Michal Kalecki's Economics: An Appreciation

I

The English edition of Michal Kalecki's *Theory of Growth in a Socialist Economy* appeared just before his death on 17 April 1970, in Warsaw. A wider public was thereby enabled to study a more complete version of a lifetime project on which Kalecki had been engaged—to analyse, with mathematical methods of research and an understanding of political and social realities, the 'laws of motion' or economic dynamics of the capitalist economy, the underdeveloped economy, and the socialist economy.

For there was a definite philosophy—derived from Marx—behind Kalecki's diagnosis of economic systems. He never saw economics as an a-historical science of man dealing with the allocation of scarce resources, but insisted that to understand the econometrics or the growth models which illustrate economic choices made by society as a whole, it is necessary to study historically determined 'modes of production' as unities of 'productive forces' (technology, capital accumulation) and 'productive relation' (income distribution between social classes). Thus one of Kalecki's articles was provocatively titled 'Econometric Model and Historical Materialism'[1] in which he argued that a suitable econometric model will be one in which changes in functional relationships are related to the process of development of society in its wider aspects. Applying these ideas as early as 1933 in his first book, *Essay on the Theory of the Trade Cycle* (English ed. 1935), Kalecki focused attention on social classes as a driving force in the economic life of a capitalist economy. He points out that the consumption and investment of capitalists are governed by one set of laws, the consumption of workers by another. One of his apparently startling propositions in the first book, and in *Theory of Economic Dynamics* (1954), is that the capitalists as a class earn as much as they spend, in contrast to the workers who tend to spend as much as they earn. For Kalecki showed that the profits of capitalists are determined by their consumption and their investment—what one capitalist spends on his own consumption or investment turns immediately into profit

[1] M. Kalecki, 'Econometric Model and Historical Materialism', in *On Political Economy and Econometrics. Essays in Honour of Oskar Lange* (English edition, Pergamon Press, Oxford, 1965), pp. 233-8.

for other capitalists. In this sense they are 'masters of their own fate', though their determination to be so depends on certain objective factors which cause profit fluctuation to occur 'with irresistible inevitability'.

In analysing India and other underdeveloped countries—usually as an official adviser to governments—Kalecki always put to the fore the institutional barriers to growth represented by the social structure in agriculture, the problem of disincentives in exploited sectors and the need to involve the poorer classes in the process of economic development. He pointed out repeatedly[2] that in such underdeveloped 'mixed' economies, a situation of scarce supplies of necessities always involves inflationary pressures in which the broad poverty-stricken masses bear the burden of high investment: and this can only be reversed if room is made for investment, by restraint on the consumption of non-essentials out of high incomes. Kalecki usually advocated strict fiscal policies to bring this about. In this sense he protects the larger class of poor against the effects of the class incomes of the wealthier by levying indirect taxes on non-essentials. In an underdeveloped mixed economy the indirect tax, regarded in the West as regressive in its burden, becomes in fact a 'progressive' tax.

In the socialist economy, once certain major bottlenecks have been overcome, the aim of economic development is to maximize the consumed part of national income through investment in a way that reverses the relationship within the capitalist economy whose basic aim is 'production for production's sake' or capital accumulation for the sake of accumulation. This was one of Kalecki's favourite paradoxes, along with the one coined by Oskar Lange that 'Marxian economics is the political economy of capitalism while bourgeois economics is the economics of socialism'. The paradox that capitalism sacrifices to maximize accumulation while socialism struggles with the contradiction between its aim (maximum consumption) and its means (the rate of accumulation) probably reflects also the influence of Marx with his dictum 'Accumulate! Accumulate! that is Moses and the Prophets'.[3]

II

Kalecki's work on economic dynamics for the capitalist economy began with his *Essay on the Theory of the Trade Cycle* which was first published in Polish in 1933. It was expanded into his 'Essai d'une theorie du mouvement cyclyque des affairs' in *Revue d'Économie Politique* (1935), and 'A Macrodynamic Theory of Business Cycles'

[2] M. Kalecki, 'Problems of Financing Economic Development in a Mixed Economy', paper presented at UNESCO seminar, Sao Paulo, January 1963; see also *idem*, 'Theories of Growth in Different Social Systems', *Scientia*, Series VII, May-June 1970, pp. 311-16.

