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JOAN ROBINSON'S THEORY OF ECONOMIC GROWTH*

LUDO CUYVERS

DISSENTERS FROM MARXISM have often inspired original thought about, or revived interest in, Marxism, and more than once, a thorough discussion of their views has led to penetrating research from which the further development of Marxism benefited greatly. An obvious example is the recent controversy about Sraffa's *Production of Commodities by Means of Commodities* and Marx's theory of value and exploitation. Sraffa's system, however, is only one of the Cambridge contributions. The very poor state of the discussions among Marxists of the Cambridge theories of economic growth is evidence of the need for consideration of another discovery of Marx, namely, the laws of motion of capitalism. A great deal of vital controversy and rethinking of the Marxist theory of accumulation, therefore, is still to come.

The aim of the present essay is to provide some material for this discussion by focusing on some essentially Marxist and Neo-Marxist characteristics in Joan Robinson's version of the Cambridge theory of economic growth. Among the economists of the Cambridge School, Professor Robinson is certainly one of the most distinguished. In many publications since 1936, she has expressed her indebtedness to Kalecki. On other occasions, she has also dealt with Marx, suggesting that her views are, in some way or other, connected with post-Keynesian Neo-Marxism. As early as 1942, she concluded that:

* We are much indebted to Professor Joan Robinson and to Professor John Eatwell for most helpful discussions of issues dealt with in this paper, and to Professor David Laibman for his comments on an earlier draft. Obviously we assume sole responsibility for all the views expressed.

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if there is any hope of progress in economics at all, it must be in using academic methods to solve the problems posed by Marx.[1]

Bronfenbrenner[2] has called this sentence a "methodological manifesto." We will attempt to show, however, that Robinson's "academic methods" are also often inspired by Marx, Kalecki, and others.

Throughout this paper we use the label "Neo-Marxist" to designate a current in contemporary economic thought aiming at a reformulation and reinterpretation of Marx's main theses in the light of Keynesian and post-Keynesian contributions to the understanding of the working of capitalism.[3] We will examine Robinson's contributions to the theory of economic growth, paying heed to the Anglo-Saxon Marxist and Neo-Marxist theories of the 1950s and 1960s, and point out the essentially Neo-Marxist view behind most of her theorems.[4]

This Neo-Marxist current originated in the writings of Michal Kalecki, who, according to Ernest Mandel, made the "most advanced attempt to combine the Marxist methods of research with econometrics."[5] Although not very apparent in Kalecki's early work on business cycle theory, a Luxemburgist-underconsumptionist influence can easily be demonstrated in his

1 J. Robinson, *An Essay on Marxian Economics*, 2nd edition (London-New York, 1967), p. 95.

2 M. Bronfenbrenner, "Academic Methods for Marxian Problems," *Journal of Political Economy*, December 1957, 535.

3 Professor Robinson duly claims to have explained Marxist theory in post-Keynesian language. Nevertheless she has expressed to us in conversation and correspondence her dislike of such labels as "Neo-Marxist."

4 The reader should be warned, however, not to look at the Neo-Marxist characteristics in Robinson's theory of economic growth, mentioned in this essay, as reflecting some Marxist or Neo-Marxist influence *per se*. Such illegitimate intermingling of influences and characteristics leaves no scope for Robinson's original contributions to contemporary Neo-Marxism. Therefore, unless indicated explicitly as influence, we rather consider all important conformities or resemblances of Robinsonian ideas with views expressed by Marx, Kalecki, and others, to be evidence of Marxist or Neo-Marxist characteristics. On the other hand, we will deal only briefly in this essay with the influence of the work of Sraffa on Robinson's economic thought. It is our firm belief that this influence can be given its due place only when put in the Neo-Marxist framework of the Robinsonian theory of growth. It should be noted that Sraffa's *Production of Commodities by Means of Commodities* has also inspired a number of Marxist and Neo-Marxist scholars.

5 E. Mandel, *Der Spätkapitalismus* (Frankfurt am Main, 1972), p. 35.

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Theory of Economic Dynamics of 1954. Two years earlier, Steindl, a collaborator of Kalecki at the Oxford University Institute of Statistics during the early 1940s, had pointed, in his *Maturity and Stagnation in American Capitalism*, to the importance of Kalecki's dynamics for Marxist economic theory, especially for an understanding of the "realization problem," when applied to the analysis of the long-run. Kalecki and Steindl, although much neglected, both inspired further developments of post-Keynesian Neo-Marxism in the more popular writings of Baran and Sweezy, and in the esoteric, highly academic work of Robinson. Their attempts to reformulate theses put forward by Marx and Rosa Luxemburg in the light of Keynes's main ideas, met with overt hostility in the profession. The influence of the Keynesian theory of effective demand on the Neo-Marxists is very great indeed, the more so as Kalecki discovered its main points independently, starting from Marx's schemes of reproduction.[6] As a result, the distinction between "left-wing Keynesianism" and "post-Keynesian Neo-Marxism" is not always clearcut, although apart from some borderline cases, the intellectual inclination towards Marx and Marxism is in our opinion decisive.

I. *Some Introductory Remarks on Robinson, Sraffa and Marx's "Law of Value"*

Marxists have often been irritated by Robinson's provocative statements on the "irrelevance" and "metaphysical" character of the labor theory of value. Although we are less concerned with value in this paper, it may be of interest to focus on the similarity between Robinson and Sraffa on prices of production. Harcourt has said:

> Sraffa's *Production of Commodities by Means of Commodities* had an incredibly long gestation period . . . and Joan Robinson in particular acknowledges her indebtedness, for the development of her own analysis and views, to the hints of what was to come contained in Sraffa's introduction to the volumes of Ricardo's works and correspondence . . . .[7]

6 J. Robinson, "Kalecki and Keynes," in *Problems of Economic Dynamics and Planning* (Warsaw, 1966), p. 338. See also T. Kowalik, "Biography of Michal Kalecki," in *ibid.*, p. 2.

7 G.C. Harcourt, "Some Cambridge Controversies in the Theory of Capital," *Journal of Economic Literature*, Vol. VII, no. 2, June 1969, 369–70.

