MARX'S ECONOMIC THEORY: TRUE OR FALSE?

A MARXIAN RESPONSE TO BLAUG'S APPRAISAL

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Abstract

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Mark Blaug has recently presented a very negative appraisal of the empirical validity of Marx's economic theory: Blaug concludes that Marx's theory has been glaringly refuted by the empirical evidence of the last century. This paper presents a Marxian response to Blaug's negative appraisal of Marx's theory. The paper reexamines in detail Blaug's empirical evidence and other related evidence with respect to the following conclusions: the falling rate of profit, the impoverishment of workers, conflict over the length of the working day, conflict over the intensity of labor, recurring depressions, increasing concentration of capital, proletarianization of the labor force, and the necessity of money. The paper comes to essentially the opposite conclusion as Blaug: that Marx's theory is largely consistent with the empirical evidence and has an impressive range of explanatory power. Brief remarks are also made about the relative explanatory power of Marx's theory and neoclassical economic theory.

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by Fred Moseley[1]

A methodological appraisal of Marx's economic theory by Marx Blaug, the distinguished historian of economic thought and economic methodologist, is a welcome event. All too often appraisals of Marx's theory are superficial and suffer from a lack of in-depth understanding. But Blaug has studied Marx's theory of decades and has written extensively on the subject in his widely used textbook Economic Theory in Retrospect and in numerous articles.

This paper critically examines Blaug's recent appraisal of Marx's economic theory from a Marxian perspective. The author is a Marxist economist, in the sense that I accept the labor theory of value as a working hypothesis with which to analyze and explain the important macroeconomic phenomena of capitalist economies, such as the rate of profit, periodic depressions, etc. I welcome Blaug's succinct summary of the current neoclassical appraisal of Marx's theory, which provides an opportunity to respond to this neoclassical appraisal by one of its most respected practitioners. Marx himself wrote in the Preface to the first edition of Capital:

"I welcome every opinion based on scientific criticism."

Blaug's appraisal of Marx's theory was originally presented as a distinguished set of lectures at the University of Amsterdam and published in 1980. It has recently been republished in (Blaug 1990a). Blaug's appraisal consists of two papers, one dealing primarily with the logical consistency of Marx's theory and the other with its empirical validity. My response in this paper is concerned with the second question of the empirical validity of Marx's theory. My emphasis in this paper on Blaug's empirical appraisal is due in part to the fact that I have recently dealt with the question of the logical consistency of Marx's theory in another paper (Moseley 1993). It is also due to

Blaug's own conclusion to his first paper on logical consistency (stated in the Introduction to Blaug 1990a, pp. 7-8):

> I take the view that there are no serious logical inconsistencies in the Marxian system, or at any rate none that cannot be repaired by post-Marxian refinements. Indeed, the logical coherence of the stupendous "house that Marx built" is one of the many intellectual attractions of Marxism, both to me personally and of course to Marxists worldwide. Nevertheless, while one cannot easily fault Marx on purely logical grounds, the relevance of the final conclusions of Marx' arguments is highly questionable: his system if shot through with arbitrary assumptions at all stages in the chain of reasoning. This at any rate is the burden of my first paper.
>
> I conclude at the end of this paper that Marx's theory could by true but that it is impossible to know whether it is true without examining the accuracy of Marx's predictions.

The purpose of this paper, therefore, is to examine Blaug's appraisal of the empirical validity of Marx's theory in his second paper. I will first summarize Blaug's appraisal and then present my response. The paper ends with a proposal for further research on this important questions of the empirical validity of Marx's economic theory.

1. BLAUG'S APPRAISAL

In Blaug's appraisal of the empirical validity of Marx's theory, he addresses two general questions. Firstly, the Popperian question: does Marx's theory provide definite predictions which follow as logical deductions from the premises of the theory, so that the theory can in principle be falsified by contrary empirical evidence? Blaug's answer to this question is generally no. Then Blaug asks the further question: even though the conclusions of Marx's theory are not definite predictions, how well do these conclusions correspond to the empirical evidence? Even though this empirical investigation is not a conclusive empirical test, it is still of interest, especially because of the importance of Marx's theory (pp. 33-34). Blaug argues that this view of the empirical strength of

Marx's theory is wrong. In the summary of Blaug's appraisal which follows, I begin with the first question and then follow with the second.