[3] In 1803 Hegel drew attention to something that Ricardo stressed and Marx described as animating the entire capitalized economy—the process of production for production's sake. See G. W. F. Hegel, quoted in J. Hyppolite, *Studies on Marx and Hegel* (English edition, Basic Books, New York, 1969), p. 80.

Econometrica (1935). There followed his *Essays in the Theory of Economic Fluctuations* (1939), *Studies in Economic Dynamics* (1943), and *Theory of Economic Dynamics* (1954). His more recent explorations were, 'Observations on the Theory of Growth' (*Economic Journal*, March 1962), and 'Trend and Business Cycles Reconsidered' (*Economic Journal*, June 1968).

Concerning the earlier works and their relationship to the work of Keynes, quite a lot of things have been written in scattered places in recent years, and it will be useful to summarize them here. It was Lawrence Klein who first drew attention to the similarities between Kalecki's neo-Marxian model and Keynes's work.[4] Later, Klein stated this relationship more explicitly:

> 'In the past few years I have begun to wonder why Keynes's *General Theory* was so successful in gaining professional interest and whether the same ideas were not actually coming independently from other sources. At the theoretical level, others had some ideas about isolated aspects of economic behavior relevant to a self-contained, general theory of employment; but almost none, it appears, had the insight to bring all the relations together into one system. Keynes's spark of genius was just this. Recently, 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. Kalecki does not deal at all with liquidity preference and the interest rate; yet I believe that he has a theory of employment that is the equal of Keynes's. Kalecki's theory attracted attention for reasons largely unrelated to its revolutionary statement of the theory of employment, and he certainly lacked Keynes's reputation or ability to draw world-wide attention; hence his achievement is relatively unnoticed.
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> 'Some aspects in which Kalecki's model is superior are that it is explicitly dynamic; it takes income distribution as well as level into account; and it makes the important distinction between investment orders and investment outlays. The dynamics of Kalecki's model attracted interest immediately. He did not go into the problem of unemployment equilibrium and the contrast with classical theory; indeed, his model contrasts with classical ideas on the possibility of achieving a stable solution. His consumption function is constructed with a unit marginal (and average) propensity to consume for workers and a value between zero and unity for the marginal propensity to consume of others. A more realistic view would have permitted the workers' marginal propensity to be less than unity and greater than the other marginal propensity—but surely this is a refinement.'[5]

[4] L. R. Klein, 'Theories of Effective Demand and Employment', *Journal of Political Economy*, Vol. LV, April 1947, p. 125.

[5] L. R. Klein, 'The Life of John Maynard Keynes', *Journal of Political Economy*, Vol. LIX, October 1951, pp. 447-8.

In 1959, Lange observed in the Polish edition of his *Political Economy* that 'the model worked out by M. Kalecki . . . is often wrongly reckoned with those based on Keynes's theory; in fact it is derived from the Marxist theory of reproduction and accumulation'.[6] Next, Joan Robinson recalled 'Keynes rebelling against orthodoxy, the Swedish economists following up the tentative insights of Wicksell, and Kalecki working with Marx's schema of reproduction, were converging upon the theory of effective demand'.[7] Later Mrs Robinson took up this theme in more detail and with characteristic pungency.[8] She argued that Kalecki preceded Keynes on the fundamental conclusion that an increase in investment does not require a prior decision to increase saving. For Kalecki showed that firms and governments are free to raise their rate of outlay on investment at any time and, when they do, saving will increase to the corresponding extent. In Keynes's version of this theory there was confusion between the equality of saving 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 increase in saving, while a decision to increase saving will not. Popularizers added confusion to the issue.[9] However,

> '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 profit to whatever extent is required to raise saving out of profits to the corresponding extent.'[10]

Elsewhere Mrs Robinson explains[11] that the work of Kalecki (and

[6] O. Lange, *Political Economy*, Vol. 1 (English edition, Macmillan, New York, 1963), p. 309.