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It can easily be shown that the basic Robinsonian model is a Marx-Sraffa-like linear model. In its simplest version it assumes that labor is the only unproduced "factor of production,"[8] an assumption which is qualified at a later stage, when it is asserted that:

From a long-run point of view, labor and natural resources are the factors of production in the economy as a whole while capital goods, and the time pattern of production are the means by which the factors are deployed.[9]

At another place Robinson states:

... Marx's refusal to treat capital as a factor of production seems well founded. Whether it is right to regard natural resources in the same way is more dubious, though to do so may have been a helpful stage in the development of thought.[10]

The reader will notice the similarity to Marx's way of looking at the means of production, and to his thesis on labor productivity, as determined within given natural constraints.[11] Marx's views on differential rent should be remembered as well.

Since the Robinsonian static model assumes constant input coefficients[12] and homogeneous labor,[13] it is not surprising to find that her "normal prices" are actually identical with Marx's "prices of production" or with the prices in Sraffa's system, i.e., a sum of dated labor time.[14] Robinsonian "normal prices" are long-term prices determined by the inter-industry structure of physical input requirements, ignoring short-period fluctuations in demand relative to supply.[15] They are intended to fulfill some important theoretical and analytical requirements of the study of the "laws of motion" of capitalist society, within the Classical and Marxist tradition.

8 J. Robinson, *The Accumulation of Capital*, 3rd edition (London, 1969), p. 67.
9 *Ibid.*, pp. 310–11.
10 J. Robinson, "Notes on Marx and Marshall," *Collected Economic Papers* (Oxford, 1975), Vol. II, p. 19.
11 K. Marx, *Capital*, Vol. III (Chicago, 1909), p. 139.
12 J. Robinson, *The Accumulation of Capital*, pp. 65, 82–83n.
13 *Ibid.*, p. 64; also pp. 88, 115, 352.
14 *Ibid.*, p. 121; and J. Robinson, *Essays in the Theory of Economic Growth* (London, 1962), p. 89. See also J.A. Kregel, *Rate of Profit, Distribution and Growth: Two Views* (London-Basingstoke, 1971), p. 166.
15 J. Robinson, *The Accumulation of Capital*, pp. 356–57.

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All this evidently means that Robinson's attitude towards the labor theory of value is more complicated than one might conclude from her more popular writings (among Marxists rather "unpopular"), where value is called "just a word"[16] or "a metaphysical notion . . . quite devoid of operational meaning,"[17] on which "no point of substance in Marx's argument depends."[18] Robinson obviously refuses to investigate the "normal price" (or "price of production"), even when considered as a sum of dated quantities of labor time, in any other way than in its "phenomenal" or "empirical" form. This attitude has led her to some odd results, e.g., in the analysis of the economic surplus which, in her version, consists of a physical surplus of consumer goods essentially earmarked for the consumption of the workers employed in the capital goods department. As we shall argue in the next section, this surplus concept is close to the Marxist "material basis of class society," but unlike Marx's surplus value concept, rather remote from total profits. From a Marxist point of view, it can be advanced, for instance, that the existence of a surplus in the consumer goods department is a necessary, but not a sufficient condition for positive profits to be made, since the capital goods department must leave a physical surplus as well.[19] In addition, though a reproductive schema with vertically integrated departments can provide a handy didactic device to explain the mere existence of a surplus and the ways in which it can be realized, it can never explain the origin of this surplus.

II. The Robinsonian Surplus and Accumulation

A. The importance of the minimum real wage rate

According to Marx, accumulation is backed by the amount of surplus value produced, and simultaneously implies the realization, either partial or complete, of the surplus product of means of production and wage goods. Obviously Marx's dual surplus concept (as well as its precursors) requires for its identification the existence of a given subsistence wage rate, i.e., what

16 J. Robinson, *Economic Philosophy* (London, 1962), pp. 26, 47.
17 J. Robinson, *An Essay on Marxian Economics*, p. xi.
18 *Ibid.*, p. 22.
19 This amounts to the Hawkins-Simon condition for the matrix of physical inputs and workers' consumption coefficients.

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Marx calls the socially necessary consumption of the workers.

Robinson has similar ideas about the surplus in less developed economies and speaks, in this connection, of a "technical surplus available above subsistence wages for the workers employed."[20] The Robinsonian surplus differs, however, from the Marxian surplus product in that it consists solely of consumer goods. These can be used to pay the subsistence wages to the workers employed in the capital goods department and, consequently, to make accumulation possible.

Since Marx considers the existence of a physical surplus in agriculture as necessary for the appearance and existence of economic classes, the above version of the Robinsonian surplus can easily be viewed as Marxist in origin and design. At the same time it can be denoted as a Neo-Marxist concept as well, since it uses the Kaleckian consumer and capital goods departments, vertically integrated with their suppliers of material inputs, and avoids the labor theory of value. The Robinsonian surplus, then, emerges *ipso facto* from Robinson's reproduction schemes, as detached from the Marxian concept of exploitation, a result which is not unexpected since, unlike the Marxian schemes, Robinson's are used *to prove and explain* the mere existence of a surplus, as we pointed out above.

Contrary to the situation in underdeveloped economies, the surplus in a developed capitalist system is not limited by the subsistence wages of the workers employed, and hence is, strictly speaking, not a "technical surplus." The relevant surplus here is, according to Robinson, "above the level of real wages that the workers are willing to accept and able to enforce," i.e., the surplus above the "inflation barrier."[21]

As early as *An Essay on Marxian Economics* (1942) Robinson stated that Marx's theory of wages ought to be revised and adapted to the reality of the twentieth century.[22] We will argue that the "inflation barrier" concept is an essential Neo-Marxist element in the Robinsonian theory of growth.[23] The analogy

20 J. Robinson, *The Accumulation of Capital*, p. 83. See also the relation between this surplus concept and the measurement of growth potentialities of less developed countries or poor capitalist economies. *Cf.* J. Robinson, "Notes on the Theory of Economic Development," *Collected Economic Papers*, Vol. II, p. 97.

