$$

where ac is average costs and q output.

The excess of sales revenue ($p \cdot q$) over variables costs ($ac \cdot q$) covers fixed ('unmarked-up') costs and profits. Thus we have:

$$(P + F)/S = f(X) \quad (17.4)$$

where P is total profits, F fixed ('unmarked-up') costs and S sales.

Manipulation of (17.3) with the substitution for average variable costs as labour costs ($w \cdot L$) and material costs ($m \cdot M$) yields as the real product wage:

$$w/p = (1 - f)q/L - mM/pL \quad (17.5)$$

An increase in the general degree of monopoly arising from, say, an general increase in industrial concentration would be predicted to have a number of macroeconomic effects. First, an increase in the degree of monopoly would, *ceteris paribus*, lead to a shift from wages to profits. In the absence of a substantial effect of the rise in profits share on investment, this would have a deflationary impact on the level of aggregate demand.

Second, the extent of monopolisation may itself have an impact on investment via the effect on the rate of technical progress. Kalecki argued that increased monopolisation would have an adverse effect on the rate of technical progress (e.g., Kalecki, 1954, p. 159). Thus, along with the expectation that the degree of monopoly would gradually rise over time, there would be a tendency towards stagnation arising from a slowdown in the rate of technical innovation.

The assessment of the relevance of the degree of monopoly concept in explaining the economic crisis can proceed in two stages. The first is an assessment of whether the degree of monopoly – in the sense of factors such as industrial concentration, degree of collusion, etc. – has actually changed, and in which direction. The second is whether such changes have had the predicted effect on the price–cost margin and profits share of national income.

It is not possible in the space available to make a full assessment of movements in industrial concentration, extent of rivalry, etc. in developed capitalist economies. During the 1950s and 1960s there were general upward trends in industrial concentration (particularly pronounced in the UK) and in the economic significance of multi-national enterprises.¹⁴ The effect of changes in domestic industrial concentration may well be offset by a general upward trend in international trade and interpenetration of domestic markets. But there were also a rapid growth of international trade and (probably) a decline in the degree of (explicit) collusion (by moves against restrictive trade practices and cartels).

The second stage is to look at the profit margins viewed as the consequence of the degree of monopoly. In many countries there has (especially since the late 1960s) been a downward trend in profit margins. Some information for three major economies is given in Table 17.4. Apart from being restricted to three countries, these figures could be criticised on at least two grounds. First, salaries of non-manual workers are counted as part of variable costs, though Kalecki's approach would be to place them with fixed costs. I have argued elsewhere (Sawyer, 1985b, Chapter 12), that the nature of salaries has changed since the 1930s, and that it is reasonable to count most salaries as akin to wages. But it should be noted that conclusions on movements in the observed profit margin appear to depend heavily on whether or not salaries are treated as part of variable or fixed costs. Second, no allowance has been made for variations in the relationship between domestic prices and imported input prices.

It should also be noted that there has been a general downward trend in capacity utilisation. A part of the change in the output-capital ratio (NVA/NCS in Table 17.4) can thus be explained by this downward trend in capacity utilisation.

I would argue that there are substantial difficulties in reconciling the movements of profit margins and industrial concentration. Whilst there has been much cross-section evidence supporting the links between industrial concentration and profitability,¹⁵ there are severe difficulties in explaining profit trends over time in terms of changing patterns of industrial concentration at the level of the national economy. The general rise in concentration (at least in the UK) during the 1950s and 1960s did not lead to a rise in profit margins, and was followed by a declining in profit margins during the 1970s. I suspect that the increasing concentration during the 1950s and 1960s has to be seen more as a response to increasing international com-

petition and decline in collusion.¹⁶ In this case, increasing concentration would not necessarily imply increasing degree of monopoly, but the untestable nature of this proposition is fairly clear.

I would conclude (rather tentatively, given the type of evidence available) that rising degree of monopoly was not a direct cause of recession in the sense of having led to higher profit margins which depressed aggregate demand. This may have arisen through the degree of monopoly not rising despite the increasing concentration of the 1950s and 1960s. Alternatively, the degree of monopoly may have risen but did not generate an upward movement in profit margins.

It is also notable from Table 17.4 that there was a decline in the rate of profit on capital employed (as expressed by the ratio of net operating surplus to the measure of the net capital stock) in the three countries for which detailed information was readily available. It can also be seen that the decline in that rate of profit came from a combination of declines in the profit margin (ratio of net operating surplus to gross value added) and a rise in the capital-output ratio (inverse of ratio of net value added to net capital stock).

V GOVERNMENT EXPENDITURE AND BUDGET DEFICITS

The limits on the net effect of government expenditure arose simply from the constraints of a rising national debt to income ratio and the consequent rising interest charges. It can also be noted here that Kalecki was critical of the British government's 1944 White Paper on Employment Policy (Ministry of Reconstruction, 1944) as not grasping the nettle that full employment could well require a permanent budget deficit. He argued, *inter alia*, that the White Paper was concerned that over the trade cycle the government budget would balance, even if not in a particular year. He thought that there was a strong possibility of prolonged deficient demand in the postwar period, so that a long-term government budget deficit would be required if full employment was to be secured. But that long-term budget deficit would involve the difficulty indicated above, namely rising national debt and interest charges relative to GDP. Kalecki proposed an annual capital levy (a broadly-based wealth tax) which would be charged to finance the rising interest charges in a way which, in Kalecki's view, would not be deflationary.¹⁷ We deal with the evolution of budget deficits further below.

TABLE 17.4 Trends in profits share, rate, etc.

	CFC NCS (%)	NOS/ NCS (%)	NOS/ GVA (%)	GVA/NVA/ NCS	NVA NCS
(i) Germany, manufacturing					
1955-61	7.46	36.21	33.96	1.0640	0.9894
1962-67	7.75	22.66	26.31	0.8598	0.7822
1968-73	8.75	21.16	23.95	0.8820	0.7944
1974-79	9.83	16.01	18.28	0.8756	0.7773
1980-81	10.30	12.69	14.43	0.8783	0.7753
(ii) Germany, industry and trade					
1960-67	6.68	25.31	33.64	0.7495	0.6827
1968-73	7.03	21.33	30.41	0.7009	0.6306
1974-79	7.33	18.16	27.32	0.6644	0.5911
1980-81	7.28	16.70	26.56	0.6287	0.5558
(iii) United Kingdom, manufacturing					
1955-61	4.88	22.28	28.32	0.7857	0.7369
1962-67	4.85	17.48	25.10	0.6957	0.6472
1968-73	5.52	13.21	20.00	0.6581	0.6029
1974-79	5.91	5.94	10.49	0.5639	0.5047
1980-81	6.30	4.21	8.25	0.5102	0.4471

(iv) United Kingdom, industry and trade						
1960 - 67	5.53	16.42	23.26	0.7051	0.6498	
1968 - 73	5.85	13.86	21.99	0.6303	0.5717	
1974 - 79	6.24	9.65	18.00	0.5354	0.4730	
1980 - 81	6.75	10.55	20.10	0.5248	0.4573	
(v) United States, manufacturing						
1955 - 61	10.23	26.29	18.81	1.3911	1.2888	
1962 - 67	10.65	33.37	21.14	1.5745	1.4679	
1968 - 73	10.34	23.86	17.46	1.3592	1.2558	
1974 - 79	10.38	19.05	16.25	1.1718	1.0679	
1980 - 81	10.78	10.76	10.87	0.9846	0.8768	
(vi) United States, industry and trade						
1960 - 67	9.36	21.86	22.11	0.9870	0.8933	
1968 - 73	9.05	17.08	18.87	0.9022	0.8117	
1974 - 79	9.28	13.83	17.47	0.7915	0.6987	
1980 - 81	10.00	10.54	14.44	0.7279	0.6279	

NOTES: Figures are arithmetic averages of annual figures; periods are complete business cycles

CFC Consumption of Fixed Capital

NOS Net Operating Surplus

NVA Net Value Added

GVA Gross Value Added

NCS Net Capital Stock

SOURCE: Calculated from OECD statistics.

VI REAL WAGES AND UNEMPLOYMENT

A frequently heard explanation of unemployment is that the real wages are 'too high' (i.e., above the competitive market-clearing rate). The line of argument put in the 1980s is essentially the same as that put in the 1930s, although the econometric sophistication with which the argument is developed has risen. Kalecki rejected the 'real wages are "too high"' argument for essentially three reasons. First, he argued that the statistical evidence presented for Poland by Watecki, a disciple of the French economist Rueff, to the effect that real wages had risen in the 1930s (thereby generating unemployment). In effect, Kalecki pointed out that the empirical work had investigated the real wages received by workers which would be influenced by price movements of imported goods as well as those of domestic goods. During a worldwide recession, the price of imported goods (especially primary commodities) fell relative to those of domestic goods; the calculation relevant to employment decisions would be for wages relative to price of domestic produced goods, which Kalecki calculated to have, if anything, fallen in the 1930s (Kalecki, 1966).

Second, Kalecki emphasised the importance of wages in determining the level of aggregate demand and de-emphasised the flexibility of the labour-output ratio, and hence of wages for employment decisions. A reduction of real wages would thus have a depressing effect on demand, but little direct effect on the demand for labour.

Third, real wages (relative to labour productivity) are seen to be determined as an outcome of the pricing decisions of firms and hence determined by the 'degree of monopoly' (as indicated in equation (17.5) above). Real wages could then rise during a depression as a consequence of a fall in the 'degree of monopoly'. Kalecki (1971, p. 51) argued that '[t]he factor of "protection" of profits is especially apt to appear during periods of depression . . . [T]here is a tendency for the degree of monopoly to rise in the slump, a tendency which is reversed in the boom'.¹⁸ If the degree of monopoly did rise during the slump, then real wages would, *ceteris paribus*, fall. This tendency could easily be offset by the decline of commodity prices.

The four important elements of Kalecki's approach are:

- (a) Real wages can be 'too low', as well as 'too high', and in the context of Kalecki's analysis the 'too low' would arise from the links between wages and aggregate demand.
- (b) Real wages are seen as set in the product markets and *not* in the

labour markets. Kalecki's analysis could be portrayed as indicating that money wages are set in the labour markets but real wages in the product markets. Postwar changes in the position and power of trade unions may necessitate a revision of this view, and this is perhaps suggested by Kalecki's writings.¹⁹

- (c) It then follows that if real wages are in some sense incorrectly set, then any remedial action would need to be taken in the product markets. If policy-makers decide that real wages are 'too high' (as many seem to have done), then Kalecki's analysis indicates that lowering real wages (relative to productivity) requires that the degree of monopoly rise. Government policy to reduce money wages (as currently being pursued in the UK for lower-paid workers) can lead to lower real wages only if prices do not follow wages down.
- (d) Although as far as I know Kalecki did not make this point, under the degree of monopoly approach real wages are set by firms and not taken as exogenously given (as they would be under perfect competition). It is thus not legitimate to estimate demand for labour functions with real wages taken as exogenously given unless perfect competition is assumed to be present. Otherwise real wages are determined by firms alongside other decisions on output and employment.

VII POLITICAL AND SOCIAL CONSTRAINTS ON THE ACHIEVEMENT OF FULL EMPLOYMENT

Whilst Kalecki thought there was a technical demand-management solution to unemployment,²⁰ in an oft-quoted article published in 1943 (Kalecki, 1943; revised version appears as Kalecki, 1971, Chapter 12), Kalecki argued that governments would not necessarily act to secure full employment. In Kalecki's view, significant level of unemployment had been a usual feature of capitalist economies and the maintenance of full employment in capitalist economies would require substantial government intervention. Some of the resistance to full employment would arise from distaste by some interest groups at government intervention in general and at the particular form (e.g., social security provision) which it might take. Further, a prolonged period of full employment would generate social and political changes which would reduce the power of the bosses, etc.

The dislike of government intervention in general was seen as

arising from two considerations. First, the extension of government activity could be seen as foreshadowing the replacement of capitalism by state activity and socialism. Second, under *laissez-faire* capitalism the level of employment rests on the level of investment, which in turn depends on profitability and the 'state of confidence'. The use of government expenditure to underpin full employment reduces the role of investment – and, more particularly, the roles of 'the state of confidence' and profitability: 'the social function of the doctrine of "sound finance" is to make the level of employment dependent on the "state of confidence"' (Kalecki, 1971, p. 139).

Kalecki indicated that a 'political business cycle' could emerge:

in the slump, either under the pressure of the masses, or even without it, public investment financed by borrowing will be undertaken to prevent large-scale unemployment. But if attempts were made to apply this method in order to maintain the high levels of employment reached in the subsequent boom a strong opposition of 'business leaders' is likely to be encountered. As has already been argued, lasting full employment is not at all to their liking . . . The pressure of all these forces, and in particular of big business would probably induce the Government to return to the orthodox policy of cutting down the budget deficit. A slump would follow in which Government spending policy would come again into its own (Kalecki, 1971).

The use of the term 'political business cycle' suggests that the boom and slump are both relatively short-lived. Kalecki did not specify the length of the 'political business cycle'; he did, however, indicate that the length of the business cycle with government intervention would be shorter than hitherto (i.e., eight to ten years). In a general sense, Kalecki's discussion would be consistent with 'election cycles', with stimulation of economies prior to elections. But in this section we apply Kalecki's ideas to maintenance of low levels of unemployment for a prolonged period, in particular the long postwar boom up to 1973. Whilst there were cycles of unemployment in the postwar world up to 1973, these were around much lower levels of unemployment than hitherto, and even during the downturn of a cycle unemployment was still below levels which would have been regarded as full employment in the interwar period, and often output continued to increase during the downturn.²¹

Kalecki forecast that the maintenance of full employment would cause social and political changes which would give a new impetus to

the opposition of business leaders. Indeed, under a regime of permanent full employment, 'the sack' would cease to play its role as a disciplinary measure. The social position of the boss would be undermined and the self-assurance and class consciousness of the working class would grow. Strikes for wage increases and improvements in conditions of work would create political tension . . . But 'discipline in the factories' and 'political stability' are more appreciated by the business leaders than profits. Their class instinct tells them that lasting full employment is unsound from their point of view and that unemployment is an integral part of the capitalist system (Kalecki, 1971, pp. 140-1).

The experience of the long boom in postwar capitalist economies appeared in many ways to contradict Kalecki's prognosis, although there were clear elements of a political business cycle. But the expected postwar slump after reconstruction did not occur on anything like the scale anticipated. Some countries in the postwar period (e.g., USA and UK) soon reached, and were able to maintain, historically low levels of unemployment, although others (notably Germany) took several years before achieving such low levels. The 1960s saw the closest approximation so far to full employment across developed capitalist economies: 'If anything, the Europe of the 1960s may well have been an area which, probably for the first time in recorded human history, could boast of a situation of virtual full employment' (Boltho, 1982, p. 15).