[7] Joan Robinson, 'The Final End of *Laissez-Faire*', *New Left Review*, No. 26, 1964, p. 309, reprinted in *idem*, *Collected Economic Papers*, Vol. 3 (Blackwell, Oxford, 1965).

[8] Joan Robinson, 'Kalecki and Keynes', in *Problems in Economic Dynamics and Planning. Essays in Honour of Michal Kalecki* (English edition, Pergamon Press, Oxford, 1966), pp. 335-41, reprinted in *idem*, *Collected Economic Papers*, Vol. 3; *idem*, Introduction to English edition of M. Kalecki, *Studies in the Theory of Business Cycles 1933-1939* (Blackwell, Oxford, 1966).

[9] Mrs Robinson does not give examples of the popularizers, but one who comes to mind is W. Fellner in H. S. Ellis (ed.), *A Survey of Contemporary Economics* (Blakiston, Philadelphia, 1949). Fellner points out (p. 53) that the Keynesian theory developed in terms of simultaneous, realized variables merely states an accounting identity or implies the unlikely situation in which realized and expected magnitudes are equal. Fellner does not appreciate that the *ex post* identity of saving and investment is an expression of their essential unity as opposite aspects of the one process, analogous to the *ex post* identity of sales and purchases. Higher levels of saving are maintained only if planned investment is brought nearer to an increased level of saving such that involuntary changes in stocks are unimportant—something more than a mere accounting identity is involved.

[10] Robinson, Introduction, *Studies in the Theory of Business Cycles 1933-1939*, p. ix.

[11] Robinson, 'Kalecki and Keynes', p. 337.

of Myrdal's *Monetary Equilibrium*) did not create the same sensation as Keynes's work because it went straight into a theory of the trade cycle rather than basing itself on the multiplier and an attack on Cambridge orthodoxy—and new work on the trade cycle did not create the same interest as a clear break with tradition. Mrs Robinson's provocative conclusion was that 'Kalecki had one great advantage over Keynes—he had never learned orthodox economics . . . the only economics he had studied was Marx.' Kahn 'explained the problem of saving and investment by imagining a cordon around the capital-good industries and then studying the trade between them and the consumption-good industries; he was struggling to rediscover Marx's scheme. Kalecki began at that point'.[12]

The conclusion drawn by Mrs Robinson was that 'Michal Kalecki's claim to priority of publication is indisputable'.[13] In particular, there are three 'Keynesian' ideas on which Kalecki contributed a clear analysis in 1933-35.

The first of these issues was the role of the degree of monopoly. In 1935 Kalecki had shown that if prices are sticky, a cut in money wage rates actually reduces employment.[14] Here, and in *Theory of Economic Dynamics*, Kalecki marries the theory of imperfect competition with the theory of effective demand and uses the degree of monopoly not only to explain income distribution (the share of wages being determined by the degree of monopoly and the price of basic raw materials) but also as the pivot of an internal endogenous theory of investment and cycles.[15] Starting with the premise that entrepreneurs invest because they have saved in the past, Kalecki argues that the rate of investment is determined by the relative indebtedness of business and the degree of utilization of capacity.