21 J. Robinson, *The Accumulation of Capital*, p. 83.

22 J. Robinson, *An Essay on Marxian Economics*, pp. 32–33.

23 We are indebted to Professor Robinson for having pointed out that she developed the

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between the "inflation barrier" and Marx's value of labor-power (interpreted by Robinson as a fixed subsistence wage rate) is striking indeed and has been noticed by Robinson. For example, she introduces the concept of a "bastard golden age" to designate the situation when the rate of accumulation is limited by the real wage rate, and she accordingly draws a distinction between a "low-level" and a "high-level" bastard golden age as the real wage rate is "at the minimum level tolerable" or at "a fairly high level of real wages when organized labor has the power to oppose any fall in the real-wage rate."[24]

Obviously, unlike the Marxian value of labor-power, Robinson's "inflation barrier" is unidentifiable with a basket of subsistence consumer goods, necessary on the average for the reproduction of the working class according to standards considered as "normal." The level of the "inflation barrier" is solely determined by trade union strength and hence is not fixed.[25]

Robinson has been deeply influenced by the Kaleckian concept of the "degree of monopoly," namely, its limitation by strengthened trade union power. According to Kalecki, the high ratio of profits to wages in the "boom" will stimulate the unions to claim higher wages. If the "degree of monopoly" is not sufficiently depressed, an inflationary spiral will set in.

> Thus, the degree of monopoly will be kept down to some extent by the activity of trade unions and this the more the stronger the trade unions are.[26]

It seems that Robinson has carried forward this Kaleckian view to the theory of the long-run. The "inflation barrier" and the surplus concept derived from it are therefore both original contributions to post-Keynesian Neo-Marxism, and prove to be rele-

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concept from British post-war experience; see also J. Robinson, "The Generalisation of the General Theory," in *The Rate of Interest and Other Essays* (London, 1952), p. 78. In our opinion the "inflation barrier" concept got its Neo-Marxist content in her later writings on the theory of growth.

24 J. Robinson, *On Re-Reading Marx* (Cambridge, 1953), pp. 52, 58.

25 Robinson's "inflation barrier" differs conceptually in one other major respect from Marx's value of labor-power. It limits the rate of accumulation only when organized labor is strong (mostly in the "boom" phase of the business cycle), and hence has nothing to do with the "normal working" of the capitalist system or with the "normal reproduction" of labor-power. We are much indebted to Dr. John Eatwell for having pointed this out.

26 M. Kalecki, *Theory of Economic Dynamics*, rev. 2nd edition (London, 1965), p. 18.

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vant for the current discussions around Sraffa's "surplus-wages" as well.

The analogy with certain ideas expressed by Steindl in *Maturity and Stagnation in American Capitalism* is also striking. Steindl pointed out in this book that during the Industrial Revolution profit margins were highly inelastic upwards as a result of low productivity and wages at the subsistence minimum. Consequently, a redistribution of income to profits in order to generate the savings corresponding to the desired rate of accumulation must have been very difficult.[27]

It is thus seen that the principal materials for the Robinsonian "inflation barrier" concept were present in English language Neo-Marxist literature between 1945 and 1955. Starting from such ideas as those of Kalecki and Steindl, a usually increasing "bottom" had to be put under the real wage rate, in order to let a minimum acceptable level set limits to the possible rate of accumulation and to the surplus. This is precisely what Robinson does, and what others have apparently failed to see.[28]

Finally, it is worth mentioning that Robinson's distinction between the "technical surplus available above subsistence wages for the workers employed" and "the surplus above the level of real wages that the workers are willing to accept and able to enforce,"[29] greatly resembles a similar distinction that Paul Baran developed in the same period, between the "potential" and the "actual" economic surplus of an economy.[30] Apart from the waste components in Baran's "potential economic surplus," his and Robinson's definitions make use of a notion of "essential consumption" to measure the growth potentialities of less developed and developing economies.[31]

27 J. Steindl, *Maturity and Stagnation in American Capitalism* (Oxford, 1952), p. 135.

28 *Cf.* N. Kaldor, "Alternative Theories of Distribution," in *Essays on Value and Distribution* (London, 1960), pp. 233–34.

29 J. Robinson, *The Accumulation of Capital*, p. 83.

30 P.A. Baran, *The Political Economy of Growth*, pp. 22–23. This distinction was first introduced in P. Baran, "Economic Progress and Economic Surplus," *Science & Society*, Vol. XVII, no. 4, Fall 1953, 292–93.

31 We are not suggesting that Robinson has been influenced by Baran. Prof. Robinson has emphasized in private correspondence that they were both working along the same tracks and that she had some discussions about *The Political Economy of Growth* with its author, but she did not think that they influenced each other.

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B. The "realization problem"

As is generally known, Marx was aware of the difference between produced and realized surplus value, but for the sake of convenience assumed their identity. Via Rosa Luxemburg and Kalecki the "realization problem" entered post-Keynesian Neo-Marxism. Kalecki was at pains to establish that the profits of the capitalists are "realized" by their spendings on investment and consumption, at least when workers do not save. His "capitalists get what they spend" principle is a modernized and attractive restatement of Marx's and Luxemburg's view.[32] But at the same time the "realization problem" took a Keynesian and Neo-Marxist shape in Kalecki's analysis when he let investment generate and, hence, precede savings:

> . . . profits in a given period are the direct outcome of capitalists' consumption and investment in that period. If investment increases by a certain amount, savings out of profits are *pro tanto* higher.[33]

When viewed as descending from Marx and Rosa Luxemburg, the "capitalists get what they spend" principle has become one of the cornerstones of Steindl's theory of self-perpetuating growth and of Baran's "potential economic surplus" concept,[34] as distinct from the "actual economic surplus." Viewed as a generalization of the Keynes' short-run causal theory, plus class antagonism, Kalecki's principle has penetrated into the Cambridge theories of economic growth, as is easily seen from the formula $r = g/(1-c_p)$.[35] It is, therefore, interesting to notice that Robinson,

32 This is easily seen when we consider the "physical" counterpart of Marx's surplus value, i.e., the surplus product consisting of a given mass of consumer and investment goods. A complete realization of the surplus value requires that the whole surplus product be sold to the capitalist class.

33 M. Kalecki, *Theory of Economic Dynamics*, p. 50.

34 J. Steindl, *Maturity and Stagnation in American Capitalism*, p. 112. *Cf.* Baran's rejection of Kaldor's criticism of this concept in *The Political Economy of Growth*, p. xix.