My own reaction to these views is heavily conditioned by the British experience. This experience is perhaps particularly relevant, partly because Kalecki's writings on this subject were specifically addressed to the British case. Further, the UK was one of the countries where the commitment to full employment was explicitly acknowledged by governments and where Keynesian demand management policies via fiscal policy were adopted.²²

The British experience would have to be read against the general background of an economy in relative decline. The problems related to such factors as low productivity growth and loss of international competitiveness should be brought into a full discussion, but are not immediately relevant to the evaluation of Kalecki's arguments. The evaluation of those arguments can be split into two parts. The first part deals with the technical - economic aspects of maintaining full employment, and the second with the sociopolitical changes arising from prolonged full employment.

The economic aspects of maintaining full employment are largely those of the use of fiscal and monetary policy to maintain the appropriate level of aggregate demand. During the 1950s and 1960s, high levels of aggregate demand were based on high levels of investment and buoyant consumer expenditure. In general, governments did not run deficits on their current account (though governments were contributing to the high levels of investment and running deficits on the combined capital and current accounts). It could thus be said that Kalecki had heavily underestimated the buoyancy of investment in the postwar boom period.²³

In the second half of the 1970s it became apparent that the achievement of full employment would require as a minimum that governments run substantial and long-term budget deficits. The outcome was generally budget deficits which were not sufficient to maintain full employment. Indeed, it is ironic that during the era often labelled 'Keynesian', governments generally ran surpluses on current account though often with deficits on the overall budget. However in the 'monetarist' era since the mid-1970s, many governments have run current account deficits and overall deficits which are significantly larger (relative to GDP) than in the pre-1973 period.²⁴ But whilst governments have operated with significant budget deficits, the constraint on this policy of rising government debt to GDP ratios is now clearly on the horizon for some countries.

The assessment of changes in the social and political environments and their relationship with departures from full employment is much more difficult (especially for an economist) to make. In terms of the impact on the economic performance of an economy, we could highlight three areas of interest. First, the political and social pressures for the construction and development of the Welfare State. Second, the impact of prolonged low levels of unemployment on wage bargaining and inflationary pressures. Third, changes in the locus of effective decision-making.

One remarkable common feature across developed capitalist economies in the postwar world has been the linked development of the Welfare State and the growth of public expenditure (particular of transfer payments).²⁵ Indeed, the patterns of public expenditure as they have evolved in the past thirty years could be seen as a refutation of Kalecki's views. He expected, for example, that 'the opposition [of the 'leaders of industry'] against this [government] spending being direct[ed] either towards public investment – which may fore-shadow the intrusion of the state into new sphere of economic activity

– or towards subsidising mass consumption [i.e., social security and similar provisions]' (Kalecki, 1971, p. 142). For, simply, the growth of transfer payments indicates a growing difference between people's income and market rewards. Further, Kalecki saw defence expenditure as an area where there would not be opposition by business leaders to public expenditure (Kalecki, 1971, p. 141).²⁶

Inflation began to emerge as a 'problem' during the 1960s (with variations across countries), with double-digit wage inflation appearing around 1969–70 with the wage explosions of that time.²⁷ During the wartime discussions on the prospects for the postwar economies, many saw inflation arising from prolonged low levels of unemployment as a threat to the persistence of those low levels.²⁸ The rise in inflation in the late 1960s was ascribed by many to political and social changes. Harrod (1972), for example, wrote that the 'the new wage-price explosion is altogether unprecedented . . . the causes [of which] are sociological [and] first cousins to the causes of such things as student unrest'.

Under the third heading, we can first note that Kalecki argued that 'full employment capitalism will have, of course, to develop new social and political institutions which will reflect the increased power of the working class. If capitalism can adjust itself to full employment a fundamental reform will have been incorporated in it. If not, it will show itself an outmoded system which must be scrapped' (Kalecki, 1943).²⁹ In many developed capitalist countries, the strength and influence of the trade unions has been generally much greater in the postwar world than earlier. But I would argue that the challenge laid down by Kalecki in the above quotation has not in general been taken up. There have obviously been attempts at the use of corporatist-type solutions and the advocacy of a variety of schemes for workers' involvement in decision-making. But perhaps the outstanding feature (particularly in countries like the UK) is that whilst trade unions may have more power and influence, this is more pronounced in the 'negative' direction of ability to frustrate management decisions and to secure wage increases for their members. In the 'positive' direction of being able to initiate and participate in important decisions (e.g., over investment and its location), trade unions have made little progress. These remarks are made only as crude generalisations (and should be subject to numerous caveats). But the issue raised by Kalecki was ducked during the long postwar boom, and the thrust of much government policy (particularly in the UK) has been to deal with the issue by reducing the power of trade unions.

VIII CONCLUDING REMARKS

This study has been able only to skim the surface in exploring explanations based on Kalecki's work on the current worldwide recession. We have focused on explanations of recession rather than on explanations of boom, though there are strong symmetries in the two sets of explanations. We would conclude that Kalecki's analysis is suggestive of a number of avenues of exploration, though the empirical investigation of those avenue is fraught with difficulties.

NOTES

1. Kalecki regarded 'the problems of foreign trade . . . [as] perhaps the greatest *practical* difficulty in the achievement of full employment' (Kalecki, 1944). For some policy discussion on how international trade could be arranged to avoid deflationary effects, see Kalecki (1946).
2. 'Inventions which occur in the course of a given period make certain new investment projects more attractive. The influence of this factor is analogous to that of an increase in aggregate profits which in the course of a given period makes investment projects generally more attractive than they were at the beginning of this period. Each new invention like each increase in profits gives rise to certain additional investment decisions. A steady stream of inventions in its effect upon investment is comparable to a steady rate of increase in profits . . . It is now clear that a steady stream of inventions adds to investment over and above the level resulting from our basic determinants. Thus, inventions transform a static system into one subject to an upward trend' (Kalecki, 1954, p. 158). 'Innovation' and 'invention' are used interchangeably by Kalecki, but 'the definition of innovations can be easily broadened to include kindred phenomena, such as, the introduction of new products which require for their manufacture new equipment, the opening up of new sources of raw materials which make necessary new investment in production and transportation facilities, etc'.
3. 'The proper role of private investment is to provide tools for the production of consumption goods and not to provide enough work to employ all available labour . . . Both public and private investment should be carried out only to the extent to which they are considered useful. If the effective demand thus generated fails to provide full employment, the gap should be filled by increasing consumption and not by piling up unwanted public or private equipment' (Kalecki, 1944).
4. Investment ahead of current levels of savings requires the extension of credit by the banking system. If that credit creation is restricted, then the investment (ahead of current savings) cannot take place.
5. Figures calculated from Feinstein (1972).
6. Even if expectations did change adversely, then it could still be the case

that they changed as a response to adverse changes in the world economy (e.g., the wages explosion of the late 1960s, the general decline in profitability).

7. Mensch (1975), for example, argued that '[d]uring the boom period of the European economic miracle and the affluent sixties, leading economists such as Clark Kerr influenced the public to believe that "economic depressions have become subject to control"'. In addition, Geoffrey Barraclough recently mused in a report to the American Management Association that 'when – in 1968, of all years! – Andrew Shonfeld predicted that "a major setback of Western economic growth seems on balance unlikely"', he was only echoing common opinion'.

'It seems safe to predict that unemployment will never again be more than a fraction of the amount suffered between the wars' (Stewart, 1972).

'The faster growth experienced after the Second World War is not a temporary or accidental phenomenon. Governments are committed to maintain high levels of employment and utilisation of productive capacity, and possess the means to achieve that commitment' (OECD, 1970).

Mandel (1980) claims that '[a]lthough it [recession of 1974–5] surprised all those in bourgeois and petty-bourgeois circles, and even in the workers' movement, who had given credence to claims that the governments of capital are now able to "control the cycle", revolutionary Marxists had foreseen the crisis and predicted its outbreak, almost to the exact date'.

8. In July 1973, the OECD were forecasting a growth rate (expressed at an annual rate) of $6\frac{1}{2}$ per cent for second half of 1973 and $5\frac{1}{2}$ per cent for first half of 1974. In December 1973, they were forecasting growth of $3\frac{3}{4}$ per cent during 1974. The outturn was zero growth rate. They also argued in July 1973 that '[t]o have eliminated the stagnation – in circumstances which were not entirely conducive to business confidence – is itself an achievement, and there seems no ineluctible reason why governments should prove incapable of meeting the challenge of maintaining suitable growth rates after the exceptional recovery period comes to an end'. Further 'above-capacity rates of expansion are still likely in most member countries into 1974' (OECD *Economic Outlook* (July and December 1973)).
9. '[W]e may say that the effect of technical progress is not to increase output but to save labour' (Kalecki, 1941).
10. See, for example, Kalecki (1968). For further discussion see Sawyer (1985b, pp. 60–3).
11. Many countries adopted some form of monetary targetting or control in the decade beginning in the mid-1970s. To the extent to which monetary control has been successful, it would be expected to constrain to some degree bank lending for investment and/or lead to higher interest rates. In some cases, the control or targetting has not been successful, and in others the target for the growth of the money supply may have been closed to what would have happened anyway.

12. This argument is highly simplified. Further consideration would need to be given to how banks respond to forms of monetary control, which type of lending tends to be restricted (e.g., as between lending to households and to firms), the availability of 'uncontrolled' credit (e.g., lending from offshore banks).
13. The neoclassical response would be that these employers' contributions constitute part of employees' real income since they give rise to an entitlement to deferred income (i.e., pensions). If these contributions represent more savings than workers would wish to undertake, then it is argued they would offset those compulsory savings by dissaving themselves. Kalecki's approach would tend to dismiss this argument by reference to the imperfect nature of the capital market and unwillingness of that market to lend to workers. For some relevant empirical evidence, see Pitelis (1985).
14. For a more detailed discussion see Sawyer (1985a). I suspect there is an element of recession slowing down concentration increases. Recession reduces the optimism and buoyancy which helps generate mergers and acquisitions, which in the UK have been an important proximate cause of increasing concentration.
15. For a survey, see Sawyer (1985a, Chapter 6).
16. This general thesis was advanced in Aaronovitch and Sawyer (1975).
17. The annual capital levy would be charged on all net assets (with provision to avoid double taxation) to finance the (cumulative) interest charges on the national debt in excess of the growth of national income. Kalecki argued that such a levy would not affect capitalists' consumer demand since it represented a redistribution of income from all asset holders to the holders of the national debt. Further, the levy would not affect the relative attractiveness of different assets (since all would be taxed) and hence not adversely effect investment in capital equipment. The effective rate of return on all assets would be lowered by the capital levy. This could then lower the rate of savings. But since the economy was running a government deficit because of an excess of private savings over investment, this would not be a disadvantage.
18. In a footnote to the sentence quoted in the text, Kalecki indicated that '[t]his is the basic tendency; however, in some instance the opposite process of cut-throat competition may develop in a depression'. For some evidence supporting the tendency of the mark-up to rise in the depression, see Cowling (1983).
19. 'To sum up, trade union power restrains the mark-ups' (Kalecki, 1971, p. 161).
20. Kalecki wrote that 'government expenditure on public investment and subsidies to mass consumption . . . is *always* capable of securing full employment' (Kalecki, 1944, emphasis added).
21. I have in mind here the wartime view that 3 per cent unemployment rate would correspond to full employment in the postwar economy.
22. In Britain, the White Paper on Employment issued in 1944 (Ministry of Reconstruction, 1944) stated that 'The Government accept as one of their primary aims and responsibilities the maintenance of a high and stable level of employment after the war', and 'The Government are

prepared to accept in future the responsibility for taking action at the earliest possible stage to arrest a threatened slump. This involves a new approach and a new responsibility for the State'. The context of this quote makes it clear that the maintenance of aggregate demand is implied here.

The statement by Labour Prime Minister James Callaghan has often been cited as signalling the end of the use of demand-management policies to ensure full employment. He said (October 1976) that '[W]e used to think that you could spend your way out of a recession, and increase employment by cutting taxes and boosting government spending. I tell you in all candour that the option no longer exists, and that in so far as it ever did exist, it only worked . . . by injecting a bigger dose of inflation into the system'.

The distance between the prevailing philosophy of the current UK government and that of the 1944 White Paper (and the postwar consensus) is evident from the White Paper issued by the government in March 1985 and intended to supersede the 1944 White Paper. It states that '[t]he key contribution of Government in a free society is to do all it can to create a climate in which enterprise can flourish, above all by removing obstacles to the working of markets, especially the labour market. The Government's Medium Term Financial Strategy aims to set the growth of money demand that is consistent with declining inflation and declining unemployment. Boosting demand without the necessary improvements in the performance of the economy would only generate higher inflation'. Further '[p]ublic service employment, however valuable, has to be paid for, and by one route or another the money can come in the end only from businesses. If the burden becomes too high, businesses shrink or fail, and jobs are lost with them'. Finally, '[t]here is no basic lack of demand: the reason why we cannot use our full labour force is that we have not adapted well enough, particularly in our jobs market, to be able to exploit it'. Lack of demand, insufficient public investment and technological change are all dismissed as causes of unemployment. 'The biggest single cause of our high unemployment is the failure of our jobs market, the weak link in our economy'.

23. In her review of Oxford University Institute of Statistics (1944) (which included Kalecki, 1944) in the *Economic Journal* 1945, Joan Robinson in otherwise favourable comments on Kalecki's paper did argue that Kalecki had been too pessimistic on the prospects for investment demand.
24. Relevant annual data since 1964 is given in OECD *Economic Outlook* (December 1985). For the seven largest OECD economies, in all cases the budget deficit (current and capital accounts) was substantial greater in the period 1974-84 than in the period 1964-73. See also Pedone (1982).
25. I have summarised this for Western European countries elsewhere (Sawyer, 1982) as follows. 'By the end of the 1930s, in most Western European countries, the foundations of the welfare state had been laid in the sense that there was some state provision of, and/or involvement in,

old-age pension arrangements as well as in health, unemployment, and industrial injury insurance. These provisions were, however, limited in coverage, and would often apply only to better-paid manual workers in manufacturing, mining and construction industries . . . By the end of the 1970s the population of Western Europe was, with only few exceptions, covered by universal old-age pension systems . . . , unemployment, sickness, and industrial injury insurance schemes, child benefit provisions, and, in most countries, disability pensions'. These remarks could easily be extended to cover North America and Australasia.