The first of these is influenced by the principle of increasing risks: the greater the internal saving of business in relation to external indebtedness, the greater the inducement to invest, and the smaller the ratio of internal saving to external indebtedness, the smaller the incentive to investment. The other factor is the degree of utilization of capacity. In a capitalist economy, excess capacity inhibits investment, but is also inevitable. While a factory is being built, it engages labour either on construction or in making the capital goods required for it. In turn, the production of the consumer goods needed by these workers provides employment for others. All this results in increased employment and higher income. Once the factory is completed, however, the situation changes radically. The construction workers and those who were making capital for it can lose their jobs. Not only that: the new factory starts manufacturing goods which seek a market, and the productive character of investment may turn out to be a curse if

[12] Ibid., p. 338.
[13] Ibid., p. 337.
[14] M. Kalecki, 'Money and Real Wages', in his *Studies in the Theory of Business Cycles 1933-1939*.
[15] Kalecki's influence is most notable in J. Steindl, *Maturity and Stagnation in American Capitalism* (Blackwell, Oxford, 1952).

it leads to limitation and reduction of output with inadequate effective demand. 'Here we have one of the most notable paradoxes of the capitalist system', writes Kalecki. 'The raising of productive capacities bears the germ of a crisis during which enrichment proves to be merely potential because an appreciable part of productive capacities stands idle and becomes useful only with the next upswing'.[16]

Moreover, the amount of excess capacity is influenced by the degree of monopoly.[17] In the oligopolistic sector of the economy, inelastic profit margins make it difficult to eliminate excess capacity. A check to investment is always on the cards. With the share of profits determined by investment and capitalists consuming at a given rate of investment, any increased share of profit accruing to the monopoly sector reduces the rate of profit in the competitive sector and cuts back the internal accumulation and rate of investment of that sector. This reduction in investment cannot be offset by more investment in the monopoly sector where the marginal rate of profit will be low. A check to the general rate of investment leads to excess capacity. In a competitive régime this would be eliminated by price-cutting and the demise of marginal firms. But the monopolistic sector has inflexible profit margins and, in the face of a fall in demand, excess capacity remains.

The second important contribution of Kalecki involves the role of the rate of interest. In Keynes's analysis the use of the marginal efficiency of capital enables a schedule of possible investment projects to be constructed in descending orders of profitability, allowing for risk. The schedule's cut-off point is where the expected rate of profit is equal to the rate of interest to be paid for external finance, and this equality determines the total value of investment to be undertaken. What worries Kalecki is that enterprises under these circumstances might be willing to carry out indefinitely large amounts of investment provided prospective profit rates remain high. No limit is imposed by the rising cost of capital goods emerging in the wake of a faster rate of investment, for such a rise in costs is a result of active investment *ex post* while prospective profit rates concern *ex ante* investment plans.[18] Kalecki's answer is that no firm can command an indefinitely large amount of finance at a given rate of interest, because of increasing risk. The amount of finance committed to investment is an increasing function of the prospective rate of profit, depending on the ratio of borrowing to internal funds. A third feature of Kalecki's early work, pre-dating the Keynesian revolution, was that, like the Swedes, he assumed that the rate of interest is a monetary phenomenon.

In his two *Economic Journal* articles of the 1960s, Kalecki had a number of very wise things to say about the theory of economic

[16] M. Kalecki, *Essay on the Theory of the Trade Cycle* (Warsaw, 1933), p. 49.

[17] M. Kalecki, *Theory of Economic Dynamics* (Allen and Unwin, London, 1954), Chapters 1 and 2.

[18] Robinson, Introduction, *Studies in the Theory of Business Cycles 1933-1939*, p. x.

growth. In general, he felt that a majority of growth models in Western economics have been related to an *idealized laissez-faire* world. This leads to three serious weaknesses.