35 r is the rate of profit, g the rate of accumulation and $(1-c_p)$ the propensity of the capitalists to save out of profits. For the sake of convenience, the stable part a in the capitalists' consumption, $C_p = a + c_p P$, is neglected (P stands for profits). According to the multiplier principle and provided there exists a sufficient margin of unused capacity, the additional accumulation of ΔI by the capitalists will, in a first round, increase profits by exactly the same amount. In a second round the capitalists spend a fraction c_p of the additional profits (ΔI) on consumption. And so on. Hence, total additional profits add up to

$$\Delta P = (1 + c_p + c^2{}_p + \ldots)\,\Delta I = \frac{\Delta I}{1 - c_p}.$$

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as one of the leading Cambridge economists, has clearly appreciated its origin in the Marxian "realization problem," thus pointing to the essentially Neo-Marxist character of her theory of economic growth. She writes:

> The relation between profits and accumulation is two-sided. For profits to be obtainable there must be a surplus of output per worker over the consumption per worker's family necessary to keep the labor force in being. *But the existence of a potential technical surplus is not a sufficient condition for profits to be realized. It is also necessary that entrepreneurs should be carrying out investment.* The proposition that the rate of profit is equal to the ratio of accumulation to the stock of capital (when no profit is consumed) cuts both ways. *If they have no profit, the entrepreneurs cannot accumulate, and if they do not accumulate they have no profit* (our italics).[36]

Two additional factors remain to be introduced since I and P obviously cannot increase indefinitely. Apart from capacity bottlenecks, Robinson has repeatedly and cogently argued that the maximum rate of accumulation is set by the intensity of the "animal spirits," a socially determined urge to accumulate of the capitalists.

III. The Robinsonian "Animal Spirits"

The capitalists' passion to accumulate partly determines the slope of the function $r = g/s_p$, with $s_p = 1-c_p$. What is more important, however, it influences the attitude of the capitalists towards risk-taking and their views about the "normal renumeration" of investment. In Robinson's theory the desired rate of accumulation, g^+, is determined by an interplay of the abovementioned realization-mechanism and the intensity of the capitalists' urge to accumulate.[37]

Readers familiar with *Capital* will appreciate the striking similarity between Robinson's "animal spirits" concept and Marx's *Bereicherungstrieb* (drive to accumulate). Marx's attempt to explain the capitalists' urge to accumulate on sociological grounds has nothing in common with "human nature" (see, e.g., Ricardo): the capitalists' status depends on his accumulation via

36 J. Robinson, *The Accumulation of Capital*, p. 76.
37 J. Robinson, *Essays in the Theory of Economic Growth*, p. 48.

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the competitive mechanism.[38] As Sweezy has put it: "The way to success and social preferment lies through accumulation, and he who refuses to enter the race stands in danger of losing out altogether."[39]

At first sight, it might appear that Robinson's "animal spirits" concept is solely borrowed from Keynes and alien to Marx's *Bereicherungstrieb*. A more detailed inspection of Robinson's writings, however, shows a clear Marxist influence mingled with deductions from careful socio-historical observations.[40] She points out in *The Accumulation of Capital* that pre-capitalist societies are stagnant since they lack a class of entrepreneurs acting according to the capitalist "rules of the game,"[41] and the study of non-accumulating societies is the subject of a penetrating chapter in *Freedom and Necessity*.[42] In *Essays in the Theory of Economic Growth*, the capitalists' urge to accumulate is attributed to the pressure of competition and to the moral code of the capitalists:

> It is not only a matter of the innate characteristics of human nature but also of the kind of *behaviour that is approved by society*. Capitalism develops the spirit of emulation: without *a competitive urge to grow*, modern managerial capitalism could not flourish . . . . To attempt to account for what makes the propensity to accumulate high or low *we must look into historical, political and psychological characteristics of an economy*" (our italics).[43]

In *The Accumulation of Capital* it is presumed that the "habit of ploughing profits into the firm . . . is mainly to be accounted for by the adherence of entrepreneurs to an exacting code,"[44] and in *Freedom and Necessity* it is argued that under capitalist rules, ambi-

38 K. Marx, *Capital*, Vol. I (Chicago, 1906), pp. 648–49.

39 P.M. Sweezy, *The Theory of Capitalist Development* (New York, 1964), p. 81.

40 It is easy to show that Robinson is aware of her indebtedness to Marx. *Cf.* the preface to the second edition (1966) of *An Essay on Marxian Economics*, p. xvii. See also J. Robinson, "The Model of an Expanding Economy," *Economic Journal*, Vol. LXII, No. 245, March 1952, 47; and J. Robinson, "Notes on the Theory of Economic Development," p. 89.

41 J. Robinson, *The Accumulation of Capital*, p. 257.

42 J. Robinson, *Freedom and Necessity* (London, 1970), pp. 25–29.

43 J. Robinson, *Essays in the Theory of Economic Growth*, p. 37. See also J. Robinson, *Economics – An Awkward Corner* (London, 1966), p. 12.

44 P. 40.

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tion, status and power are indulged by the accumulation of capital:

The exaltation of making money for its own sake to respectability, indeed to dominance, in society was the new feature of the capitalist system which distinguished it from all former civilizations. A temperamental inclination to avarice or generosity is no doubt distributed statistically in much the same way in all human populations. There is no reason to suppose the *natural passions* were changed in the nineteenth century. *Rather a society developed in which ambition and love of power could be satisfied by accumulating wealth*, and this met with technical and historical conditions which enabled it to grow and flourish and stretch its tentacles over the world" (our italics).[45]

In the light of this evidence it is clear that the Robinsonian "animal spirits" have much more in common with Marx's "social mechanisms" behind the act of accumulation,[46] than with Keynes's "spontaneous urge to action rather than inaction."[47] Robinson's use of Keynes's terminology must not prevent us from seeing the Marxist content she infuses into Keynes's "animal spirits" concept.

The Marxist (or Neo-Marxist) element in Robinson's theory of growth we are alluding to is even more remarkable in that it explicitly runs counter to the complete neglect by Rosa Luxemburg and Kalecki of any inherent urge to accumulate,[48] and in its implicit approval of Sweezy's approach to the capitalists' passion to accumulate as "the way to success and social preferment."

IV. Technical Progress, the Possible Rate of Accumulation and the Rate of Profit

Both Marx and Robinson portray an expansive capitalist sys-

45 J. Robinson, *Freedom and Necessity*, p. 67. This is rather inaccurately expressed when viewed from a Marxist point of view. The accumulation of wealth is characteristic for all class societies, unlike the accumulation of means of production for the sake of the anticipated accumulation of the surplus product of the additional workers employed.