Over the past two decades, virtually all the growth of public expenditure (relative to GDP) has come from growth in transfer payments. Amongst the large seven economies government final consumption at current prices as a per cent of GDP averaged 16.3 per cent in 1965–7 and 17.7 per cent in 1982–4. Transfer payments grew over the same period from an average of 14.7 per cent of GDP to 23.3 per cent. Some of this growth is accounted for by higher levels of unemployment, and some by higher interest payments on national debt.

26. The evolution of public expenditure in the UK and the USA since the advent of the Thatcher and Reagan governments fit into the pattern foreseen by Kalecki.
27. Aillsopp (1982) records the gradual rising concern with inflation during the 1960s. 'The more pessimistic view of the inflationary process appeared to be confirmed at the end of the 1960s when the normal relationship between the pressure of demand and inflation virtually broke down in most European countries. The period saw a sudden acceleration in the growth of nominal wages in the four major economies of the area [Western Europe], which, by the early 1970s, had spread to almost all the smaller countries. The year 1968 was one of protest movements all over the world. The wage explosion in France was clearly associated with the *événements* of May . . . Strike waves then hit Germany, Italy, and the United Kingdom in the autumn of 1969 . . . Everywhere in Europe there was an acceleration in the growth of nominal wages'. Table 3.4 also records the strong upswing in strike activity around 1969–70.
28. 'The social position of the boss would be undermined and the self assurance and class consciousness of the working class would grow [with permanent full employment]. Strikes for wage increases and improvements in conditions of work would create political tension' (Kalecki, 1971).

The following quote from the same era makes a similar point: 'The change in the workers' bargaining position which should follow from the abolition of unemployment would show itself in another and more subtle way. Unemployment in a private enterprise economy has not only the function of preserving discipline in industry, but also indirectly the function of preserving the value of money. If free wage bargaining as we have known it hitherto, is continued in conditions of full employment, there would be a constant upward pressure upon money wage-rates. This phenomenon also exists at the present time, and is kept within bounds by

the appeal of patriotism. In peace-time the vicious spiral of wages and prices might become chronic'. Taken from an article (unsigned but authorship generally attributed to Joan Robinson) entitled 'Planning Full Employment – Alternative Solutions of a Dilemma', *The Times*, 23 January 1943, as quoted in Kaldor (1983).

29. Changes were made when Kalecki (1943) was revised as Kalecki (1971, Chapter 12). The passage quoted in the text was amongst those deleted from the revised version.

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18 Reflections on Kalecki's Dynamics

J. STEINDL

I do not have much to say about Professor Sawyer's study (Chapter 17), because I tend to agree very much with most of his very balanced views. There is, however, one point which I would like to comment on, and that concerns his figures on the profit share. He shows that, contrary to what many Kaleckians might expect, the period of the 1960s and 1970s did not produce any increase in the mark-up or profit share in spite of the fact that there was a lot of concentration in this period. His figures, I think, do not very accurately measure Kalecki's mark-up because they are all more or less influenced by the degree of utilisation. You might guess, although this is perhaps a speculation, that there has been a decline in the degree of utilisation over the whole of this period. This might agree with his figures in so far as they show an increase in the capital – output ratio in this period. As far as purely technological factors are concerned, there are no particular reasons for that. My feeling is that the so-called 'productivity of capital' should have increased during that period owing to technical progress and that therefore there is a presumption that the increasing capital-output ratio means nothing else but a decline in utilisation. That would tend to explain the decline in the profit share and profit rate which he shows. Now of course you might ask that this should be supported by data on capacity utilisation. I cannot remember whether data show any tendency of the kind mentioned, but we have to take into account that data on utilisation are usually rather imperfect; they measure more or less well the changes within the business cycle but they are very unreliable as far as changes in the trend are concerned.

However, I must admit that there is a suspicion that Professor Sawyer is right when he maintains that there has been a decline in the profits at given utilisation. I remember that I tried to calculate such

data for Austrian manufacturing, and I found a tendency for profit margins at given utilisation to decline in the late 1960s and early 1970s. I have a particular explanation for this. In the course of the postwar decades, there has been an increasing tendency to give large tax allowances to investors. You can follow the trace of this policy in the growing discrepancy between profits before and profits after tax; profits before tax declined in relation to profits after tax. If you combine the tax allowances with the opening (internationalisation) of the economies which Professor Sawyer rightly stresses, then you can conclude that there was in fact a tendency to increased competition. What was the effect of the tax incentives? In most cases, under the pressure of increasing capacity, the firms whose investment had been stimulated by the tax incentive sought markets abroad, and to get them they had to reduce their margins (before tax). This pressure of increasing capacity and the increasing price competition on export markets explains a great deal of the development of the 1960s and 1970s. One may guess that the weakening of private investment had already started in the 1960s, but that it has been more or less effectively counteracted by tax incentives for a certain time. This would explain the declining margins of profit before tax.

But now I should like to make some brief remarks which go beyond what Professor Sawyer said and deal with other aspects of Kalecki's work. I think it would be appropriate if a few words at least were said on the theory of the business cycle in Kalecki, and also on his theory of the trend. After all, this was in a way the crowning effort of his theory of dynamics.

As we know, Kalecki produced various versions of his theory of the business cycle, and we have a choice between these versions. I have tried to produce a sort of hybrid between the first and the second version, combining the formal mathematical apparatus of the first with the economic content of the second, and I replaced Kalecki's use of the accelerator by a kind of stock adjustment. Now the choice between various versions, as well as many other problems in the field of cycle theory, might become a little more transparent if we made use of simulation methods which could show which kind of model and which values of parameters would yield plausible patterns of fluctuations. Today we have computers, and they are often not used for the right purposes, but here I feel they could really help a lot. Simulations cannot help you to determine which values of parameters are 'right', and even less which models are 'good', but they can at least help you to eliminate combinations of assumptions and ranges of

parametric values which are utterly implausible. They will throw more light on the quantitative relations, and that is particularly true of a special question which plays a large role in Kalecki's theory, namely the problem of random shocks and their probable role in the cycle. As is well known, Kalecki's theory of the cycle uses a linear equation which yields a damped solution (for a certain range of parameters) and this means that the cycle must come to a stop, die down as it were, if it is left to itself. In reality, however, there are random shocks which keep it going.

I have occasionally made the suggestion that the random shocks could be used to explain not only the cycle but also the trend if it is assumed that they are asymmetric and that their action is predominately stimulating. Many of the shocks may be identified with technical changes, with innovations, for which such assumptions are not implausible and which according to Kalecki explain the trend. The action of the shocks might be explained in a non-mathematical way as follows. The cycle works like a pendulum. There is Newton's equation of the pendulum, and that will have a damped solution – that is, the movement comes to a rest if you don't do anything. Now if you imagine the pendulum is suspended from a peg which is not quite fixed but which is moved randomly, then the movement of the pendulum will be kept alive. But if these random movements of the peg have a preferred direction, then in this way you could also explain that the cycle would not only be kept going, but to the cyclical movement would be added a trend, because the level round which the cycle moves will itself be gradually shifted. Now as I said this problem of the action of shocks should be studied by simulation which we can do now much better than it could be done formerly. It is paradoxical that the simulation method in relation to this problem was used by Maurice Kendall (1946) when computations still required great labour while now, when computers offer an ideal opportunity for simulation, there seems to be little work done in the field in which Kendall was a pioneer. He, at any rate, seemed to show that the random shocks in combination with a linear difference equation yield patterns of time series very similar to those which we observe in our economic time series.

Such investigations would be interesting because there are fundamental controversies linked with these questions. We were fortunate in having Professor Goodwin at the conference; he thinks nothing of the random shocks, he wants a non-linear theory of the cycle which produces movements which are not damped. You then do not need

any random shocks. Now these difficult controversial questions cannot very well be decided on a general philosophical plane; I think we might get a little clearer if we tried simulation on the one and the other model.

My personal point of view is that the shocks are there in any case, you have no need to drag them in forcibly. You have to take them into account in any case, and I think it is most important to keep a theory of the cycle flexible so that it will be capable of accommodating all the exogenous influences: the history, the accidents, and all that a simple endogenous model cannot possibly take into account. I think that the problem of the business cycle should really be put like this: the question is, how does the system react to shocks coming from outside, and is there a general pattern in this kind of reaction? Kalecki's theory can be regarded as an answer to this, based as it is on simple elements of general validity such as the multiplier and accelerator effect and the negative feedback of the increasing capacity which results from investment. My formulation of the problem is intended to stress the practical application which the cycle theory of this type has in day-to-day problems such as the question of the consequences of changes operating on the economy: Budget expenditure, taxation, export surplus, and so on.

The random shocks are only one example of what you could study by means of simulation. Apart from the obvious question of the range of magnitudes of the parameters there is, for example, the question of distributed lags, and how Kalecki's theory would be affected by them. You might also study other modifications of his assumptions, such as the question of replacement; Kalecki always worked on the assumption that replacement equals depreciation, but we know that in practice this is not true. In fact, the replacement is probably largely determined by technical progress; unfortunately, we have no statistical data on replacement at all.

I should finally say a word on the influence of money which in Kalecki's theory plays a very subordinate role, partly for historical reasons. At his time, the long-term rate of interest did not change very much, and he could rightly argue that its influence on investment was not important. The times have changed in this respect, and also the situation on the continent has always been rather different from the British institutional background. There is clearly room for supplementing the theory with considerations dictated by institutional conditions. Generally speaking you do not find in Kalecki very much about the topics which are Professor Minsky's subject: finance, debt,

credit crises. I don't think Kalecki denied the importance of these factors in any way, but for him they were secondary to, and in a sense derived from, the events in the 'real' sphere of production, investment, overcapacity, and so on.

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Part V
Socialism and Planning

19 Michał Kalecki's Contributions to the Theory and Practice of Socialist Planning*

D. M. NUTI

I INTRODUCTION

Michał Kalecki's contributions to the economics of socialism – less widely known but no less important than his pioneering contributions to the economics of capitalism – span the period 1946–70 and are affected by the development and performance of the Polish system, and coloured by his views on capitalist dynamics. These contributions comprise a coherent model of the socialist economy and its functioning, characterised by centralised economic planning and political decentralisation with a limited role for markets; a well-developed theory of socialist dynamics, emphasising exogenous constraints to growth and accumulation policy, which were neglected by Polish leaders with dramatic consequences; and a number of planning procedures and guidelines of practical use for the selection of investment projects, consumption planning and the construction of long-term plans.

Before discussing these contributions I would like to provide a perspective from personal reminiscence.

I first met Michał Kalecki in the autumn of 1962, when I started attending his lectures on growth theory at the SGPiS (Central School of Planning and Statistics) in Warsaw, where I had gone immediately after graduation in the previous spring. His two-hour lectures con-

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sisted of an hour of uninterrupted exposition, very formal and assertive and, like his writings, without a single word of padding or hesitation, followed by an hour of discussion with members of the audience, a small group of senior and junior staff and a few postgraduates, all very tentative and respectful. If there were no questions, Kalecki would go over the same material all over again, as if he expected not to be understood easily. It was clear that reputations were made and destroyed in these discussions and people took great care in preparing and formulating their interventions. To his views on European integration not having made any impact on economic growth, I raised, in my best Polish, a Kaleckian objection: if firms believed that their market had been enlarged by European integration they would invest and therefore collectively make their market grow faster. Out-Kaleckied by a young foreigner he replied that this would be a once and for all effect, probably not very large, but conceded the point: that brief exchange was a kind of confirmation that made the members of this group recognise my existence.

Later that year I attended a course organised at SGPiS for planners from developing countries, at which he lectured in English on growth and planning. This was a much less formal environment, with freer discussions. When I went to see him in his office in the Central Planning Commission, he looked even smaller, behind a giant desk in a huge red-carpeted and red-curtained room. From Warsaw I went to Cambridge, where my connection with him endeared me to Joan Robinson; while preparing a dissertation on investment planning in socialist economies (with Nicholas Kaldor and Maurice Dobb) I visited Warsaw and saw him again several times. He would give me appointments always at 7 a.m. at SGPiS, even in the dark and icy cold of Polish winter; I would raise points mostly arising from his work and he would pace up and down his room, with hands joined behind his back, occasionally stopping to work at the big blackboard. He did not like to be criticised, not out of intolerance or touchiness (though he was a little touchy), but because it was clear that he had already considered most of the objections, had dismissed them not as wrong but as not very serious in practice, and did not like being confronted with them again. Only once, I think, did I get him worried, by suggesting (see Section IV below) that his recommended procedure for project selection embodied three different implicit discount rates without ever mentioning one; in practice, the three values were close to each other and the whole procedure made practical sense, so he was slightly upset by my sheer impertinence but otherwise unmoved. He was mindful of other people's possible

susceptibility when he criticised someone else: always firmly but kindly, as I know from experience. He was not polemical and mostly let things pass: once he told me that Sraffa's price theory neglected aggregate demand and I asked him 'Did you tell him?' 'No, I did not want to hurt him', came the reply. Goodness knows how much Kalecki must have been hurt by Cambridge's curt and uncaring academic habits. I translated into Italian his 'Theory of growth of a socialist economy', and saw him once in Rome to discuss it. He was very pleased that the book should be published by the Communist Party publisher, Editori Riuniti, and tremendously amused that for his book the communist printers had had to borrow Greek characters from the Vatican. Of that meeting (in spring 1965) I remember his lamenting the process of social-democratisation of European socialist parties.

I saw him again in May 1968 in Warsaw, where I read of the Paris *événements* in the Polish press which described them at first as the work of hooligans and provocateurs. Poland had had street protests and student unrest in the previous March, when a strong authoritarian and anti-semitic mood had affected Polish society and in particular universities, which were now being purged. Kalecki and his group had come under heavy attack, as revisionists and bourgeois. At a seminar, he told me, somebody had challenged him to say whether he was a Marxist: 'If you are a Marxist' – Kalecki had replied – 'then I am not'. Kalecki had not yet resigned his post (which he did in September; though already retired, he could have stayed on for another year according to Polish practice). He was still in good spirits, preparing his selected papers for publication as a definitive statement of his intellectual contribution and very pleased at the prospect of Cambridge University Press publishing them. A year later in Cambridge, where he spent a term, Kalecki was much more pessimistic about Polish developments and generally depressed. His qualms now went beyond Poland, also in view of Czech events, and were extended to existing socialist models. The trouble with socialism, he told me, is that the same kind of conformist and opportunistic people eventually come to positions of power who would be there in other societies. Cambridge did not do anything to cheer him up; indeed he had been promised a salary but he was being paid only a small amount for visiting fellowship; too proud to complain, he mentioned this to me as evidence of British decline. For the first time he made witty and biting remarks, and made jokes about the régime to me, probably a mixed sign of increasing disillusionment and of a friendlier relationship. He died in Warsaw the following April. In my

subsequent visits to Warsaw I often saw his widow, Pani Ada, a formidable person who had been inseparable from him during their married life (literally, except for a week, they had always been together), and who was now devoting her life to the preservation and publication of all his work. Through her I learnt more of him, of the epigrams he used to write castigating Polish customs and morals, his silent but undying disappointment with Keynes's failure to recognise his achievement (it appears that a German version of Kalecki's theory of aggregate demand sent to Keynes in the early 1930s elicited a note from Richard Kahn saying that it could not be read because of language difficulties – probably a little joke, or a polite though improbable excuse, which later must have become a nagging obsession for Michał Kalecki); the frustration of not being taken seriously by mediocre politicians (he used to say that he had been influential only in Israel, where the government had done exactly the opposite of his advice). He was a great man, and he knew it, but he did not like people to say it, not out of modesty but on the contrary because the very fact that it should be necessary to say it would have detracted from his greatness and offended his pride.