First, the factor of effective demand has tended to be disregarded, or else assumed to be unimportant—apart from the business cycle. In addition, effective demand is missing from the picture in the two most widely-used approaches: (a) when growth is at an equilibrium (Harrodian) rate, the increase in investment is just sufficient to generate effective demand matching the new productive capacities which the level of investment creates; (b) whatever the rate of growth, productive resources are assumed to be fully utilized because of long-run price flexibility—prices, in relation to wages, are pushed up to the point where the real income of labour and hence worker consumption is adequate to allow the absorption of full employment national product. Kalecki strongly criticizes the neglect of effective demand in growth models. He reminds us that the trend represented by case (a) above is unstable: any small fortuitous decline in the rate of growth involves a reduction of investment (and of national income) in relation to the stock of equipment, which affects investment adversely and induces a further fall in the rate of growth.[19] He describes as 'mathematically indefensible' the belief that such disturbances involve only a downswing followed by an upswing in relation to equilibrium growth paths—that it yields a trend cum business cycle. The underlying equations are not capable of producing a solution corresponding to a combination of an exponential curve and a sine line. Nor does Kalecki subscribe to the assumption of long-run price flexibility underlying theories of type (b). On the contrary, he argues, the semi-monopolistic factors involved in fixing prices affect the relationship of prices and wage costs both in the course of the business cycle and in the long run.[20]

The second weakness of Western growth models for Kalecki concerns the use of comparative statics: in particular, the problem of what capital-output ratio secures the highest real wage rate in a uniformly expanding system with full employment is seen by him as a misleading issue. For if the initial capital-output ratio is less, the 're-tooling' of the stock of capital needed to achieve such a golden age involves a longer period of higher investment in the early part of which the real wage would fare far worse than if no change in capital-output were attempted.

A third criticism involves the neglect, in Western growth models, of the problem of long-run development bottlenecks. As the growth of national income accelerates, the expansion of certain industries lags behind the rise in the demand for their products because of organizational and technological problems. The resulting gaps have

[19] M. Kalecki, 'Observations on the Theory of Growth', *Economic Journal*, Vol. LXXII, March 1962, pp. 134-6.

[20] M. Kalecki, 'Trend and Business Cycles Reconsidered', *Economic Journal*, Vol. LXXVIII, June 1968, p. 276.

to be made good by foreign trade, forcing import replacement to maintain the balance of trade (except where the demand for exports is highly elastic). Such operations are usually accompanied by higher outlays of capital and labour, and in this way profoundly influence the problems of analysing the rate of economic growth.

III

Many of these weaknesses of growth theory are tackled by Kalecki when he turns his attention to the theory of growth in a socialist economy.

Take the problem of the relationship between capital-output ratio, stock of capital and rate of investment. Kalecki discusses at some length[21] the impact of shifts in the production function on the growth rate of labour productivity, *beyond* the re-adjustment to a higher capital-output ratio; he is interested in the behaviour of the economic system after the phase of 're-tooling' up to a higher capital intensity has come to an end, and illustrates the various manoeuvres open to the planner according to the nature of technical progress assumed. Again, much attention is given to ceilings imposed by bottlenecks and organizational factors which are brought in at every point to modify the more general results of analysing possible growth rates through the interaction of the rate of investment, the capital-output ratio, and the contributions of employment and technical progress.[22]

After some very interesting remarks about the definitions of investment and national product (in which the value added rather than Marxian gross material product is found to be more useful), Kalecki sets out his fundamental growth equation[23] on which the analysis pivots and is made more and more 'concrete' as complicating factors (changes in employment levels, changing types of technical progress, unequal durabilities of capital, rejuvenation of the capital stock) are successively introduced.

The model denotes the level of real national income in a given year by Y and the increment of that income from the beginning to the end of the year by ΔY. The latter will consist of three elements: (a) the productive effect of gross investment $\frac{1}{m} I$, where m is the capital-output ratio and I the level of gross investment; (b) the negative effect of the shrinkage of productive capacity as a result of scrapping obsolete equipment, given by $-aY$; and (c) the increase of national income due to better utilization of the existing productive capacities as a result of organizational improvement denoted by u.

[21] M. Kalecki, *Introduction to the Theory of Growth in a Socialist Economy* (Blackwell, Oxford, 1969), Chapters 10 and 11.

[22] Ibid., Chapters 4-6.