46 *Cf.* also Marx's distinction between the "individual passion" of the miser and the "social mechanisms" of which the capitalist is but a "driving-wheel." K. Marx, *Capital*, Vol. I, pp. 648–49.

47 J.M. Keynes, *The General Theory of Employment, Interest and Money*, in *The Collected Writings of John Maynard Keynes* (London-Basingstroke, 1973), Vol. VII, pp. 161–62.

48 Professor Robinson has told us in conversation of her discussions with Kalecki in this respect.

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tem with a high urge to invest, or what amounts to the same thing, a high desired rate of accumulation g^+, impossible to attain in normal circumstances due to scarcity of labor or to lack of capacity (the same thing in the long run). Efforts of the capitalists to push the real wage rate down in order to obtain a sufficient investable surplus, will finally be frustrated (not in the same way, however) by a Robinsonian "inflation barrier," a Ricardian subsistence wage rate or a Marxian value of labor-power. Hence it is the technical surplus which sets limits to accumulation.

Both Marx and Robinson are agreed on the causes and remedies for this untenable state of affairs. Marx states that for a given rate of exploitation the maximum surplus value depends on the size of the laboring population,[49] and an increase in the rate of exploitation is limited by the possibilities to stretch the length of the normal working day.[50] Robinson holds a similar opinion:

> . . . the rate of increase of the labor force (allowing for any change in working hours per family) governs the rate of growth of output of an economy that can be permanently maintained at a constant rate of profit. . . . The upper limit to the possible rate of investment with a given labor force is set by the inflation barrier.[51]
>
> When the desired rate of accumulation is greater than the rate which is associated with the minimum acceptable real wage, the desire must be checked.[52]

Evidently, under capitalist conditions a situation in which the possible rate of accumulation keeps the actual rate at a level below the desired rate will not last for long. Marx and Robinson are both at pains to demonstrate that it is most unlikely that the capitalists will mitigate their accumulation desiderata; they will rather introduce labor-saving innovations.

Although Robinson makes a clear distinction between this kind of induced technical progress and autonomous innovations,

49 K. Marx, *Capital*, Vol. III, pp. 284, 290.

50 *Ibid.*, Vol. I, pp. 332–33.

51 J. Robinson, *The Accumulation of Capital*, pp. 173, 200. In the absence of technical progress and excess capacity the rate of growth of output is equal to the rate of accumulation, since all spheres of production are expanding at the same rate.

52 J. Robinson, *Essays in the Theory of Economic Growth*, p. 58.

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or 'technical progress generated by the working of the competition-mechanism,[53] the former is viewed, as with Marx, as of primary importance for the long-term expansion of capitalism.

The chief driving force behind technical progress is the scarcity of labor in relation to capital which is produced by a rate of accumulation in excess of the rate of growth of population.[54]

She considers the introduction of this type of technical progress as "the most interesting and important Marxian idea" in her model.[55]

For our purpose it is interesting to note that Robinson differs from Marx with regard to the effect of these labor-saving innovations on the rate of profit. Marx was deeply convinced of an overall capital-using bias in labor-saving progress, resulting in a secular rise of the "organic composition of capital"[56] and a corresponding fall in the average rate of profit. As is customary today, especially among Neo-Marxist economists, this Marxist view is repudiated by Robinson and replaced by a tendency to an average neutrality of innovations. Robinson grants that a capital-using bias can be demonstrated in industry, but its effects are, in her opinion, compensated by the development of transport, etc.

There is no reason to expect technical progress to be exactly neutral in any one economy, but equally there is no reason to expect a systematic bias one way or the other. Capital-using innovations raise the cost of machines in terms of commodities and give entrepreneurs an extra motive to find ways to cheapen them. Capital-saving innovations tend to produce scarcity of labor in the consumption sector and give entrepreneurs an extra motive to increase productivity. Each type of bias tends to get itself compensated by the other. It is true that *there may have been a systematic bias in the capital-using direction for technological rea-*

53 *Ibid.*, p. 52.

54 J. Robinson, "Notes on the Theory of Economic Development," p. 105.

55 J. Robinson, "Findlay's Robinsonian Model of Accumulation: A Comment," *Economica*, Vol. XXX, no. 120, November 1963, 410.

56 For a comparison of the effects of technical progress on Marx's "organic composition of capital" and Robinson's "real-capital ratio" used as an index for the degree of mechanization, see L. Cuyvers, *Marxistische en neo-marxistische kenmerken en invloeden in de groeitheorie van Joan Robinson*, doctoral dissertation (Antwerp, 1977), pp. 288ff. and 302ff.

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sons, since (at least until very recent times) it has proved easier to devise robots to carry out the operations of mass production of consumer goods than it is to devise robots to make robots. But against this, *there is an important tendency towards a bias in the other direction due to improvements which consist in speeding up the process of production. The development of transport* and *the reorganization of marketing* which accompanies it, have played a role in technical progress which is of the utmost historical importance and is by no means yet at an end. This kind of economy of capital is therefore a strong counter-weight to any bias there may be in technology in the capital-using direction.[57]

The reader will notice that Robinson and Marx are actually advancing the same elements as determinants of the type of technical progress. It is true that Marx has nowhere (at least to our knowledge) emphasized the technical difficulties of automation Robinson alludes to, but he devotes much attention to the capital-saving effects of the development of trade, transport and communication.[58] On the other hand, Robinson pays no attention to Marx's emphasis on the use of capital coming from higher investment in fixed capital and improved means of transport due to the expansion of the world market.[59] Disagreement in this respect thus obviously amounts to a *different* emphasis,[60] the origin of which presumably has to be sought in Robinson's and Marx's contrasting "beliefs" about the secular behavior of the rate of profit, rather than to different theories.[61]

As Dobb rightly pointed out,[62] Marx's "belief" was shared by

57 J. Robinson, *The Accumulation of Capital*, pp. 170–71.

58 See, for example, K. Marx, *Capital*, Vol. III, pp. 36–66.

59 *Ibid.*, Vol. II, pp. 267, 287–88.