In terms of the conclusions of Marx's theory considered by Blaug, primary emphasis is given to the tendency of the rate of profit to fall. Secondarily, the tendency toward the impoverishment of workers is also emphasized. A number of other predictions are also briefly mentioned, including: increasing severity of unemployment and depressions, increasing concentration of capital, and the increasing percentage of the labor force who are wage-laborers. Blaug also refers to Popper's discussion of Marx's predictions of inherent technological change and the relation between this technological change and periodic depressions.

To begin with, with respect to the all-important falling rate of profit, Blaug argues that Marx provides five counteracting tendencies to this law, but fails to specify their precise effect on the rate of profit; therefore his conclusion that the rate of profit will in general decline is "simply untenable." Blaug also briefly repeats the two widely-expressed criticisms that Marx failed to prove that the composition of capital must necessarily increase as a result of technological change and, more importantly, even if the composition of capital does increase, Marx failed to prove that it will necessarily increase faster than the rate of surplus-value (a more extended discussion of these criticisms is presented in Economic Theory in Retrospect, hereafter referred to as ETR, pp. 245-57). Blaug argues further that the trend in the price rate of profit will not necessarily be the same as the trend in the value rate of profit, so that even if the value rate of profit did fall, the price rate of profit might not. Thus for all these reasons Blaug concludes that Marx's theory does not provide a definite prediction concerning the trend of the price rate of profit (pp. 42-44).

With respect to Marx's conclusion of increasing impoverishment, it is not always entirely clear from Blaug's discussion in these papers whether he interprets impoverishment in absolute or relative terms. However, in ETR, he clearly interprets impoverishment in relative terms.

> Marx never denied that real wages might rise under capitalism. He strongly implied that labor's relative share would fall but in fact never used the phrase "relative impoverishment." The notion that he pronounced a theory of the growing poverty of the working class is just folklore Marxism. (p. 257)

Blaug also argues that Marx does not prove such a tendency toward relative impoverishment. Marx's strongest argument along these lines is that a growing reserve army of unemployed will continue to exert downward pressure on wages, but growing unemployment itself is not sufficiently demonstrated and its precise effects on wages is not adequately specified.

With respect to the other conclusions mentioned by Blaug, very little is said about their derivations except that they are either corollaries of the falling rate of profit or they are ad hoc prophesies (p. 45). He mentions at one point that at least some of Marx's economic conclusions do follow logically from his premises (p. 47), and thus presumably provide definite predictions, but he does not specify which conclusions. This omission is disappointing since, according to Blaug, Marx's theory provides so few definite predictions, the few which are provided are especially important in an empirical test of Marx's theory.

The most important of these other conclusions of Marx's theory mentioned by Blaug is the inherent tendency toward technological change. Blaug does not explicitly discuss whether this conclusion follows logically from the premises of Marx's theory as a definite prediction. He refers to Popper's (1945) discussion of this conclusion, but Popper also does not discuss the logical status of this conclusion; he simply states that Marx was one of the first to "recognize" this tendency and to emphasize its harmful effects (p. 194).

Another conclusion of Marx's theory which Blaug does not discuss in this paper, but does briefly discuss in a related paper, is the inherent conflict between capitalists and workers over the length of the working day (Blaug 1990a, pp. 23-24). Blaug seems to acknowledge that Marx's theory does provide a definite prediction regarding the conflict over the working day. However, he argues that this conflict can also be explained by an alternative theory and thus that the actual conflict over the working day does not conclusively prove that Marx's theory is correct.

We turn now to Blaug's second general question: the correspondence of Marx's conclusions with empirical reality, even though these conclusions are not definite predictions. Blaug argues that most of Marx's conclusions not only do not follow logically from his premises, but also have been contradicted by the empirical evidence. With respect to the rate of profit, Blaug maintains that although estimates of the money rate profit do not provide a reliable empirical test of Marx's theory, the fact that the money rate of profit has shown no persistent trend over the last 100 years certainly does not support Marx's theory and would have seriously disturbed Marx himself. In ETR, Blaug cites as evidence the well-known study by the Marxist economist Gillman in the 1950s (1956). Blaug describes Gillman's estimates as breaking down into two distinct historical periods: 1880-1919, during which the three key variables behaved essentially as Marx's theory predicted, and 1919-52, during which the composition stopped increasing, the rate of surplus-value continued to increase, and thus the rate of profit also increased, thus contradicting Marx's theory. Thus Blaug concludes that Marx's most important conclusion of the falling rate of profit is both inconclusively derived and empirically false.