[23] For two excellent full-scale reviews of *Introduction to the Theory of Growth in a Socialist Economy*, see A. Zauberman, 'A Few Remarks on Kalecki's Theory of Economic Growth under Socialism', *Kyklos*, Vol. XIX, No. 3, 1966, pp. 411-23; and G. R. Feiwel, 'Towards a Theory of Growth of a Centrally Planned Economy' *Soviet Studies*, Vol. XXII, July 1970, pp. 122-34.

We thus obtain:

$$Y = \frac{1}{m} \cdot I - aY + uY$$

$$r = \frac{\Delta Y}{Y} = \frac{1}{m} \cdot \frac{I}{Y} - a + u,$$

where r is the rate of growth of national income.

In a socialist economy all three coefficients m, a and u will be determined on the supply side: m and a depend on the decision of planning authorites as to technique of production (capital-intensity of new production and obsolescence policy); u represents improved organization.

However, this Harrod-Domar type growth equation is only the first peg on which to hang the very complicated arguments which are to follow on his simplified architecture. He starts with steady growth: m, a and u constant, identical pace of capital accumulation and consumption. Acceleration of growth is then considered under full employment with various kinds of technical progress. Kalecki asks how the growth rate of a system emerging from a re-tooling period could be preserved beyond that period, and this brings him to the question of the 'government decision function'[24]—the need to balance out the depressing effect on consumption of the rising accumulation rate and the stimulating effect of the maintained r.

Underlying the whole argument is the view that a socialist economy can arrange its investment programme so that effective demand is 'de-fetishized', and is cut down to a role in which it is not a factor determining economic growth but a factor determined by the productive possibilities of society at a given time. In the final analysis demand is determined by investment; however, this is done through its capacity-effect and not its income-effect. For in the socialist economy investments are desirable not because they enable an employment of productive factors that would otherwise stand idle, but because they make it possible to raise income and consumption. It is not marketing but production that is the most difficult point in socialist economic growth, since productive possibilities lag behind the growing needs for consumer goods. Given a certain volume of national income, there is a contradiction between consumption as the aim of socialist production and investment which is the means towards achieving the aim in the future.

It follows that fixing the rate of increase of national income is the most important and most difficult macro-economic decision in the socialist state. It has definite political overtones and cannot be reduced simply to economic elements: to illustrate the problem, the 'government decision curve' is introduced,[25] which exemplifies the attitude

[24] Kalecki, *Introduction to the Theory of Growth in a Socialist Economy*, Chapters 2 and 3.

[25] Ibid., p. 33.

of the government to 'sacrificing jam today for jam tomorrow'. Although the curve is not quantitatively measurable, a number of measurable factors—employment, labour productivity, return on assets—can help to prevent government voluntarism in fixing the rate of economic growth.[26]

The bulk of the rest of the book is devoted to showing the link between these measurable factors and the consumption-investment decision under conditions of limited and unlimited resources of manpower and with varying assumptions about the rate of increase of labour productivity, while not neglecting the ever-present barriers and bottlenecks that make themselves felt independently of the restraint represented by the interests of present consumers. These include a long gestation period in some industries, the difficulties peculiar to agricultural production and the foreign trade barrier. While all can be 'shifted' to some degree, the 'shifting' is apt to involve additional costs that must be taken into account when calculating the advantages and disadvantages involved in attempting to overwhelm these barriers.

Reviewers have rightly pointed out that Kalecki is laconic, over-economical and over-concise in his presentation. He does not elaborate on the implications of his theoretical scaffolding (factor productivities are treated in physical terms; optimality of scale is often implicitly assumed; returns to scale are not analysed). However, all agree on the characteristic brilliance of his presentation and the unique marriage of his thought *qua* planner and *qua* theoretical economist.