II KALECKI'S MODEL OF THE DEMOCRATIC PLANNED ECONOMY

By 1942, in connection with British discussions on economic planning, Kalecki had already sketched the main features of his approach to economic planning: nationalisation of the most important enterprise (financial, industrial and public utilities), coordination and direction of their activity by a central institution of economic planning, responsible to parliament; full public control over the banking and financial system, investment and foreign trade as well as, if possible, allocation of the main materials and products. Private enterprise would still play an important role in industrial sectors of secondary importance, in the production of consumption goods, in the distributive services. Central planning of investment would ensure full employment of labour; Workers' Councils, representing workers, technical personnel and managers of each enterprise, now freed from the threat of unemployment, would maintain support for economic planning and exercise control over the development of their enterprises. Public control from below, together with the initiatives of a socialist government from above, would protect the system

from regressing towards monopoly capitalism (Kalecki, 1942).

Kalecki's international reputation and his known socialist sympathies gave him instant access to the new rulers of People's Poland: in 1946 he was already – in a brief visit and from a distance – giving advice to the Polish Minister of Reconstruction on rationing (which he regarded as equivalent to but, practically, slightly superior to income subsidies) on monetary circulation and on the 1946–47 financial plans, which he analysed at great length (see respectively Kalecki, 1946a, 1946b, and 1946c, first published in Kalecki, 1982, and editorial comments on pp. 308–10), checking the consistency of real and financial flows and using the budget as primary instrument of macroeconomic planning. Kalecki's return to Poland in early 1955, as adviser to the prime minister, marked the beginning of a ten-year-long involvement in the shaping of the Polish economic system and policies: as a Vice-Chairman of the Economic Council advising the Council of Ministers from 1957 to its disbanding in 1963; as head of the perspective plan division of the Central Planning Commission, in charge of drawing the 1961–75 plan; until increasing disagreement with the government put an end to his advisory activity in 1964. Meanwhile, and until the end of his life, he continued to make important intellectual contributions to the economics of socialism; his papers on the organisation and functioning of the socialist economy, however, are concentrated in the years 1955–8.

Kalecki's socialist model retains, next to a dominant centrally-planned state sector, a liberalised cooperative sector and private handicraft, as well as state small-scale production operating on similar principles: purely indicative plans in value terms, contractual cooperation with state industry and distribution network (though contracting can be made compulsory); free purchases and sales of non-contracted output in the market (though sales to the state not contracted in advance ought to take place below the market price); profit sharing (oddly enough, applicable only to technical personnel and managers and not to workers in the case of cooperatives); investment self-finance except for small-scale state enterprises where investment is also funded by local authorities; employment limits for artisans (given, as an example, of five workers excluding apprentices); local controls. Kalecki recognises the practical difficulties and the disproportionate administrative effort of attempting to control production in small-scale units characterised by large and variable assortment, and the counterproductive nature of price and other

control (Kalecki, 1956a; there is no mention of agriculture in that paper, produced for the Polish prime minister and first published in Kalecki, 1982).

Large-scale state enterprises, on the contrary, in Kalecki's view should be given physical targets for both total employment and the larger investments in new capacity, as well as targets for the net value of production, its main assortment, the wage fund, distribution of main inputs; they should also be subject to price controls for both their purchases and sales (1956b; 1957c; 1957d; 1958a, 1958b). With respect to employment the model is centrally planned more tightly than the traditional Soviet-type model: against strong opposition from most of his colleagues, Kalecki was adamant that enterprises should not be free to set the level of employment; he knew only too well how enterprise autonomy and labour unemployment went hand-in-hand in the capitalist economy and was not prepared to leave state enterprises any discretion in this matter. 'In England for so many years they paid me to liquidate unemployment, and here you want to pay me to generate it' – was his cry at the suggestion that enterprises should be subject only to a limit on their total wage fund, at a memorable session of a special Committee on enterprise organisation set up by the Council of Ministers (see editorial notes, Kalecki 1982, p. 324). In other respects, however, Kalecki's model of socialism is more 'liberal' than the conventional Soviet-type model (to which the Polish actual model has adhered broadly to date).

First, Kalecki laid emphasis on the *net* value of output (1957d; this notion was actually implemented in Poland in the 1974 reform, see Nuti, 1977) and on neither the physical nor the gross value indicators of Soviet-type planning.

Second, he also envisaged, next to centralised investment, some decentralised investments out of own funds and interest-bearing but non-returnable loans, both to allow for enterprise initiative and to reduce the pro-investment bias associated with free investment funds (1957d).

Third, Kalecki strongly recommended the restructuring of industrial organisation along vertical lines (1957b): large-scale associations of vertically integrated enterprises largely, though not fully, self-sufficient (along the lines later adopted by the GDR, see Granick, 1970; Melzer, 1981) would cooperate in the reciprocal supply of semi-finished products and in the distribution of essential materials. Enterprises would retain autonomy as members of the association, so that each 'koncern' would be responsible for a given finished product

(or group of similar products) without introducing monopolistic tendencies. Central authorities would be concerned only with the group performance in the supply of finished goods without interfering in their internal organisation. Mutual interest of member enterprises in the overall performance of the group would secure their cooperation; actual orders and incentives regulating enterprise activity would be decentralised to 'koncern' level and the central authorities would have to deal only with a small number of agencies, simplifying and debureaucratising economic administration, especially in the distribution of centrally allocated materials. (Large-scale industrial associations were revamped in Poland in the 1974 reform, but member enterprises were more tightly merged than envisaged by Kalecki and the element of vertical integration was the exception, not the norm, which emphasised horizontal concentration; see Nuti, 1977).

Fourth, Kalecki envisaged in his model – in place of economic decentralisation – generalised political decentralisation under the guise of Workers' Councils which, in every enterprise, would take decisions about the organisation of production (work conditions, overtime pay, etc.); oppose the excessive bureaucratisation and centralisation tendencies which appear when the enterprise director answers only to central powers; exercise initiative under the stimulus of material incentives (Kalecki, 1956b). At the time Oskar Lange regarded enterprise autonomy extending to prices and investment as a precondition of workers' self-management: without greater enterprise independence Workers' Councils – wrote Lange in the same issue of the Party monthly *Nowe Drogi* – 'would be a fiction, since they would not have anything to decide' (Lange, 1956). But Kalecki was much too concerned with the maintenance of full employment to push further enterprise autonomy, and regarded Workers' Councils as a political countervailing power holding central government in check.

Kalecki's distrust of the market and his reliance on planning have perhaps been underplayed in subsequent literature; Brus, for instance, writes: 'He did not . . . oppose the idea of utilising the market-mechanism, but considered it a subordinate element in the running of an economy which should be planned centrally as far as the main lines of development were concerned' (Brus, 1977; also quoted by Sawyer, 1985). I believe the example of interwar Poland, the experience of capitalism as he knew it and his overall theoretical background led Kalecki to hold stronger views. Under no circumstances should firms be allowed to set prices, except local small-scale

enterprises (see Kalecki, 1958b, with the significant title 'Centralised price formation as an essential feature of the socialist economy'). Reliance on market signals leads to economic stagnation, whereas the fully employed socialist economy needs to grow via investment; purely indicative planning can lead to even worse mistakes than detailed centralised planning; profit is a synthetic indicator of performance but this is a disadvantage as well as an advantage, because there is no point in raising profits at the cost of unemployment (1956b, 1957c, 1957d, 1957a and editorial comments account of a March 1957 discussion within the Economic Model Commission, Kalecki, 1982, pp. 336–9). How, then, should the time-honoured question of price determination be solved in the socialist economy? Just as under capitalism, by charging a mark-up on current costs, except that the mark-up should be related to the needs of investment finance (1958b; also making allowances for import intensity, Kalecki and Polaczek, 1957a, 1957b). Full costs should provide a basis also for intra-CMEA trade (Kalecki, 1962). Markets are left to determine quantities, rather than prices, and in the event of disequilibrium the adjustment process takes place through planned quantity adjustment rather than through prices. Kalecki simply did not believe in short-term substitutability in either production or consumption, and this set him apart from the neoclassical tradition, even if Marxian-inspired (e.g., Oskar Lange), and from the whole tradition of 'market socialism'.

In brief, Michał Kalecki's model of the socialist economy is a cross between the GDR (vertical groupings subject to central planning, a liberalised private sector) and Yugoslavia (cooperative sector, self-management) but with roles for markets, plans and self-management intermediate between the two. It is a very topical model, corresponding to what IMF officials today call 'the modified centrally planned economy' (Wolf, 1985) no longer corresponding to the classical Soviet-type model but still a far cry from full-fledged market socialism. It is also the furthest Gorbachev's reform can go in the USSR if it succeeds, at any rate within the foreseeable future. Kalecki was aware that the model he outlined was far from ideal, but he knew also that there is no point in replicating capitalist markets and capitalist plans – a lesson which most East European reformers less acquainted than Kalecki with 'realised capitalism' still have to learn. In a choice between piecemeal improvements and general change of principles, Kalecki favoured the first (1958a, in 1982, p. 88). He was aware that his proposed improvements would not put

an end to the conflictual aspects of socialism: he was prepared to pay for Workers' Councils the price of possible disruption and growth deceleration, and only too aware, prophetically, of the strength of central opposition to their effective operation. Referring to his proposed 'synthesis of central planning and workers' councils' he wrote: 'We should not delude ourselves that such a system is free of contradictions and easy to steer. There is no doubt that always there will exist tendencies towards the erosion of the prerogatives of workers' councils through greater centralisation, as well as towards the weakening of central plan discipline through workers' councils. On the one hand there will be the danger of weakening workers' councils and bureaucratising the whole system of management, on the other hand workers' councils, through their pressure, can lead to situations where it is necessary to reduce the pace of growth or to become dependent on foreign aid, or where after a period of chaos "order is restored", returning to the system of bureaucratic centralism' (Kalecki, 1956c; in Kalecki, 1982, p. 99; my translation).

An important element of Kalecki's approach to the formulation of a model of viable socialism, finally, is the strong weight given to actual *economic policies*, as well as to systemic questions; indeed one of his 1957 articles bears the significant title 'The role of the model should not be overestimated' (1957a) – a message which should be repeated *ad nauseam* for the benefit of all East European reformers and counter-reformers alike.

III INVESTMENT AND GROWTH POLICIES

A high and rising share of capital accumulation in national income has been the policy adopted by the Soviet Union since the inception of its first Five Year Plan (1928) and imitated by the other countries where a Soviet-type system was introduced after the Second World War. This policy, raised to the status of official dogma as a 'law of faster development of Department I' (producing production goods in Marx's reproduction schemes) or priority for heavy industry or for 'group A' was plausible in a country like the Soviet Union in the late 1920s: rural, industrially underdeveloped, labour-abundant, capital-constrained and practically closed, yet wishing to accelerate growth. Its soundness has been well theorised by the Soviet economist Feldman (1928, 1929) under precisely these assumptions. These were not, however, the conditions of the European countries which joined the

Soviet bloc, with the exception perhaps of Bulgaria and Romania. Michał Kalecki was the first outspoken opponent of this official dogma; his criticism, originally raised in a paper presented to the Second Congress of Polish economists (1956c, in Kalecki, 1984) was further developed (see, for instance, 1958c) and became the main theme of his 'theory of growth of the socialist economy', devoted precisely to the study of exogenous constraints limiting the feasibility and plausibility of ambitious investment policies (1963a).

In Kalecki's approach the economic growth of a full-employment economy above its 'natural' growth rate (determined by the growth of the labour force and technical progress) has increasing costs in terms of a lower share of consumption. These costs are lowered by international trade but reassert themselves because of the necessity of balancing foreign trade over time and set an upper limit to the share of investment that can be gainfully undertaken. Within this limit, which is seen as a maximum, set not by political but by technical considerations, central powers can exercise their political discretion according to the strength of their political concern for current consumption and careful consideration of the actual trade-off between the share of consumption and faster growth – a trade-off which worsens with the acceleration of growth.