Blaug does not present any evidence in this paper related to the impoverishment of workers, either absolute or relative. In ETR, Blaug suggests that Marx's prediction of relative impoverishment has been contradicted by the increase in the wage share of national income over the last century (p. 257).

Blaug also does not present any specific evidence with respect to Marx's other conclusions mentioned above. He does refer to the increasing concentration of capital as "one of Marx's more remarkable predictions" (p. 47), which seems to suggest empirical validity, but no evidence or further discussion is presented. He also mentions that Popper gives Marx credit "for correctly foreseeing the inherent technological dynamism of the capitalist system" (p. 47; emphasis added). Thus Blaug seems to agree, and indeed who could deny, that this very important conclusion of Marx's theory is supported by the evidence. But this important and apparently correct prediction is not discussed further. On the negative side, Blaug also refers to Popper's assessment that Marx's predictions of mounting unemployment and ever more violent business cycles have been "glaringly refuted" (p. 47).

Blaug concludes his discussion of the evidence related to Marx's predictions with the frustratingly vague general verdict that most of Marx's conclusions have been largely refuted by the evidence. He states that "few of his predictions have actually materialized" (p. 46) and that "there have been more misses than hits" (p. 49). However, if there have been at least a few hits, it would seem that these hits should be discussed more explicitly in a thorough and balanced empirical evaluation of Marx's theory.

In the Introduction to the volume in which Blaug's paper appears, he states more strongly his very negative conclusion with respect to the empirical validity of Marx's theory:

> the gap between what Marx predicted and what actually happened over the span of 100 years is so great that we may say, without any qualification, that the Marxian system has been decisively refuted, not once, not twice, but over and over again. (p. 8)

Beyond this categorical rejection of Marx's theory on scientific empirical grounds, Blaug goes on to argue that what has been refuted in Marx's theory is not only the specific economic conclusions, but also Marx's general "vision" of how capitalism would come apart at the seams as a result of growing class conflict and a working class revolution in advanced capitalist countries within a fairly short period of time. However, I argue that the likelihood of a working class revolution against capitalism is an entirely separate question from Marx's economic theory which has no bearing on the validity of

Marx's theory. The question of revolution involves political speculation regarding how workers will react to the development of capitalism, not Marx's theory regarding the objective tendencies of this development. Therefore, in my response which follows, I will restrict my attention to the specific conclusions and predictions of Marx's economic theory.

Blaug also argues that later Marxists since Marx have repeatedly reformulated Marx's theory in order to justify its continued acceptance in spite of contradictory evidence. He characterizes these reformulations, in Popper's terminology, as "immunization strategies," i.e. "adjustments to a theory whose only purpose is to protect the theory against repeated refutations and mounting anomalies" (p. 47). Blaug concludes, in the terms of Lakatos' methodology, that these repeated immunization strategies by Marxian economists over the last century are a clear indication that Marx's theory is a "degenerating" research program.

However, the only two specific conclusions which Blaug explicitly discusses in these final pages are the absolute impoverishment of workers and a socialist revolution in advanced capitalist countries, with primary emphasis on the latter. As just discussed, whether or not a socialist revolution occurs in advanced capitalist countries is a separate question from the validity of Marx's economic theory. The absence of such a revolution does not contradict Marx's theory and hence does not require "immunization strategies" (even though later Marxists may have thought that it did). Furthermore, I will argue below that Marx's conclusion with respect to the impoverishment of workers was in terms of relative, not absolute, impoverishment and, as noted above, passages elsewhere suggest that Blaug agrees with this interpretation. But in these pages he accuses Kautsky of "immunization" because Kautsky responded to Bernstein's argument that rising living standards contradicted Marx's theory by arguing (correctly) that Marx's conclusion was not about absolute impoverishment. Kautsky's response was not an "immunization strategy," but rather an appropriate response, i.e. an insistence that empirical tests of

Marx's theory should begin with a correct and rigorous formulation of Marx's theory <u>in its own terms</u>. Therefore, Blaug's discussion of the alleged "immunization strategies" related to these two conclusions is not relevant to the question of the validity of Marx's economic theory and will not be discussed further.[2] Popper's famous criticism of Marx's theory is also based primarily on the refutation of absolute impoverishment and the absence of revolution in advanced capitalist countries and thus is also not an appropriate appraisal of Marx's economic theory.