IV

After 1950 Kalecki was closely associated with top-level economic planning in Poland. His model of growth in a socialist economy was largely based on practical experience in planning, as well as on intuitive insights. Broadly, Kalecki was of the 'genetic' rather than the 'teleological' school of planners—he was interested in extrapolation of trends and a close study of technical bottlenecks as constraints on planning[27] rather than a follower of the proposition that 'there are no fortresses that the Bolsheviks cannot storm'. He was said to have told Gumulka, during discussions of one five-year plan, that the 'economy is not the same as a jet plane'. Kalecki was also the author of that fashionable joke around the economics profession in Eastern Europe: 'the rate of economic growth is a diminishing function of the quality of the planners'.

In particular, Kalecki focused attention on the need for plans to take into account technological and organizational factors that form 'ceilings' on the expansion of particular industries: the time necessary to adapt new techniques of production, shortages of skilled labour, the construction period in investment projects. He showed that with

[26] Ibid., Chapters 4 and 5.

[27] See especially M. Kalecki, 'Some Theoretical Problems of Long-run Planning on Bottlenecks in the Long-run Plan', *Review of the Polish Academy of Sciences*, Vol. III, No. 3-4, 1958, pp. 11-12.

a given rate of investment in a particular industry, the number of establishments under construction is proportionate to the construction period, and that the practicable investment effect in terms of productive capacity is, with a given technical and organizational potential of plant construction, in inverse proportion to the coefficient of capital intensity and the construction period.[28] Kalecki therefore advocated the employment, in Polish industry, of techniques that would decrease capital intensity of investment or shorten the period of plant construction. He made repeated attempts to eliminate the situation in Poland where outlays for the 'shells' of industrial establishments were abnormally high in relation to the value of equipment proper. This approach brought him into conflict with the Dobb-Sen school of Marxist economists who favour the choice of 'superior' techniques of a more capital-intensive kind because they gear it to the criterion of 'maximizing surplus' under all circumstances. Kalecki opposed this, and denied that a loss in capital-intensive technique always involved lower surplus per worker or lower output per unit of investment than a more mechanized one. And, as an adviser on economic development to the Mongolian Peoples' Republic, Kalecki recommended strongly against crash industrialization and the widespread introduction of highly automatic equipment.

It was in connection with the problem of investment-choice that Kalecki made a number of theoretical innovations, drawing attention to the need for investment-choice to take into account gestation lags, the period of 'freezing of capital', different durabilities of equipment, and the effect of investment-choice on the labour balance.[29]

In his planning work, Kalecki was guided by his conviction that 'socialism emerges as a system which makes possible a full and rational utilization of the economic surplus for the benefit of the present and future consumption of the working population'.[30] However, planning had to be realistic, and the best 'economic reform' was a well-worked out plan and an intelligent investment programme[31] rather than a reconversion to a market-socialist system. This led Kalecki not only to be sceptical about the Yugoslav system (which he felt was featured by monopolitic competition with its corresponding excess capacities, irrational prices and arbitrary profit-taking) but also to find virtues in central planners—something rather rare in Eastern Europe between 1956 and 1966. For instance, he opposed the demands of market-

[28] For further details, see T. K. T. Acharya and B. J. McFarlane, 'Bottlenecks in the Context of Economic Development of Under-developed Countries', *Asian Economic Review*, Vol. VIII, August 1966.

[29] M. Kalecki and M. Rakowski, 'Generalizing the Formula for the Effectiveness of Investment', *Inwestycje i Budownictwo*, No. 11, 1959, pp. 6-9.

[30] M. Kalecki, 'On Paul Baran's Political Economy of Growth', *Monthly Review*, November 1965, p. 60.

[31] In his *Introduction to the Theory of Growth in a Socialist Economy*, Kalecki concluded that 'adherence to the rule of feasibility of the plan and consideration of the pattern of present consumption enjoin caution in fixing the rate of growth. Nevertheless, avoidance of waste and concern for the effectiveness of investment make it possible to maintain it at a relatively high level.'

socialist enthusiasts for removal of subsidies on food and fuel, pointing out that under conditions of excess demand any 'freeing' of the price mechanism would produce 'equilibrium' prices at a very high level. Not only would this lead, possibly, to windfall profits rather than higher output, but it would decrease the real wages of the work force as the price of necessaries rose. The Polish food riots of December 1970 indicate Kalecki's prescience in this regard.