Kalecki's notion of maximum investment share is best analysed with the help of a simple model (similar to that of Kalecki, 1963a). Consider a socialist economy where all savings are invested – or, rather, savings are generated via financial planning to match planned investment; labour is fully employed and labour reserves (e.g., agricultural underemployment) have been exhausted. There is a range of alternative production techniques whereby output is produced by labour and capital; technology is embodied in capital equipment of constant productivity and uniform lifetime. Provisionally assume that technical progress does not occur. The economy is closed (or, which is the same, foreign trade is balanced at a given level). The following symbols are introduced:

Y = national income

L = labour force

g_n = natural growth rate of income = n ;

K = capital stock

k = capital per man K/L

s = share of investment in national income

t = lifetime of equipment

C = total consumption
 n = growth rate of L
 g = actual growth rate of income
 y = labour productivity Y/L
 v = capital-output ratio K/Y

The following identities hold:

$$v = K/Y = (K/L)/(Y/L) = k/y \quad (19.1)$$

$$s \equiv g \cdot v \quad (19.2)$$

$$C \equiv (1 - s)Y \quad (19.3)$$

At the time 0 let the labour force be L_0 . For a given technical choice that has prevailed for the previous t years, corresponding to given values of k_0 , y_0 , the three identities above identify also v_0 , s_0 (since $g = g_n$ is also known) and C_0 . For an unchanged technical choice after t years income Y_t and consumption C_t would be given by:

$$Y_t = Y_0(1 + g_n)^t \quad (19.4)$$

$$C_t = (1 - s_0)Y_0(1 + g_n)^t \quad (19.5)$$

Suppose planners considered switching to a more capital intensive technique with parameters k_1 and y_1 . Of course since $k_1 > k_0$ there must be also $y_1 > y_0$, otherwise the new technique is absolutely inferior and should not be considered at all; and $v_1 > v_0$ otherwise the original technique is absolutely inferior and should have not been chosen in the first place. Define

$$p = (y_1 - y_0)/y_0 \quad (19.6)$$

If the economy switched to technique 1, after t years the whole capital stock would be of the new kind and the values of Y_t and C_t would not be given by (19.4) and (19.5) but by (19.4') and (19.5'):

$$Y_t = Y_0(1 + g_n)^t(1 + p) \quad (19.4')$$

$$C_t = (1 - s_1)Y_0(1 + g_n)^t(1 + p) \quad (19.5')$$

At the time t income with the newly adopted technique 1 would be greater than with former technique 0 by a factor of $(1 + p)$ but the

share of investment would also be higher for the more capital intensive technique because of (19.2) and the fact that $v_1 > v_0$; hence $(1 - s_1) < (1 - s_0)$ and C_t is not necessarily higher than with the previous technique. For consumption to be higher after the switch the condition must be satisfied (from (19.5) and (19.5')):

$$(1 - s_1)(1 + p) > (1 - s_0) \quad (19.7)$$

Otherwise, consumption is sacrificed not only throughout the transition to the new technique for t years but ever after if the new technique is maintained. While other writers (for instance Horvat, 1958) had stressed the existence of a limit to the economy's absorption capacity of investment from the viewpoint of income, beyond which investment would not raise *income*, Kalecki introduces a stricter limit, beyond which investment does not raise *maintainable consumption* levels.

Kalecki's condition (19.7) appears as a kind of golden rule of accumulation; in fact it can be proven that *it is the same thing as the golden rule of accumulation* familiar from Western literature on the theory of economic growth (Hahn and Matthews, 1964), except that it is a rule about *maximum* and not about desirable accumulation. For two techniques to be equally eligible from the viewpoint of the maximum sustainable consumption per head, the inequality (19.7) should turn into an equality, or

$$(1 - s_1)(1 + p) - (1 - s_0) = 0 \quad (19.8)$$

from which, substituting for the values of s from (19.2),

$$g_n = p/(v_1 + v_1 \cdot p - v_0) \text{ is obtained.} \quad (19.9)$$

For any given wage rate, the profit rate on the switch to the more capital intensive technique – regardless of whether such a profit rate is actually monitored, calculated (which Kalecki does not) or is even a concept ideologically allowed – is

$$r = (y_1 - y_0)/(k_1 - k_0) \quad (19.10)$$

from which, substituting from (19.1) and (19.6), we have:

$$r = p/(v_1 + v_1 \cdot p - v_0) = g_n, \text{ Q.E.D.} \quad (19.11)$$

This proposition (which can be obtained from Kalecki's model but was not fully drawn out by him beyond the expression of (19.7)), holds also when there is technical progress, as long as this is *neutral* in Kalecki's sense of the rate of progress being uniform regardless of capital intensity of output (therefore identical to Harrod-neutrality, whereby progress is uniform regardless of capital-output ratios; see Chilosi, 1971). If progress was faster the higher the capital intensity of output (Kalecki's 'capital-intensity-encouraging' progress) it might pay to invest beyond the limits indicated by (19.7), because the benefits of higher capital intensity are underestimated by p ; whereas if productivity growth and capital intensity of output were inversely related condition (19.7) would hold *a fortiori*. Foreign trade does not alter the approach, though it may shift temporarily the investment costs of growth acceleration at full employment and, therefore, the attractiveness of alternative rates of accumulation.

In fact Kalecki's notion of a maximum limit to the share of accumulation should not necessarily be approached, let alone met. Kalecki introduces a supply function of savings on the part of the planners, which he calls the planners' 'decisional curve' (to stress its non-technical nature) but which is simply a special form of 'objective function': instead of expressing preferences about dated consumption levels, per man or overall, Kalecki's planners compare the falling growth acceleration dg/ds obtained by higher investment shares at higher levels of growth rate g , with the increasing growth acceleration which they would require to induce them to squeeze consumption further at higher growth rates. A balance is struck when the sacrifices demanded for acceleration (by the economy as a whole) are equal to the price that planners are willing to pay (see Figure 19.1). The objective lesson of this exercise is not optimisation *per se*, which Kalecki stresses is a pure pedagogical device, but the notion that planners' investment policy should not only stay within the golden rule limit but also demand a greater acceleration of income for every percentage sacrifice in the share of consumption associated with it.

This lesson was quickly absorbed, popularised and developed by Kalecki's pupils (in particular, Laski, 1965; Josefiak, 1971; and many others) but was coldly received in most other circles. Polish leaders had already reacted in 1964 to Kalecki's theories and his application of those theories to Polish long-term planning by dismissing him from his advisory role. Accumulation policies throughout the 1960s (and well into the 1970s) remained as much based on high and rising investment shares as ever before, throughout Eastern Europe. In the

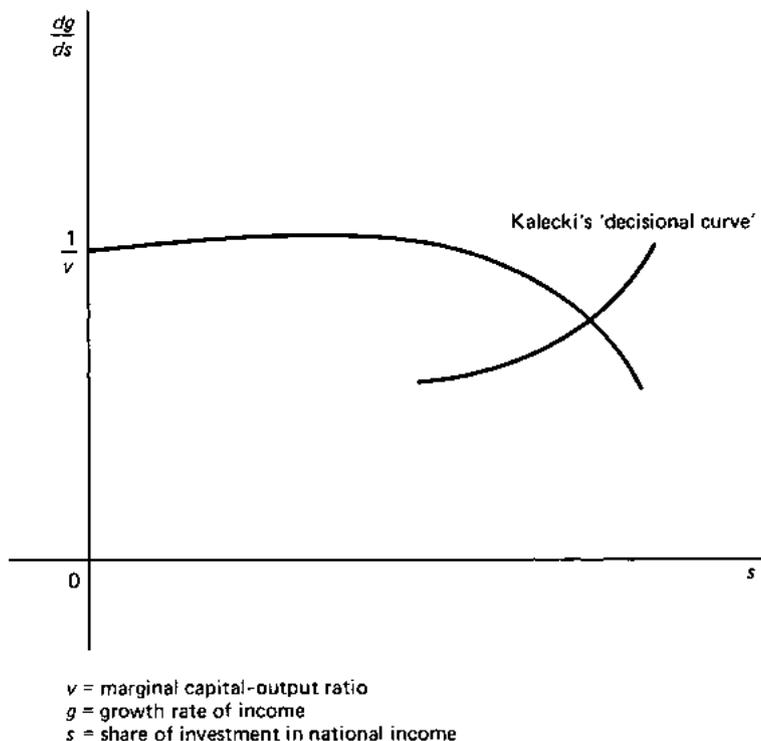


FIGURE 19.1

Soviet Union, the book (Kalecki, 1963a) was published with a misleading and patronising introduction by Academician Khatchaturov (Polish translation in Kalecki, 1984), who praised the mathematical approach while lamenting the neglect of sociopolitical factors (what could have been more sociopolitical than Kalecki's concern for the plausibility and the intelligent use of people's sacrifices?). The Polish academic establishment at first appeared to accept, or at least not to reject, Kalecki's approach, which found its way into textbooks on the economics of socialism. But in 1968 an attack was launched by party hacks in writings and at two meetings at the Central School of the Party and at SGPiS. Kalecki was accused of being a 'prisoner of capital fetishism' (by W. Iskra), 'smuggling bourgeois economics' (by B. Rudowicz), organising a 'cult of his theory and personality' among his followers (by D. Sokolow), plagiarism of Harrod and Domar

(though Kalecki had long acknowledged the connection and stressed the differences), excessive formalism, neglect of the human factor and other inanities (by J. Gorski, who in earlier writings had expressed appreciation). Kalecki replied and, later, resigned (see Osiatyński's account of those meetings in Kalecki, 1984); official condemnation did not prevent Kalecki's critics from continuing to use his work in their texts, but deleting the source (see Nuti, 1973).

In truth, *Kalecki's contentions about either the golden rule limit of the planners' increasing supply price of savings have no general validity; yet he was right in the specific conditions of Eastern Europe at the time and with reference to the policies followed there by socialist leaders, and he was proven right, with a vengeance, by the recurring Polish crises (from 1970 to 1980 through intermediate stages), the generalised decline to date and the policy reversal of the early 1980s.*

The adoption of more capital-intensive techniques than those which satisfy condition (19.7) cannot be regarded as *necessarily* mistaken: in principle – as long as the new technique is not absolutely inferior, which has been ruled out in the analysis above – that policy can always be reversed and will lead to higher consumption than with the less capital-intensive technique throughout the period of transition back to that technique. This gain in consumption may be considered as insufficient to compensate the sacrifices incurred during the transition to the more capital-intensive technique and before the policy is reversed; but this is a political, not a technical, judgement as Kalecki would have us believe. His neglect of potential gain from policy reversal is something of a sleight of hand; we know from optimum saving theory that golden rule growth is a crude benchmark against which to assess accumulation policy and that maximisation of maintainable consumption per head is not necessarily the best course. Yet if, in principle, it cannot be said that East European planners were inefficient simply for their disregard of golden rules, it is right to put on them the burden of proof: what conceivable reasons might there have been to shift consumption from today to tomorrow, if tomorrow's gain can only be a temporary blip? Speeding up the achievement of full communism is not a good enough answer, since nobody ever said that communist bliss had to be prepaid. No other possible reasons – as far as I know – have been given. In practical terms, therefore, Kalecki stood on firm ground.

Theoretical weakness and practical strength is a characteristic also of Kalecki's 'decisional curve'. The notion that planners should

require faster acceleration of growth to be induced to invest higher shares of national income may seem harmless enough. This is, for instance, how the level of expenditure (and therefore its share in a given income) behaves with respect to quantity demanded for any demand function whose price elasticity falls with the quantity demanded – as happens, for instance, for any downward-sloping linear demand function for any commodity. But suppose that demand is, at some point, fairly inelastic to price increases and elastic to price decreases: total revenue beyond that point will be rising with quantity at an *increasing* rate; hence, progressively *smaller* increases in quantity will be required to induce the consumer to raise the share of that good in his total expenditure beyond that point. The economic meaning is that there is a target minimum quantity below which a commodity's demand price rises steeply. Is there any reason to exclude, in principle, that likewise growth-minded planners might price additional growth more highly, in terms of consumption foreseen, at lower than at higher growth rates, at least over a certain range? This time the burden of proof is on Kalecki, and there is nothing in his work, or in the theory of demand or of optimum saving to justify the need for a monotonically rising 'decisional curve' as a *general* case. Yet the notion that at some point demand for growth becomes less elastic down to unity or less must be correct since some current income must be consumed even if growth becomes inordinately cheap – i.e., there will be maximum share of accumulation and *in its neighbourhood* the decisional curve must be rising as Kalecki supposed. If it is accepted that golden rule growth sets a maximum limit to the accumulation share, why should planners choose a minimum growth close to that limit? When the economy is close enough to the limit of sustainable consumption, Kalecki's argument applies. The question becomes one of fact: in the 1960s were Polish planners overstepping the limits of people's forbearance in their trading off of current for future consumption, or the (related) limits of the planners' own ability to deliver the consumption goods promised with the payment of wages? If they had not been, the Polish crises would have been averted. That Kalecki was right is shown by Gomulka's fall (within months of Kalecki's death), by the mounting excess demand for consumption goods at official prices and the inability of authorities to make price increases acceptable to the population, by the greater emphasis on consumption in the plans for the 1970s, the mounting external debt and deteriorating performance. The consumption sacrifices opposed by Kalecki were not

worth undertaking. The lesson should not be lost on the rest of the socialist bloc where, repeatedly, investment policies have neglected the constraints of full employment, natural resources and foreign balances, and have often generated not higher income, let alone higher consumption, or sufficiently higher consumption with respect to *some* preference system, but only excess capacity. Kalecki was fighting a dogma and could not afford to dilute his case with too many qualifications; that he glossed over some of them does not mean that he was unaware of their existence.

IV SHADOW INTEREST RATES AND TECHNICAL CHOICE

The choice of techniques was investigated by Kalecki not only in a macroeconomic context (as seen in Section III), but also at the micro level, in the selection of investment projects. There is a link between his macroanalysis and his micro findings, which were co-authored with Mieczysław Rakowski, an officer of the Polish Planning Commission. Their joint efforts (Kalecki and Rakowski, 1959) were repeated almost verbatim in the official handbook on project selection (KPPRM, 1962).

Since the mid-1950s in Poland the choice between alternative projects had been following informally the Soviet practice: (1) the scope of selection was limited to alternative ways of producing the same kind of capacity (decided by the centre or by enterprise associations), and not extended to the choice between plants producing alternative products; (2) investment funds were made available to enterprises from the government budget at no cost; (3) investing enterprises confronted with alternative ways of producing identical capacity were instructed to choose a more investment intensive alternative only if it led to operating costs economies sufficient to recover the associated *additional* investment cost within a maximum number of years, a statutory 'standard recoupment period' fixed by the centre. The codification of this informal practice in 1962 was profoundly influenced by the work of Kalecki, on his own and with Rakowski.

The basic rule adopted by the Polish Planning Commission in their 1962 *Instrukcja Ogólna* (General instruction) issued to all industrial enterprises required investors to aggregate costs into investment and yearly operating costs, reject inferior alternatives (costlier in both

investment and operation) and minimise the sum of operating costs and a fraction of investment costs given by the inverse of the standard recoupment period:

$$C + \frac{1}{T}I = \text{minimum} \quad (19.12)$$

where C now stands for yearly operating costs, I for the investment costs associated with C , and T is the standard recoupment period.

In the Polish practice T was fixed at six years for new plants and five years for modernisation investment; these rates were uniform throughout the economy. Clearly the recommended procedure is tantamount to a shadow capital charge of $1/T$; in a market economy, where an interest rate r prevails and capital is competitively rented, equipment of expected lifetime t would command a capital charge equal to a fraction $r(1+r)^t/((1+r)^t - 1)$ of its purchase price (here we abstract from the complications of inflation accounting, because there was price stability in that decade in Poland and because in any case inflation should not affect competitive rentals other than through its impact on the nominal interest rate r). There is hence an implied relation between T and an *implicit* interest rate, i.e.

$$T = \frac{(1+r)^t - 1}{r \cdot (1+r)^t} \quad (19.13)$$

For $T = 6$ and an investment lifetime of 20 years (regarded in the *Instrukcja* as the average lifetime of equipment in Poland at the time of issue) there was an implicit interest rate of about 15.7 per cent, which is considerably high in view of price stability. The same rate applied to investment in modernisation, which was shorter-lived and required a shorter standard recoupment period: five years was an approximation.