60 The emphasis of Robinson, leading to her thesis of the average neutrality of technical progress, differs from Marx's view only in that it assigns other relative weights to capital-using and capital-saving innovations. This Robinson way of looking at the alleged constancy of the capital-output ratio is not shared by, among others, N. Kaldor (see his "A Model of Economic Growth," *Economic Journal*, Vol. LXVII, No. 268, December 1957, 593, 597).

61 In a recent paper ("The Organic Composition of Capital," *Kyklos*, Vol. 31, 1978, Fasc. 1) Robinson attempts to show that Marx's "organic composition of capital" — that is, not merely the value composition of capital — can either rise or fall with technical progress. Since Robinson measures the capital stock in units of capacity output-capital ratio), *a measure affected by technical progress*, her "organic composition," contrary to Marx's definition (see *Capital*, Vol. I, p. 671), can increase even when the "technical composition of capital" remains unaffected.

62 M. Dobb, *Theories of Value and Distribution Since Adam Smith* (Cambridge, 1973), pp. 157–58.

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the Classical economists, although not for the same reasons. Robinson, however, is more inclined to stress the importance of factors making for a constant rate, such as an overall neutrality of technical progress. Her "belief" springs from her ideas about the capitalist "rules of the game":

> . . . while capital-using innovations are favourable to the interests of entrepreneurs (by making capital scarce relatively to labor) an excessive indulgence in them creates conditions in which the capitalist rules of the game become unplayable.[63]

Accordingly, the capitalist system successfully resists an increasing capital-labor ratio and a declining rate of profit: ". . . the capitalist rules of the game create a resistance to a rise in the ratio of capital to labor when it entails a fall in the rate of profit."[64] This thesis, which sounds plausible enough but nevertheless rests, like Marx's, on some hypothetical behavior of the rate of profit, is Neo-Marxist.[65]

Another factor which makes for a constant rate of profit is the constancy of relative shares in national income, a phenomenon which holds nothing baffling for Robinson: trade unions succeed pretty well in keeping the balance of forces with monopoly capital in equilibrium.[66] Bronfenbrenner[67] pointed out that Robinson's position stems from Kalecki's article, "The Distribution of the National Income," which she referred to as "an empirical law of distribution . . . better established than most economic generalizations."[68] This view is essential for Robinson's and most Neo-Marxists' ideas about the working of monopoly capitalism. From a Marxist point of view the "constancy" of rela-

63 J. Robinson, *The Accumulation of Capital*, p. 172.

64 *Ibid.*, p. 151. It is immaterial for our argument that Robinson's thesis refers to an increasing degree of mechanization for a given spectrum of techniques.

65 See J. Steindl, *Maturity and Stagnation in American Capitalism*, p. 242. In Robinson's case it can be traced back to her 1936 article, "The Long-Period Theory of Employment," in *Essays in the Theory of Employment*, 2nd edition (Oxford, 1947), p. 97n.

66 J. Robinson, *An Essay on Marxian Economics*, p. xvii; also *The Accumulation of Capital*, p. 78.

67 M Bronfenbrenner, "Academic Methods for Marxian Problems," p. 539.

68 J. Robinson, *An Essay on Marxian Economics*, p. 80. In J. Robinson and J. Eatwell, *An Introduction to Modern Economics* (London, 1973), pp. 188–89, the authors refer to Marx's constant degree of exploitation (in *Capital*, Vol. III) rather than to Kalecki. See also J. Steindl, *Maturity and Stagnation in American Capitalism*, pp. 69–70 and 236; and P.A. Baran, *The Political Economy of Growth*, p. 56.

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tive shares is only very crude since the balance of forces between the working class and the capitalist class — as well as the rate of profit — shows a long-run undulatory motion.[69]

V. Robinson's "Golden Age" and Marx's "Normal Reproduction"

When technical progress is neutral and proceeding steadily, the growth of population is even, and the rate of accumulation is sufficiently high and constant to avoid unemployment, then under competitive conditions the real wage rate will increase proportionately with output per worker. The rate of profit and the relative share of wages and profits remain unchanged in the course of the process of accumulation, provided no economic or political disturbance is anticipated and the capitalists have faith in the future. The desired and the possible rate of accumulation will then coincide with and be equal to the rate of growth of output. The economy is in a Robinsonian "Golden Age."[70]

Robinson developed this concept in order to lay bare the factors which prevent the rate of growth from being steady:

> To set out the characteristics of a golden age by no means implies a prediction that it is likely to be realized in any actual period of history. The concept is useful, rather, as a means of distinguishing various types of disharmony that are liable to arise in an uncontrolled economy.[71]

Her emphasis on the inherent instability of capitalist growth implies a critique of the various growth models constructed in order to simulate steady growth for a competitive capitalist economy. Robinson's critique is similar to Marx's of the Classical theory of production, reproduction and accumulation — namely, that it neglects the capitalist character of the process.[72] The similarity we are suggesting, however, goes much deeper than this

69 E. Mandel, *Der Spätkapitalismus*, pp. 160–61.

70 J. Robinson, *The Accumulation of Capital*, p. 99, and *Essays in the Theory of Economic Growth*, p. 52.

71 J. Robinson, *Essays in the Theory of Economic Growth*, pp. 98–99; see also J. Robinson, "Equilibrium Growth Models," *American Economic Review*, Vol. LI, No. 3, June 1961, 361.

72 See, for example, K. Marx, *Capital*, Vol. II, pp. 105–06; also R. Luxemburg, *The Accumulation of Capital* (London, 1951), pp. 33–34.

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superficial resemblance might suggest, since it is rooted in an analogous theoretical construction.