Finally, Blaug also argues that Marx regarded <u>praxis</u> to be a criterion to be used in the evaluation of the validity of social theories, especially his own theory, in addition to the scientific empirical criterion of correspondence with reality (pp. 37 and 46). According to this criterion of <u>praxis</u>, the ultimate test of the validity of a scientific theory is the ability of a theory to bring about social change. In Marx's case, this means that the validity of his theory should be judged by the success or failure of a proletarian revolution to overthrow capitalism in advanced capitalist countries. Thus, Blaug argues, on the basis of Marx's own criterion of <u>praxis</u>, his theory is clearly invalid and therefore should be rejected.

I disagree with Blaug's interpretation of Marx's methodology of theory evaluation. I do not think that Marx regarded <u>praxis</u> to be a criterion for the evaluation of the validity of social theories. Instead, I think that Marx regarded <u>praxis</u>, or the transformation of society, to be the <u>ultimate purpose</u> of his theory, not a criterion of its validity. Marx's primary criterion for the validity of social theories, including his own, was similar in general terms to Blaug's: empirical tests or correspondence with reality. Marx placed less emphasis than Blaug on definite predictions and more emphasis on the range of explanatory power provided by a theory, but both agree that the primary criterion for evaluating the validity of social theories should be some sort of empirical test.[3] It was on such empirical grounds that Marx argued that his theory was superior to classical economics. With respect to the tendency of the rate of profit to fall, Marx argued:

> Simple as the law appears from the above arguments, not one of the previous writers on economics succeeded in discovering it, as we shall see later on. These economists perceived the phenomena, but tortured themselves with their contradictory attempts to explain it. And given the great importance of this law, one might well say that it forms the mystery around whose solution the whole of political economy since Adam Smith revolves ... (Marx 1981, pp. 319)

Similarly, in A Contribution to the Critique of Political Economy (pp. 61-63), Marx argued that his theory was able to explain the following important phenomena of capitalist economies which classical economics was not able to adequately explain: wages, profits, individual prices in a way that is consistent with equal rates of profit across industries, and land rent. And in a well-known letter to Kugelmann, Marx responded to criticisms that he had failed to prove the labor theory of value in Chapter 1 of Capital by arguing that the appropriate test of this assumption is the range of real phenomena which can be explained on the basis of this assumption:

> The unfortunate fellow does not see that, even if there were no chapter on "value" in my book, the analysis of the real relations which I give would contain the proof and demonstration of the real value relations. All that palaver about the necessity of proving the concept of value comes from complete ignorance both of the subject dealt with and of scientific method. (Marx and Engels 1975, pp. 196)

I personally agree with Blaug and Marx on this fundamental methodological issue that some sort of empirical test is the primary criterion for the evaluation of social theories. Even though in practice empirical tests of social theories are very complicated for well known reasons and often do not result in definite conclusions, I nonetheless presume that social theories are objectively true or false and that the task of the social theorist is to try to determine which, in spite of the difficulties and perhaps even the impossibility of this task in some cases. With regard to praxis, I agree with Marx that the transformation of society is the ultimate purpose of our theoretical activity, but not a criterion for theory evaluation. I do not see how a theory can be useful to a positive transformation of society unless that theory is objectively true.[4] Therefore, this paper will evaluate the validity of Marx's theory solely on the basis of its empirical explanatory power.

2. CRITICAL RESPONSE TO BLAUG'S APPRAISAL

For each of the conclusions of Marx's theory discussed below, Blaug's two general questions will be examined in turn. I will first consider whether each conclusion is a definite prediction of Marx's theory and then will reexamine the empirical evidence related to this conclusion.

a. Falling rate of profit

I agree with Blaug that Marx's theory does not provide a definite prediction regarding the trend in the rate of profit. Marx's theory does not conclusively prove that the composition of capital must necessarily increase faster than the rate of surplus-value as a result of technological change. However, I think that Marx's theory does provide a substantial theory of the effects of technological change on these two determinants of the rate of profit and provides more of a theory of the trend in the rate of profit than any other economic theory, especially neoclassical theories of profit, which are only short-run static theories and which provide no theory whatsoever regarding the likely trend in the rate of profit.[5]