Polish practice here differed from that of the Soviet Union and Czechoslovakia, where the standard recoupment period was different in different sectors (ranging from three to ten years according to the ranking of each sector in national policy; the more favoured, the longer the period over which additional investment could be recouped) and straight-line amortisation was added to I/T to calculate the shadow investment charge. This departure had been advocated by Kalecki on the grounds of efficiency: seeing that these calculations affected not capacity expansion but only its form there was no reason

to favour capital intensity in favoured sectors (Kalecki, 1965); while durability differences between plants could be accounted for in other ways than through amortisation (Kalecki, 1958d; see below, in this section).

There are three main innovations introduced into this practice by Kalecki and Rakowski: (1) a link between the uniform standard recoupment period in the economy and labour-saving investment opportunities in modernisation; (2) the compounding of output losses due to the 'freezing' of investment resources in incomplete projects during their gestation period; (3) the correction of investment and operating costs to account for differences in expected lifetime of projects, based on the hypothetical comparison of steady state balanced stocks of those projects (for a more detailed discussion, see Nuti, 1971).

The rationale behind the value of T recommended by Kalecki and Rakowski for the Polish economy (in other East European countries following the same practice no rationale is given) is concern over the possibility of a labour shortage. Given full employment of labour, new plants would be operated by a number of workers equal to the natural increase of the labour force, plus workers formerly attached to equipment now come to the end of its lifetime, plus workers freed by investment in modernisation. The lower the standard recoupment period, the higher the labour requirements of new plants (labour forming the bulk of operating costs) and the lower investment in modernisation and therefore the lower the number of workers freed from scrapped plants. Given the non-regulatory nature of wages policy with respect to labour relative scarcity, and the lack of actual investment charges, the shadow capital charge implicit in the value of T is used to prevent labour shortage. Kalecki and Rakowski had estimated that there existed ample labour-saving opportunities in the Polish economy through modernisation of investment which could be recouped in five or six years. Hence, as long as labour could be drawn from this source, it would be wasteful to undertake more investment-intensive projects unless their additional cost could be recovered in less than the same period (the differential T adopted in the end for new investment and modernisation is a rough way of accounting for the longer expected life of new versus modernised plant; for a more formal analysis see Nuti, 1971). The high shadow charge therefore simply reflected the low technical level of Polish industry and the high profitability of investment in its modernisation. In view of this rationale, one would have expected the standard

recoupment period to have varied over time; the shadow capital charge, however, proved just as rigid as actual prices and was not altered for as long as the *Instrukcja* remained in force – i.e., until 1969, when a specific shadow capital charge of 0.12 (corresponding to roughly $T = 8$) replaced T .

Kalecki's keen eye for planning malpractices had identified the dangerous propensity to open a wide 'investment front' starting more projects than could be finished on schedule, and he alerted the planners to the social cost involved in locking up resources during the gestation period of projects. To favour quick-yielding projects and discourage the unnecessary prolongation of gestation periods, Kalecki introduced a 'coefficient of immobilisation', by which investment costs had to be compounded during the corresponding immobilisation period (Kalecki, 1958d). Kalecki and Rakowski assume that if one unit of investment were to be 'unfrozen' it would yield an amount of national product of an average pattern equal to $1/v$, where v is the gross capital – output ratio. Allowing for depreciation of fixed capital at a yearly rate d , the net product would be $(1/v - d)$ per annum. At full employment, in order to release the manpower necessary to man this unit of investment some additional investment must be undertaken elsewhere in the economy, given by $a \cdot T$, where a is the labour cost of the production of one unit of gross output and T is the standard recoupment period. The yearly net product of one unfrozen unit of investment is then reckoned as:

$$q = \frac{1}{v + a \cdot T} - d \quad (19.14)$$

It is difficult to see why the locking up of investment resources in the form of a longer gestation period should be treated any differently from the locking up of investment resources in the form of a higher investment intensity. Consistency would require $q = 1/T$, and it is no accident that the Soviet, Czechoslovak and Hungarian investment choice methodologies of the 1960s all use $1/T$ as the fraction of investment costs to be added to actual costs during gestation. As it happens, the value of the relevant parameters estimated by Kalecki and Rakowski for the Polish economy are $v = 2.5$, $a = 0.5$, $d = 0.03$, which give a magnitude of q , subsequently codified in the *Instrukcja*, of 0.15 – i.e., comfortably close to 0.157 (corresponding to $T = 6$). When I put this question to Michał Kalecki he insisted that $1/T$ and q were different concepts, and could differ; the only way I

could accept this was by looking at them respectively as linked to notional long-term and short-term interest rates. Kalecki insisted that their near-identity was a mere coincidence, but seeing that they were so close he saw no point in discussing the question further.

A third implicit interest rate, moreover equal to the growth rate of investment – i.e., complying with the golden rule of Section III – is implicit in Kalecki and Rakowski's treatment of plant lifetime. Instead of gearing the shadow capital charge to plant durability as in a competitive rental market, or adding straight line amortisation to $1/T$ as did the Soviet and Czech planners, Kalecki and Rakowski proceeded from a detailed analysis of the costs and benefits of plant durability.

A longer-lived plant has the relative advantage of producing a given stream of output for a longer period, but also the disadvantage of being tied to a given technical form for a longer period, therefore remaining excluded from the benefit of technical progress of the embodied kind. The balance between the two effects in the comparison of two alternative lifetimes depends on the difference in durability, the rate at which operating costs decrease every year in the new plants, and the growth rate of investment in the production of the output considered. Suppose that investment in plants of durability of n years grows at a rate g per year, and the capital-output ratio v is constant over time. If investment at a time t is indicated by I , in the preceding year it was $I(1+g)^{-1}$ and $(i-1)$ years back it was $I(1+g)^{-(i-1)}$. The stock of fixed capital operating in a given year (expressed at historical cost at constant prices) is the sum of gross investment carried out in the last n years; since the flow of output per unit of investment is constant through time this gives a convenient index of output capacity, M_n :

$$M_n = \sum_{i=1}^n I \left(\frac{1}{1+g} \right)^{i-1} = I \left(1 - \left(\frac{1}{1+g} \right)^n \right) (1+g)/g \quad (19.15)$$

Since the capital-output ratio is, v , the output of this stock of capital is F_n , or

$$F_n = \frac{M_n}{v} = I \left(1 - \left(\frac{1}{1+g} \right)^n \right) (1+g)/g \cdot v \quad (19.16)$$

In order to make this technical alternative comparable with that of plants of durability n_s , which is taken as 'standard', the same procedure is applied to a hypothetical stream of investment with identical I

and g but with lifetime n , and with investment-output ratio v_s . Other things being equal, the output flow of an investment process with parameters v , n , will be equal to that of an investment process of standard durability n_s and investment output v_s , if

$$v/v_s = \left(1 - \left(\frac{1}{1+g}\right)^n\right) / \left(1 - \left(\frac{1}{1+g}\right)^{n_s}\right) = z_n \quad (19.17)$$

Kalecki and Rakowski and the Polish *Instrukcja* thus recommend that the comparison of projects should be made not minimising actual and shadow costs for the actual capacity, but the ratio between costs and z_n times actual capacity. For a standard durability $n_s = 20$ and $g = 7$ per cent, for instance, z_n is 0.86 for $n = 15$ and 1.10 for $n = 25$: in other words planners should prefer a 25-year long project to a 20-year one, given $g = 7$ per cent, if the investment output is less than 10 per cent higher than for the 20-year long project; while $n = 15$ can be preferred to standard durability n_s , if its investment-output ratio is lower by more than 14 per cent.

The effect of durability over the introduction of technical progress is accounted for in a similar way. It is assumed that, for investment growing at a rate g per year, total operating costs of production in the *new* investment increase at a rate $c < g$, because of technical progress advancing at a rate approximately equal to $g - c$. Following the same method used for output, the relation between total costs G_n for a stock of plants of durability n and total costs G_{n_s} for a stock of plants of durability n_s is given by

$$y_n = G_n/G_{n_s} = \left(1 - \left(\frac{1}{1+c}\right)^n\right) / \left(1 - \left(\frac{1}{1+c}\right)^{n_s}\right) \quad (19.18)$$

If we call C the operating costs in a stock of plants of durability n , the operating costs in an identical stock of plants of durability n_s would be $y_n C$, a longer lifetime of plant involving a flow of costs larger by a factor of y_n . For instance, for $g = 7$ per cent and $c = 3$ per cent (with technical progress advancing at a rate of 3.9 per cent) and $n_s = 20$ years, y_n will be 0.80 for $n = 15$ and 1.17 for $n = 25$. Instead of minimising the expression given in (19.12) above, investors are instructed to select projects so that:

$$E = \frac{I(1/T)(1 + q \cdot z) + C \cdot y_n}{X \cdot z_n} = \text{minimum} \quad (19.19)$$

where z is the average period of freezing of investment resources during the gestation period and X is the capacity target.

A final refinement was introduced to take into account the possible differences between the rate at which labour costs and other costs (raw materials, semi-finished products, fuel, energy and capital maintenance) fall in time, but the basic approach remained unchanged: tables for alternative values of y_n and z_n were attached to the *Instrukcja* for the use of investors. Basically, for each project of given technical durability, first the lifetime for which the expression above reaches a minimum is found and this is taken as the optimum economic lifetime of the project; then the project is chosen for which that expression, taken for the optimum economic lifetime of each project, is lowest.

The comparison of projects with reference to the characteristics of hypothetical balanced stocks is very ingenious; it inspired my treatment of more complicated time patterns of input and outputs (Nuti, 1970); it is not, however, immune from criticism. Optimum economic lifetime of plants might vary with the reference durability n_n , which is arbitrary; the optimum lifetime of a plant should be assessed without reference to a standard durability. The treatment of durability differs from that of gestation, whereas gestation and durability are both aspects of the time profile of inputs and outputs and should be treated in the same way. If the growth rate of investment is slowing down, the advantage of a longer lifetime is higher than if the growth rate is constant, and the reverse is true for an accelerating growth rate; the opposite applies to the disadvantages of longer lifetimes. What is most interesting, however, is that in an economy where investing firms obtained funds free of charge from the state budget no less than *three* shadow rates were introduced, *implicit* in T , q and in the use of g to calculate y_n and z_n . Shadow rates were fairly close (15.7 percent for T , 15 percent for q , 7–15 percent for g) but the approach was untidy and messy. Why did Kalecki become so involved in it? Presumably the answer is that he would have liked to introduce an actual interest rate in investment selection (see Section II, above) but was operating within a system dominated by a Soviet practice (that of recoupment period) difficult to change; he also specifically did not want to introduce interest and profitability in the selection of the areas of capacity expansion (except in the long run – see Section V); at the same time he wanted to improve the existing planning system, practice prevailing over theory in his concern.

V KALECKI'S 'OPTIMUM STRUCTURE OF CONSUMPTION'

Kalecki expected the structure of consumption demand to be fairly inelastic to relative prices in the short run, and therefore relied on 'consumption norms' or on coefficients calculated from family budgets for the purpose of current planning. In longer-term planning, however, he regarded the structure of consumption demand as elastic and, therefore, subject to optimisation with respect to relative production costs on new plants. He discussed the 'optimum structure of production' in a little-known article of the same title (1963b; later translated into English, 1966) which, much to Kalecki's surprise, unlike his other papers on the socialist economy, was never discussed – at any rate in print – in Poland or elsewhere. In the article he introduces the notion of 'equivalent' consumption patterns, makes a simple assumption about the general form of quantitative relations governing their 'equivalence', and suggests the selection of the least-cost pattern among the equivalent consumption bundles. The approach is interesting because it implies the choice of relative prices based on marginal costs as measured for the purpose of investment choice in the Polish practice by equation (19.19) above and seems to provide a missing link between investment and consumption planning.

Kalecki considers two alternative sets of consumption goods, *A* and *B*, in a simplified case in which consumption is composed of only two commodities, 1 and 2. Denote with q_{1A} , q_{2A} , p_{1A} , p_{2A} , respectively, the quantities composing set *A* and the prices at which – for a given income – these quantities are being sold. Assume that quantities q_{1B} and q_{2B} composing set *B* are such that the value of the two sets, expressed at prices p_{1A} , and p_{2A} , is the same, that is:

$$\frac{q_{2A} - q_{2B}}{q_{1A} - q_{1B}} = - \frac{p_{1A}}{p_{2A}} \quad (19.20)$$

But as the structure of *B* is different from that of *A*, the ratio between the prices at which set *B* would be sold is different, i.e.:

$$\frac{q_{2A} - q_{2B}}{q_{1A} - q_{1B}} \neq \frac{p_{1B}}{p_{2B}} \quad (19.21)$$

so that the value of *A* and *B* is no longer equal when expressed at the realisation prices of set *B*. Suppose, however, that the structure of set

B is very similar to that of A , that is $q_{1B} = q_{1A} + \Delta q_{1A}$, and $q_{2B} = q_{2A} + \Delta q_{2A}$, where Δq_{1A} and Δq_{2A} are very small quantities of opposite sign; realisation prices will also change by small increments Δp_{1A} and Δp_{2A} . The condition for the equality of value of the A and B at A 's realisation prices is:

$$\frac{\Delta q_{2A}}{\Delta q_{1A}} = - \frac{p_{1A}}{p_{2A}} \quad (19.22)$$

The condition for the equality of the value of A and B at B 's realisation prices would be:

$$\frac{\Delta q_{2A}}{\Delta q_{1A}} = - \frac{p_{1A} + \Delta p_{1A}}{p_{2A} + \Delta p_{2A}} \quad (19.23)$$

The ratio between the realisation prices of A differs from that of B 's prices only by a very small quantity ϵ , and 'the two criteria of equivalence practically coincide here'. Equations (19.22) and (19.23) can be rewritten as

$$\Delta q_{2A} = - \frac{p_{1A}}{p_{2A}} \Delta q_{1A} \quad (19.22')$$

and

$$\Delta q_{2A} = - \frac{p_{1A}}{p_{2A}} \Delta q_{1A} - \epsilon \Delta q_{1A} \quad (19.23')$$

where $\epsilon \Delta q_{1A}$ is a small quantity of the second order which may be neglected.