As is generally known, Marx in his schemes of reproduction neglects the business cycle, fluctuations in prices, profits, etc., and assumes a "normal course of reproduction" (*normale Verlauf der Reproduktion*),[73] positing an imaginary situation of harmony comparable with a "Golden Age." In addition, in his elaboration of the schemes in Chapter 21 of Volume II of *Capital*, he keeps the rate of profit and the "composition of capital" constant, which implies not so much the absence of innovations as the assumption of a period during which short-term fluctuations of the sectoral rates of profit due to technical progress are balanced out.[74]

Nevertheless, the parallel with Robinson's "Golden Age" remains incomplete. Although Marx focused attention on the role of expectations in his finished analysis of simple reproduction,[75] it is nearly absent in his apparently unfinished chapter on extended reproduction.[76]

The foregoing arguments might enable the identification of the steady growth rate implicit in Marx's *Gedankenkonstruktion* with a "Golden Age" rate. Robinson has pointed out, however, that a "Golden Age" rate is higher than the average growth rate of an economy expanding through uncertainty and cycles:

> The very fact that accumulation takes place unsteadily reduces the growth ratio below what it would be in golden age conditions, for uncertainty weakens the urge to invest and consequently slows down technical progress. The trend which emerges *ex post* from the operation of the trade cycle is not the same thing as the growth ratio of a golden age, but is an imperfect reflection of it.[77]

It is true that Marx's schemes assume that realized and produced surplus value are identical, but this follows from the assumed "normal working" of his model of capitalism rather than from a

73 See, for example, K. Marx, *Capital*, Vol. II, p. 578.
74 *Ibid.*, Vol. III, pp. 196, 430.
75 *Ibid.*, Vol. II, pp. 487–88.
76 For other passages in *Capital* which refer to an anticipated long-term constancy of the rate of profit, see L. Cuyvers, *Marxistische en neo-marxistische kenmerken en invloeden in de groeitheorie van Joan Robinson*, p. 325.
77 J. Robinson, *The Accumulation of Capital*, p. 213.

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tranquil state of affairs as is the case in Robinson's "Golden Age." The rate of growth in Marx's schemes actually corresponds to the rate of growth in Steindl's model.[78]

With due regard to dissimilarities, Marx's influence is nevertheless apparent in Robinson's writings on the subject, and is acknowledged. *On Re-Reading Marx* (1953) stresses: "When you turn to the General Theory in the long period you have to start with Marx's schema for expanded reproduction."[79] And in *The Generalization of the General Theory* (1952), which aims to apply Keynes's insights to long-term analysis, Robinson associates her (at that time still not fully developed) "Golden Age" concept with Rosa Luxemburg, referring to it as "nothing more than a piece of simple arithmetic" useful in classifying disturbances and causes of instability.[80] Thus, in contrast with her avowed Keynesian views of "The Long-Period Theory of Employment" (1936), in her later writings Robinson stresses the destabilizing effects of the capitalist "rules of the game."[81]

As to the influence of Marx on her views in *The Generalisation of the General Theory* Robinson writes:

> Three major elements in the foregoing argument are derived from Marx; the first is the method of using a numerical model of "expanded reproduction" as the tool of analysis; the second is the importance given to the influence of technique on the demand for labor; the third is the conception of unemployment due to a deficiency of capital or a "reserve army of labor."[82]

At the same time it seems plausible to suppose that Marx's law of the falling rate of profit has inspired Robinson (perhaps

78 See J. Steindl, *Maturity and Stagnation in American Capitalism*, p. 199. Steindl's model is basically that of Kalecki, but with variables which are moving averages. Hence Steindl's model is a growth model from the outset.

79 J. Robinson, *On Re-Reading Marx,* p. 9.

80 J. Robinson, "The Generalisation of the General Theory," p. 96. In this article, a "Golden Age" can go with increasing unemployment.

81 It follows from her "Golden Age" thesis that capitalist stability is highly doubtful when the competitive mechanism weakens, the pace of technical progress accelerates or slackens, or innovations are biased on the average. See J. Robinson, *The Accumulation of Capital*, pp. 89, 92.

82 J. Robinson, "Acknowledgments and Disclaimers," in *The Rate of Interest and Other Essays*, p. 145. Robinson has also credited the importance of Kalecki's way of handling expectations as an average of past experiences for the development of her "Golden Age" concept.

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by following in the tracks of Tugan-Baranowski) to criticize the Marxists' alleged assumption of the inevitable collapse of the capitalist system by means of her ideal construction of a "Golden Age." This emerges very clearly in "The Model of an Expanding Economy" (1952), in which she rejects a falling rate of profit due to a capital-using bias in technical progress, but agrees with underconsumptionism (although "rather vaguely sketched by Marx") and with Marx's views on unplanned capitalist commodity production. Robinson vehemently refuses, however, to come to the conclusion that capitalism is doomed.[83]

VI. The Introduction of Monopolies in the Robinsonian Model

The existence of a tendency to monopolization of capitalism[84] and hence to increasing profit margins[85] is an important premise in Robinson's dynamics. It is true that such tendencies are acknowledged by all contemporary Neo-Marxists, but Robinson's views go back to *The Economics of Imperfect Competition* (1933), a book which shows no Marxist or Neo-Marxist influence at all.[86]

As Kaldor and Sweezy have pointed out, Kalecki was the first to introduce monopolies into the theory of income distribution.[87] Consequently, his influence on Robinson in this respect was considerable, as indeed can easily be seen.[88] As a result, the distinction between forerunners and followers becomes extremely hard to draw. There is no doubt that Sraffa's contributions in the 1920s set the discussions about monopolistic and

83 J. Robinson, "The Model of an Expanding Economy," pp. 50, 52. See also her *The Accumulation of Capital*, p. 103.

84 See, for example, J. Robinson, *The Accumulation of Capital*, pp. 92, 176, 217, 338; also *Essays in the Theory of Economic Growth*, pp. 76, 77; also *Economics – An Awkward Corner*, p. 57.

85 See J. Robinson, *The Accumulation of Capital*, p. 77; *Essays in the Theory of Economic Growth*, p. 77.

86 J. Robinson, *The Economics of Imperfect Competition*, 12th Reprint (London, 1964), p. 307. A tendency to increase profit margins is implicit in her theory of monopolistic price behavior (pp. 54–56).

87 N. Kaldor, "Alternative Theories of Distribution," pp. 224–25; P. Sweezy, *The Theory of Capitalist Development*, pp. 83–84.

88 On the share of profits in national income in Kalecki's and Robinson's views: J. Robinson, *Essays in the Theory of Economic Growth*, p. 42; also "Harrod After Twenty-One Years," *Economic Journal*, Vol. LXXX, no. 319, September 1970, 734–35. *Cf.* J. Steindl, *Maturity and Stagnation in American Capitalism*, p. 245, and M. Kalecki, *Theory of Economic Dynamics*, pp. 61, 156, 160.