This was not only a matter of Kalecki having a certain political *nous*. It was the result of a real concern to protect the standard of living of the working class. He pointed out, as a further example, that war-time rationing in Great Britain had given a diet and clothing to working-class children to a standard often not reached in that country today.

In the discussions amongst Polish economists and planners about the 'new economic model', Kalecki was most explicit in his rejection of the 'automatism' of prices: he predicted that price manipulations would not have sufficient impact on socialized enterprises to effect those sweeping changes in resource allocation that frequently had to be made in the periods of stress accompanying rapid economic development. Without administrative orders to reinforce the financial pressures transmitted through the price mechanism, it would take too long to curb the consumption of scarce materials and labour.[32]

It was the central planning of investment that still had the biggest role to play in delineating the economic patterns to be pursued.

V

Kalecki acted as an economic adviser also to the governments of India, Mongolia and Cuba (for which country he prepared an outline of the first five-year plan for economic development). The general 'line' he took in relation to economic development of underdeveloped areas may be summarized as follows.

1. It is important at all costs to avoid inflationary price increases of necessities, in particular of staple foods.

2. No taxes should be levied on lower income groups or on necessities, so that the restraining of consumer demand must be effected through raising direct taxes on higher income groups or indirect taxes on non-essentials. (In India, he pointed out, the list of non-essentials —goods never purchased by the great mass of people—was a rather long one, including sugar, fine cloths, electricity, furniture, household appliances and utensils, housing and amusements.)

3. It is absolutely necessary to break the hold of money-lenders and merchant speculators by the establishment of agricultural banks, a network of wholesale purchasing agencies and a steady supply of cheap fertilizers. This will help to augment the supply of staples by removing disincentives.

[32] J. M. Montias, *Central Planning in Poland* (Yale University Press, New Haven, Conn., 1962), p. 276.

4. The level of private investment should be controlled to prevent inflation.

5. Economic plans should be geared to ceilings and bottlenecks and should not jump from ceiling to ceiling without due attention to the foreign trade balance.

6. Foreign aid should be treated cautiously. It can assist an economy to obtain a higher level of economic activity, but it should not (a) compete with domestic public expenditures; (b) release foreign exchange for luxury imports; or (c) release local savings for additional consumption of luxuries by forgoing the taxation of higher income groups and/or 'non-essential' goods.[33]

In general, Kalecki's work in this field is characterized by a blending of analysis of institutional and organizational barriers to growth with econometric work, rather than by a diagnosing of the 'underdevelopment' question in terms of a shortage of finance, which he regarded as perhaps the least serious problem.

VI

Kalecki's own words on the occasion of his receiving an honorary doctorate from Warsaw University aptly sum up his own contribution:

> 'In its most general aspects economics bears some resemblances to theoretical physics. Both are quantitative disciplines which, on the basis of general premises derived from the knowledge of real phenomena, develop a deductive system which is then confronted with the external world. Yet how much economics lags behind physics as a science . . .
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> 'The theory of economic growth is surely a deductive discipline, but the deductions do not fully determine the course of economic development since external factors are so important, yet are assumed as given. Differences of opinion arise because of our being only on the threshold of developing this extremely complicated discipline. We are still far from mastering even its most essential issues. There is a tendency to present as axioms assertions which in fact require a proof and which, on closer examination, do not always turn out to be tenable. I tried to the best of my ability to overcome the imprecisions of political economy.'[34]

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[33] M. Kalecki and I. Sachs, 'Forms of Foreign Aid: An Economic Analysis', *Information Sur Les Sciences Sociale*, Vol. V, March 1966.

[34] M. Kalecki, 'Why is Economics Not Yet an Exact Science?', *Polish Perspectives*, 1965, pp. 64-8.