In this way, from the consumption structure (q_{1A}, q_{2A}) with realisation prices (p_{1A}, p_{2A}) , we proceed to another very close structure: $(q_{1A} + \Delta q_{1A}, q_{2A} + \Delta q_{2A})$, for which $\Delta q_{2A} = - (p_{1A}/p_{2A}) \Delta q_{1A}$. Prices in the new situation are $p_{1A} + \Delta p_{1A}$ and $p_{2A} + \Delta p_{2A}$. The operation is then repeated according to the same principle, namely that the increments of the two commodities have opposite signs and that they are inversely proportional to the relative prices obtained in the previous step. In this way, a chain of equivalent consumption structures is obtained, through which we pass from set $A = (q_{1A}, q_{2A})$ to a set $B = (q_{1B}, q_{2B})$, the differences $(q_{1B} - q_{1A})$ and $(q_{2B} - q_{2A})$ no longer being very small. The two sets are considered by Kalecki as equivalent. The diagrammatical presentation of Kalecki's equivalent consumption structures is a curve in the (q_1, q_2) plane which is falling, convex towards the origin, with a slope at each point (q_1, q_2) equal to

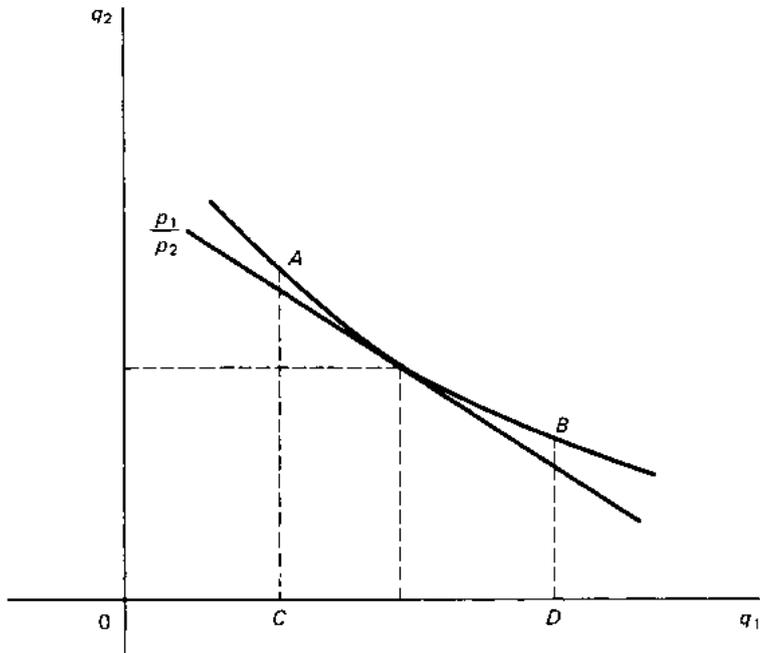


FIGURE 19.2

$-p_1/p_2$, as in Figure 19.2. Kalecki states that his curve is different from the indifference curves to be found in Western textbooks, because indifference curves represent 'sets of commodities considered as equivalent by the consumers', and 'the fact that the slope of the tangent at point (q_1, q_2) is equal to $-p_1/p_2$ (where p_1 and p_2 are the realisation prices of this set) is deduced from the assumption of an optimum consumer choice'; whereas in his curve 'the equality of the slope of the tangent at the point (q_1, q_2) to $-p_1/p_2$ follows directly from definitions'. It should be clear by now, however, that *following this procedure one ends up with the exact equivalent of Samuelson's 'revealed preference' curve* (Samuelson, 1947, 1948; Little, 1949; as Ian Little suggested in correspondence with Kalecki – translated into Polish in Kalecki, 1984, p. 332 – advising against the publication of this paper in an English journal for this reason). To escape from indifference curves, Kalecki has rediscovered another typical product of Western economics. The rest of Kalecki's argument is interesting because it is based on assumptions about the actual shape of the

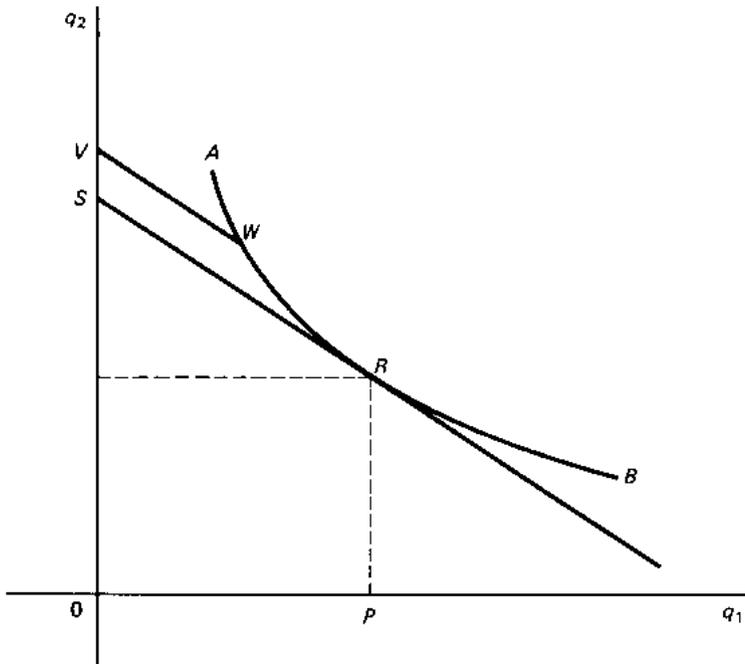


FIGURE 19.3

curves, and discusses the criteria for planning choice.

Kalecki takes as an indication of the unit cost of each consumption good the coefficient E used in the Polish methodology for investment choice (see equation 19.19) – that is, the sum of operating costs plus a shadow capital charge per unit of output, respectively E_1 and E_2 for the two products. The notion of aggregate (actual and shadow) costs of producing set (q_1, q_2) is equal to $E_1 \cdot q_1 + E_2 \cdot q_2$. This gives a family of straight lines each indicating sets of q_1 and q_2 producible at the same notional aggregate cost, all having a slope $-E_1/E_2$. Of course, as we can see from Figure 19.3, among a set of alternative consumption structures the variant which involves the least production cost corresponds to the point R at which the straight line RS of production costs with slope $-E_1/E_2$ is tangent to the curve AB of equivalent consumption variants. For the consumption variant characterised by the lowest level of production cost, the realisation prices are hence proportional to the unit costs of production, i.e. $p_{1R}/p_{2R} = E_1/E_2$.

Kalecki next tackles the question of 'how one can in practice use this criterion of optimisation of the structure of consumption'. In a two-commodity scheme, Figure 19.4 represents the curve of equivalent consumption variants AB , A being the initial set for which the prices p_{1A} and p_{2A} are known; the slope of the tangent AM at this point is equal to $-p_{1A}/p_{2A}$; R is the point for which the notional aggregate costs are lowest, the slope of the tangent to the curve AB at this point is equal to $-E_1/E_2$. Through the point A a straight line AN parallel to this tangent is drawn; H and I denote the points of intersection of the lines AM and AN with the ordinate of the point R ; if AR was an arc of parabola with a vertical axis, then R would be situated in the middle of HI . Kalecki assumes, 'which is plausible', that the curve AB can be approximated by such an arc, and that thus R lies not far from the middle of the segment HI . Thus the approximation is obtained:

$$\frac{JR}{AJ} = \frac{1}{2} \cdot \left(\frac{JI}{AJ} + \frac{JH}{AJ} \right) \quad (19.24)$$

But JI/AJ is equal to E_1/E_2 , and JH/AJ is equal to p_{1A}/p_{2A} . Hence

$$\frac{JR}{AJ} = \frac{1}{2} \cdot \left(\frac{E_1}{E_2} + \frac{p_{1A}}{p_{2A}} \right) \quad (19.25)$$

As a further approximation, Kalecki takes the geometric mean of E_1/E_2 and p_{1A}/p_{2A} , obtaining

$$\frac{JR}{AJ} = \sqrt{\frac{E_1}{E_2} \cdot \frac{p_{1A}}{p_{2A}}} \quad (19.26)$$

The equation of the straight line AR is therefore approximated by

$$q_2 = - \sqrt{\frac{E_1}{E_2} \cdot \frac{p_{1A}}{p_{2A}}} \cdot q_1 + b \quad (19.27)$$

where b is equal to the segment OK .

Since the points A and R are on the same straight line, the values of the set A and R in terms of prices $\sqrt{E_1 \cdot p_{1A}}$ and $\sqrt{E_2 \cdot p_{2A}}$ are approximately equal. Call G_A the value of set A in terms of these prices.

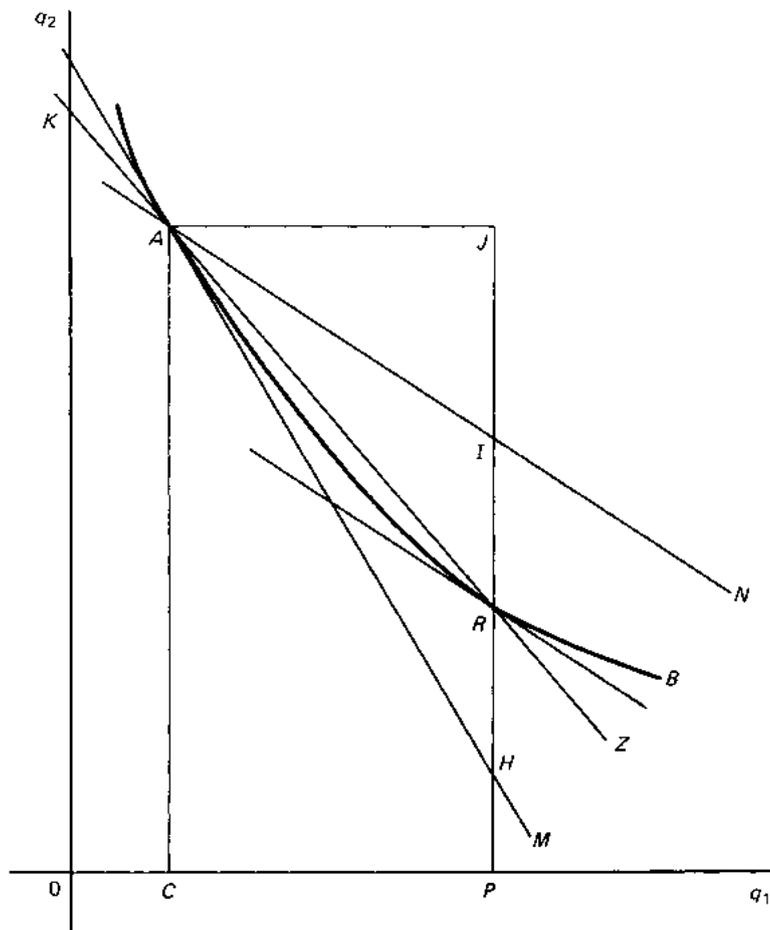


FIGURE 19.4

The first (approximate) condition for the optimum consumption variant is given by

$$G_A = q_{1R} \cdot \sqrt{E_1} \cdot p_{1A} + q_{2R} \cdot \sqrt{E_2} \cdot p_{2A} \quad (19.28)$$

The second condition is the proportionality of the realisation prices of set R to unit costs E_1 and E_2 , i.e.

$$\frac{p_{1R}}{p_{2R}} = \frac{E_1}{E_2} \quad (19.29)$$

In a multicommodity world, the second condition would still apply, and Kalecki suggests – without proving it – that the first condition ought to hold as well. Under these assumptions he suggests that the (approximate) determination of the consumption pattern involving the minimum aggregate costs in long-run planning could be carried out as follows:

The initial structure of consumption A – e.g., in 1980 expressed in 1960 prices – is established on the basis of family budgets corresponding to per capita income postulated for 1980. These prices will therefore be $p_{1A}, p_{2A}, p_{\dots}, p_{nA}$ since they are realisation prices corresponding to the actual consumption structure in 1960 as reflected in the family budgets. Furthermore, we determine the unit costs E_1, E_2, \dots, E_n according to the principles of the calculus of the efficiency of investment. The next step is to calculate the value G_A of the set A in terms of the prices $\sqrt{E_1 p_{1A}}, \sqrt{E_2 p_{2A}}, \dots, \sqrt{E_n p_{nA}}$. Finally, we try to find such a set of R of commodities $q_{1R}, q_{2R}, \dots, q_{nR}$ whose value, measured in terms of prices $\sqrt{E_1 \cdot p_{1A}}, \sqrt{E_2 \cdot p_{2A}}, \dots, \sqrt{E_n \cdot p_{nA}}$, is equal to G_A and whose realisation prices are proportionate to E_1, E_2, \dots, E_n . Such a procedure requires, of course, a knowledge of the relationship between the consumption of a given commodity, on the one hand, and the 'real' value of aggregate consumption G_A , as well as the structure of prices, on the other.

At first, this appears as a promising line of analysis, because it seems to find conditions for optimality and to simplify the problem of consumption planning, reconciling central planning of the consumption structures with a respect for consumers' preferences, approximated by means of a reasonable assumption about their general form. On reflection, however, even if consumers' revealed preferences had the general form postulated by Kalecki, his approach would leave the problem of consumption pattern totally undetermined. This should be clear from reconsidering Figure 19.4. Condition 1 tells us that the optimum structure ought to lie on the AZ segment, condition 2 gives the slope of the equivalent consumption curve at the optimum point R , but *point R itself can lie anywhere along the AZ segment*, and the planner has no *a priori* way of determining where it lies, unless as Kalecki puts it, he knows 'the relationship between the consumption of one of them, say q_{1R} on the one hand, and the "real" value of the aggregate consumption G_A , as

well as the price ratio p_1/p_2 on the other'. But if the planner knew the relative realisation prices of alternative bundles of commodities which at some set of prices ($\sqrt{E} p_{iA}$, $i = 1, \dots, n$) have the same real value, and knew this for alternative levels of real consumption, he could draw the whole map of consumers' revealed preferences at once. The optimum structure of consumption could be determined from the outset, without having to make Kalecki's additional assumptions, nor follow the intermediate steps he suggests. In the absence of such information about the consumption of each commodity as a function of income and prices, the planner is left with the traditional methods of consumption planning.

VI THE PERSPECTIVE PLAN

Kalecki's ideas about socialist planning reviewed in the previous sections are brought together in the procedure he devised for the construction of a perspective plan – i.e., a plan for the long-term development of a socialist economy (see Kalecki, 1958e, 1963c, 1963d). What follows is a generalisation and formalisation of Kalecki's procedure.