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imperfect competition going, and that Robinson prepared, and at the same time was influenced (via Kalecki) by, the prevalent Neo-Marxist views on monopoly capitalism. Her later studies of Marx and Rosa Luxemburg reinforced this influence. However, since her *Economics of Imperfect Competition* is nearly completely unrelated to the dynamics and long-term development of capitalism, an exact evaluation of Robinson's contribution to post-Keynesian Neo-Marxism in this respect is difficult to make. We therefore will concentrate on Robinson's views in the 1950s and 1960s concerning the main effects of monopolies and monopolization on underconsumption and stagnation.

Robinson has argued that the monopolization of the capitalist economies may easily, though not necessarily, lead to a weakening of the "animal spirits" of the capitalists, via a cautious investment policy,[89] and to a lower rate of technical progress and innovation.[90] We will not dwell here on these issues.[91]

The upward drift of monopolistic margins, combined with the weakened urge to accumulate and the lower rate of technical progress and innovation, slow down the rate of accumulation and generate underconsumption. Where Marx and Luxemburg viewed underconsumption as the result of the limited power of the population to consume, restricted (in Marx's case) by the capitalists' accumulation, Robinsonian underconsumption is generated the other way round, by the weakening of the capitalists' urge to accumulate, as compared with the tendency of profit margins to rise. Robinsonian underconsumption and stagnation is similar to Neo-Marxist underconsumption in pointing to the weakening of "development factors,"[92] an increasing share of profits for given investment,[93] and a growing fear of excess capacity.[94]

89 J. Robinson, *Essays in the Theory of Economic Growth*, p. 41.

90 J. Robinson, *The Accumulation of Capital*, pp. 90–91, 407. In later works, this proposition was amended (see *Economics – An Awkward Corner*, p. 59) at nearly the same time as Baran and Sweezy adapted their former ideas to the post-war experience of capitalist growth.

91 For a discussion from a Neo-Marxist point of view, see L. Cuyvers, *Marxistische en neo-marxistische kenmerken en invloeden in de groeitheorie van Joan Robinson*, pp. 355–65.

92 See M. Kalecki, *Theory of Economic Dynamics*, p. 159.

93 *Ibid.*, pp. 61, 156. *Cf.* Baran and Sweezy's increasing "economic surplus."

94 See J. Steindl, *Maturity and Stagnation in American Capitalism*, pp. 131–32, 212, 223, 225.

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Marxist and Neo-Marxist underconsumption, however, also reflects another aspect of capitalism. Marx suggested that an unequal rate of growth of output per worker and of real wage rates, due to increasing exploitation of the workers in order to reach the desired rate of accumulation, would transfer part of the workers employed in producing consumer goods to the capital goods department. No doubt this process ultimately will generate excess capacity as compared with the population's capacity to consume. On the other hand, Kalecki, Steindl, Robinson, and others, are equally right in arguing that less of the surplus produced will be realized when investable output remains unsold due to weakened "animal spirits" or to a slowing down of the pace of technical progress.

The essential difference between Marxists and Neo-Marxists (Robinson included) is, therefore, not so much that they differ about the factors causing underconsumption. Rather it is that they have opposite stagnationist theories. Marx's falling rate of profit and the Neo-Marxist emphasis on lack of profitable investment opportunities as the ultimate source of stagnationist tendencies can indeed hardly be reconciled. As Baran and Sweezy put it, Marx's falling rate of profit implies that:

> . . . the barriers to capitalist expansion appeared to be more in a shortage of surplus to maintain the momentum of accumulation than in any insufficiency in the characteristic modes of surplus utilization.[95]

This also accurately expresses Robinson's views.

The Neo-Marxist character of the Robinsonian theses is even more striking when we glance at some of the factors which Robinson lists as counteracting the stagnation of monopoly capitalism. *The Accumulation of Capital* mentions, e.g., armaments spending, foreign trade and capital export, increasing rentiers' consumption, strengthened trade unions, etc.[96] These counteracting tendencies, obviously, are listed in all Marxist and Neo-Marxist analyses of the contradictions in the development of capitalism. In Robinson's case, they probably reflect the influ-

95 P.A. Baran and P.M. Sweezy, *Monopoly Capital*, 3rd Printing (Harmondsworth, 1973), p. 118.

96 Armaments: J. Robinson, *The Accumulation of Capital*, pp. 93, 273; foreign trade and capital export: pp. 368–69, 371; rentiers' consumption: pp. 251, 261–62, 269; trade unions: p. 94.

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ence of the work of Rosa Luxemburg, which can easily be illustrated — e.g., by Robinson's thesis, put forward in 1961, that whereas nineteenth century capitalism was an expanding system, nowadays it shows deep-seated tendencies to stagnation, due to a lack of possibilities to expand geographically.[97] Unlike Rosa Luxemburg, however, Robinson emphatically rejects any *Zusammenbruchsgesetz*.

VII. Some Conclusions

In this paper we have, it is hoped, pointed out a sufficient number of crucial elements in Robinson's theory of economic growth that are in the main characteristic of, and often inspired or influenced by Marx, Rosa Luxemburg, Kalecki, Steindl, Baran and Sweezy, to denote her theory as essentially Neo-Marxist in a post-Keynesian sense. This current originated in the work of Kalecki and Steindl in the 1940s and early 1950s, who attempted, on the one hand, to bring a fresh interpretation of Marx's main "laws of motion of capitalism" by using the then new Keynesian insights *à l'époque*, and on the other hand, sought to reformulate Keynesian theories of effective demand starting from Marx's schemes of reproduction and some well-known underconsumptionist passages in *Capital*.

From a Marxist point of view, the important similarities between Robinson's and Marx's views are striking. We are thus confronted with another Cambridge contribution to the Marxist debate, this time not on the theory of value (as with Sraffa's system), but on the theory of accumulation. In presenting Robinson's theory and commenting on its main Marxist and Neo-Marxist characteristics, we hope that the present essay will stimulate future discussion.

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97 J. Robinson, "Has Capitalism Changed?", *Collected Economic Papers*, Vol. II, p. 170; also Robinson's "Introduction" to R. Luxemburg, *The Accumulation of Capital*, p. 28. In her introduction Robinson adds, however, that Luxemburg failed to mention the impact of real wage increases and technical progress. The reader is also informed that Luxemburg and Robinson, unlike Kalecki, do not reduce the counteracting effects of foreign trade to the mere impact of export surpluses on profits.

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