The perspective plan covers a time span of 15 to 20 years; the planning horizon is actually longer, in that investment expenditure in the last few years of the plan is laid down on the assumption that the broad lines of development of the economy outlined in the plan will also continue after the end of the plan period. It is a 'sliding' plan; the first five years become the starting point for drawing a medium-run plan for the economy, especially the investment plan and, as time goes by, the terminal date of the perspective plan period is shifted forward, say, by five years every five years, so that a picture of the perspective development of the economy is kept, brought up to date as past and current experience produces more accurate projections. The plan is drawn at constant prices and is, therefore, designed basically to check the consistency of physical flows, while financial flows and the price level are adjusted later, with the drawing up of short-run financial balances and balances of the income and expenditure of the population.

The first stage in the construction of the perspective plan is the choice of a preliminary target for the average growth rate during the period, which we can call \bar{g}_0 . The main constraints on average growth are: (1) the expected growth rate of the active population and the

growth rate of its average productivity (partly dependent on technical progress and, partly, on the rate of investment itself); (2) the minimum growth rate of consumption of the population and the share of accumulation associated with it, constraining \bar{g}_0 for the preliminary coefficients, at the prices and the sectoral composition of the base period; (3) the balance of foreign trade. These constraints can be summed up as:

$$\bar{g}_0 \leq n_0 + h_0 \quad (19.30)$$

$$\bar{g}_0 \leq s/v_0 \quad (19.31)$$

$$\bar{g}_0 \leq \frac{g_x}{e_m} \quad (19.32)$$

where \bar{g}_0 is the preliminary target for the average growth of income over the period, n_0 and h_0 are preliminary estimates of population growth and of average productivity growth; s is the maximum share of accumulation corresponding to the minimum consumption requirements of the population, and v_0 is a preliminary estimate of average investment intensity; g_x is the expected growth rate of the value of exports, and e_m is the estimate of the elasticity of imports with respect to income (given the planners' expectations about world demand and relative internal and international prices).

Ideally, all these constraints should be simultaneously met so as to have the equality sign in equations (19.30) – (19.31); if one of the constraints bites first, to some extent it might be possible to ease whatever is the bottleneck by bringing the right side of the other equations closer to \bar{g}_0 : for instance, to raise h_0 or lower e_m or raise g_x at the expense of raising v_0 , but there might be limits to the possibility of trading off one constraint for another and the most stringent constraint will determine the highest \bar{g}_0 which is tentatively considered feasible. However, even if the tentatively chosen growth rate does not quite meet all constraints one might pass to the second stage of the calculations, since the purpose of this stage is only that of ruling out blatantly unrealistic variants of the plan checking the internal consistency of expectations. The estimates are aggregates of different sectors, and it is not granted that the subsequent breakdown of these variables will give aggregation weights consistent with the provisional calculations.

The second stage is a tentative estimate of the output structure of different sectors required for final uses in each year. The changes in the pattern of final private consumption are predicted (by means of calculations of consumption elasticities, the analysis of family budgets, available time series of consumption data, the pattern of consumption of countries at similar stages of development, etc.) or planned (on the basis of consumption norms). Public consumption of the product of each sector can be added directly, but the requirements of the net output of each sector for investment and exports will depend in turn on the targets for gross output expansion in the different sectors, so that only preliminary estimates can be inserted at this stage, to be checked later for consistency with data obtained at the next stage. These operations can be summarised as the drawing of a set of provisional vectors of final demands in each period,

$$y_{t+j} = c_{t+j} + u_{t+j} + s_{t+j} + f_{t+j}, \quad j = 0, 1, \dots, 20; \quad (19.33)$$

where y is the vector of final demand, c is the vector of private and u of public consumption, s is the provisional investment vector estimate and f the export vector.

The third stage consists of the attempt to estimate the sectoral breakdown of demand for intermediate products corresponding, in each period during the plan, to the provisional estimate of final demand obtained in stage two. This is done by means of either input-output analysis, or the material balances of resources and uses usually drawn in planned economies for the main commodity groups. In either case, allowance has to be made for technical progress so that *ex ante* planning matrices A of technological coefficients have to be used rather than *ex post* tables. An estimate of the gross output targets x consistent with the final output targets of the perspective plan is thus obtained:

$$x_{t+j} = A_{t+j}x_{t+j} + y_{t+j} \quad j = 0, 1, \dots, 15-20. \quad (19.34)$$

The fourth stage consists of a reassessment of the provisional estimates, for investment and foreign trade, on the basis of the supply constraints on the growth of each sector. Productive activities are divided into two main categories, of 'supply-determined' and 'demand-determined' activities (Kalecki, 1963c and his Preface to Rakowski, 1963). The first category includes those activities which are subject to

a ceiling for their long-run growth rate, for technical or organisational reasons, which cannot be removed even at the expense of higher capital expenditure. The technological and organisational limits are given by limited natural resources, or the time necessary for the introduction of new technological processes, or for the training of workers or technicians of different skills, or by difficulties in recruiting manpower for certain trades (mining, for instance). Demand-determined industries are the industries which, within the relevant range of the growth rate of national income, are not subject to such ceilings in their growth rates. The comparison between the estimates of gross output requirements and the ceilings limiting the growth of supply-determined industries will give a first assessment of import requirements, to which non-competitive imports have to be added, to obtain total import requirements. In order to meet import requirements with exports, the targets for the final output of the industries which are not supply-determined has to be raised, following the indications of foreign trade agencies, as long as higher amounts of output marketed for exports are not counterbalanced by more unfavourable terms of trade. Once the net trade balance and the actual targets for the increase of gross output are known a more accurate estimate of investment requirements can be obtained and checked against the provisional estimates adopted at stage two. If the divergence between the initial estimates of the net trade balance and investment requirements and the estimates obtained at stage four is not acceptable, the process of plan construction will have to start again, from stage two, until the two estimates are sufficiently close and the relations hold:

$$x_{t+j} + m_{t+j} = A_{t+j}x_{t+j} + y_{t+j} \quad j = 0, 1, \dots, 15-20; \quad (19.35)$$

$$x_{t+j} \leq \bar{x}_{t+j} \quad (19.36)$$

$$s_{t+j} = B_{t+j}(x_{t+j+i} - x_{t+j}) \quad (19.37)$$

$$p \cdot f_{t+j} = r \cdot p_i \cdot m_{t+j} \quad (19.38)$$

where m is imports, \bar{x}_{t+j} is the capacity constraint of x_{t+j} , B_{t+j} is the matrix of projected investment requirements on a sector-to-sector basis; and p and p_i are internal and international prices and r the exchange rate.

The choice of the technical form of investment is undertaken at this stage. Whenever alternative ways of achieving given targets for output expansion in different sectors are available the procedure for technical choice is usually that of minimising the sum of perspective operation costs and a shadow charge for investment, according to the methods discussed in Section IV above. Alternative ways of earning foreign currency, and the alternative between import and domestic productions, are treated as any other technical choice, in the same way (Kalecki, 1971b).

After these stages are performed the disaggregated data can be aggregated to recompute the aggregate targets for the growth of national income, investment intensity and import requirements, in order to check them against the preliminary estimates. In case of inconsistency the plan is revised, and a new variant is worked out through the stages described above. 'The variant finally adopted should be distinguished by the highest possible rate of growth at which there is a realistic possibility of balancing foreign trade and at which the relative share of productive investment plus the increase in inventories in the national income is considered tolerable by the authorities from the point of view of the impact upon consumption and unproductive investment in the short run' (Kalecki, 1963).

This procedure proposed by Kalecki has a number of shortcomings. Computations undertaken at constant prices can at most ensure the *consistency* of plans in physical terms (as long as aggregation weights within sectors do not change too drastically), but there is nothing to ensure that the relative prices deriving *from the plan* should be consistent with the relative prices assumed *in the construction of the plan*. On the side of production goods, the relative scarcities of inputs caused in the very process of planning might diverge from initial relative prices and, if this divergence is neglected, opportunities for substitution among alternative inputs might be lost. For consumption goods, the relative long-run production costs of consumption goods over the plan period might diverge from the pattern of relative prices of consumption goods initially assumed for the purposes of forecasting consumption patterns over the period inducing, therefore, the neglect of opportunities for substitution among alternative consumption goods. Finally, since the calculations for investment choice are carried out for given output expansion targets, the procedure implies that the quantity of material inputs in the operation of the plants after construction and the proportion in

which material inputs are required to make the investment goods considered are not affected by the technique eventually chosen; technological choice, in other words, is assumed to take the form of the substitution between labour and an aggregate notion of investment measured at constant prices, instead of more complex alternatives.

These shortcomings can be summed up as the possible *inefficiency* resulting from the neglect of three main feedbacks of the plan on the system of prices (and hence, whenever, alternative consumption and production choices are available, on the pattern of planned quantities). These feedbacks are: (1) the choice of the technical form of investment on the physical composition of the sectoral targets for output expansion; (2) the feedback of the investment plan on the prices of investment goods to be used as basis of plan construction; (3) the feedback of relative costs of consumption goods resulting from the plan, on the relative prices to be used as the basis of the consumption plan. The extent of the divergence between the plan obtained following the stages outlined and an 'ideal' plan, which should be constructed taking into account also the feedbacks mentioned here, and the practical importance of this divergence, are questions open to discussion. According to Michał Kalecki the drawbacks of performing calculations to choose techniques measuring the value of investment (per unit of output or per labour employed) at constant prices are of the same nature as all index number problems and can be reduced, in the framework of investment planning, by using chain indexes of the volume of investment (Kalecki, 1963a, Chapter 1). He recognises that the crude recoupment period approach and the other rules put forward for investment choice are only a first approximation to a complex problem (Kalecki, 1963c) but regards more sophisticated approaches as not necessarily representing an improvement given the inaccuracy of initial data and the uncertainty about the future. The necessity of checking the consistency between the relative prices of consumption goods at which future consumption is being forecast and relative costs anticipated in the calculations of 'investment effectiveness' has been stressed by Kalecki himself, although his own treatment of the problem does not seem to provide a satisfactory solution (see Section v above).

In handling these problems in Poland in the early 1960s, Kalecki rose to the challenge of 'realised' socialism and favoured approximate procedures of practical use to rigorous solutions without application. Even with hindsight, nobody could say that he was wrong.

VII SUMMARY AND CONCLUSION

Kalecki's contributions to the theory and practice of socialist planning – as distinguished from the wider aspects of socialist economy and society – have been discussed in this study under five headings:

1. Kalecki's comprehensive and coherent picture of the organisation model of the socialist economy as an alternative to the Soviet-type model different from the 'market socialism' of Lange and other reformers. In Kalecki's model prices are fixed, as in his picture of the capitalist economy, by mark-up pricing, with the average mark-up on actual and shadow costs related to the requirements of investment finance; markets are used but market signals are quantity signals determining quantity adjustments in the use and expansion of capacity; firms' performance is assessed using net value indicators but within wage guidelines and employment targets; investment is kept in check by interest payments deducted from performance indicators; but neither investment nor employment are guided by enterprise profitability considerations; central planning is made easier by grouping enterprises in vertically integrated sectoral associations. The countervailing power *vis-à-vis* central planners is not the market but Workers' Councils: in Kalecki's reform scheme, therefore, democratisation takes the place of marketisation.
2. Kalecki's approach to the external and political limits to the accumulation policy of central planners. Labour force growth and technical progress set a limit to the accumulation that can be usefully undertaken from the viewpoint of *maintainable* consumption growth (golden rule accumulation of Western texts being regarded not as an optimum but as a maximum accumulation policy). Within this maximum limit, planners' concern for short-term consumption *should* (following from a rationality postulate in Kalecki but really embodying a plausible but special preference system on the part of planners) stop well short of that maximum.
3. Kalecki's innovations in revamping the Soviet-type approach to investment project selection based on the notion of 'standard recoupment period' in place of interest rates. Kalecki and Rakowski linked this period to the marginal labour saving opportunities in modernisation given the full employment constraint of the socialist economy; introduced an alternative

implicit rate of interest in dealing with the immobilisation of resources during investment gestation; used investment growth rates in discriminating between projects of different lifetimes. Theoretically, the use of multiple implicit shadow rates of interest can be questioned; in practice, their values were close and these improvements of current practice must have seemed to Kalecki as more easily acceptable to Polish leaders than actual interest rates, and more desirable than an unqualified use of actual interest rates for the choice of investment levels and structure instead of just technical choice.

4. Kalecki's attempt at formulating practical guidelines for the optimisation of consumption structure. His attempt, which is based on a use of chain indices practically equivalent to Western 'revealed preferences', is ingenious but its practical application does not require less information on the part of planners than the application of more conventional methods.
5. Kalecki's procedure for the construction of a perspective plan of the development of the socialist economy, as a foundation for medium-run and investment planning. This brings together all the previous points and leads to a practical solution of plan formulation, which in theory can be regarded as possibly inefficient because it neglects a number of feedbacks in plan construction, but in practice is of considerable use, especially if compared with the alternative Soviet-type methods using material balances alone.

This critical but positive assessment leads to some reconsideration of Kalecki's overall contribution to socialist economics. Accused of not being a Marxist he was more Leninist than his critics (with his emphasis on workers' control). Accused of neglecting social and political factors he had the most perceptive feeling for precisely these factors, with his emphasis on democratisation and on the political limits to investment policies and other work (not reviewed in this study) on subjects ranging from economic criminality to peasant behaviour, from systemic influence on labour productivity to income distribution between manual and non-manual workers (see Kalecki, 1984, Part III). For a man revered as a great theoretician, his propositions often lack generality, though the qualifications are not significant in practice for Eastern Europe in the 1960s. In this, Kalecki is in a position similar to that of Keynes, who also claimed generality for a theory deeply grounded in the time and place of his theorising –

Britain in the 1930's – and requiring some practically plausible qualifications which reduce generality without reducing policy relevance. Keynes was really a high Tory, believing in markets, as Kalecki was a high Socialist believing in planning; the theoretical and political stance of both has been frequently misunderstood. The world is not in the best of possible states, not because of qualification required for the general validity of their theories, but because of the pursuit of pre-Keynesian and pre-Kaleckian policies in both West and East.

In one respect, Kalecki's contribution to socialist economics has not yet been tested – i.e., the viability of his model of socialist organisation – since the combination of central planning and workers' control has not been realised anywhere. That model was more the product of Polish conditions in the 1960s than perhaps anything else produced by Kalecki; it may be no accident that he decided to include almost none of his papers on the subject in his *Selected Papers* on socialism (Kalecki, 1972), though pessimism on workers' powers, which was justified in 1968 Poland, might not be justified today, after the explosive effects of workers' discontent in 1980–81 Poland, and in the reform climate set by Gorbachev. Kalecki's qualms about market prices, the risks of unemployment associated with decentralisation and the risks of central planning without workers' control, however, remain as valid and relevant today as ever.

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