With respect to Blaug's argument that Marx's theory of the falling rate of profit is in value terms and does not necessarily apply to the price rate of profit, Sweezy (1968, pp. 125-28) has argued that the trends in the price and the value rate of profit are likely to be similar because the trends in the composition of capital in the three main departments in the economy are not likely to be very different. More recently, Shaikh (1984, pp. 52-62) has argued that, although the price rate of profit will be different from the value rate of profit, the former can be derived from the latter and the difference between them will be limited by two factors: (1) the percentage of surplus-value consumed by capitalists as revenue and (2) the deviation of prices of capitalist consumption goods from their values. Shaikh argues further, based on estimates of these determinants of the deviation of the price and value rates of profit, that this deviation is likely to be less than 10%. Blaug cites Wolff's (1979) argument that the price rate of profit may have a different trend from the value rate of profit, but Wolff's own estimates in this paper and in a later (1986) updated study show that the trends in the two rates of profit to be roughly the same.

It should be emphasized that, since Marx's theory does not provide a definite prediction that the rate of profit will decline, estimates of the rate profit and its determinants do not provide a conclusive test of the labor theory of value, the fundamental assumption on which Marx's theory is based. If the rate of profit did not decline, one could argue that this fact contradicts the auxilary assumption that the composition of capital would increase faster than the rate of surplus-value, but does not necessarily contradict the fundamental assumption of the labor theory of value. This feature of Marx's theory is a classic example of the Duhem-Quine thesis, according to which it is usually not possible to conclusively test a single hypothesis because conclusions or predictions also involve additional auxilary assumptions. However, estimates of the rate of profit and its determinants are still of considerable interest in order to determine whether or not the evidence supports Marx's conclusion, even though this conclusion is not a definite prediction.

In order to examine the empirical evidence related to Marx's theory of the falling rate of profit, it is first of all necessary to clarify the time period to which this theory applies. It is not always clear which time period (short-run cycles, medium-run long waves, and/or long-run secular trends) Marx had in mind in his discussions of the falling rate of profit and this ambiguity has given rise to various interpretations. My interpretation is that Marx's conclusion of a falling rate of profit applies first and foremost to a long wave period of expansion, characterized by the absence of severe depressions. Such a long-wave period of expansion could be of varying lengths, but perhaps averaging 30-40 years. Marx's theory clearly suggests that during such a long wave period of expansion the rate of profit will decline as a result of ongoing technological change. Marx's theory suggests further that the decline of the rate of profit will eventually cause the long wave period of expansion to come to an end and to be followed by a more or less severe depression and/or extended stagnation. During such depressions, the rate of profit is increased, due primarily to the "devaluation of capital" which results from the widespread bankruptcies of capitalist firms. Whether or not there is a long-run secular tendency for the rate of profit to decline over more than one long wave depends on whether the increase in the rate of profit during depressions is as large as the decline in the rate of profit during expansions. It does not seem possible to determine on general theoretical grounds the net effect of these two opposing tendencies. Marx may have thought that the rate of profit would decline over the secular long-run, but this conclusion does not necessarily follow from his theory. However that may be, it is much clearer that there is a strong presumption in Marx's theory that the rate of profit would decline over long-wave periods of expansion, such as occurred after World War II.

In his paper, Blaug does not refer to specific estimates of the rate of profit; he simply states that "the money rate of profit has shown no persistent trend for over 100 years" (p. 45). As mentioned above, in ETR Blaug cites as evidence against Marx's theory Gillman's estimates of the rate of profit in the US economy, which show that the rate of profit decreased significantly from 1880 to 1919, but then increased slightly from 1919 to 1952. However, the second period during which the rate profit increased includes the Great Depression of the 1930s. As just discussed, one would expect on the basis of Marx's theory a significant increase in the rate of profit during such a period of depression. The fact that the rate of profit in 1950 was higher than in 1920 does not necessarily contradict Marx's theory, especially interpreted as a theory of "long-waves." On the other hand, the increases in Gillman's estimates in the 1920's do appear to be inconsistent with Marx's theory. Nonetheless, in spite of these increases, the rate of profit in 1950 was still significantly lower than in 1880 or 1900, thus suggesting a secular decline in the rate of profit.

More recent estimates of the rate of profit in the US economy during the long-wave period of expansion after World War II, not available to Blaug in 1980, are even more consistent with Marx's theory. Two important empirical studies of the trends in the Marxian variables for the postwar U.S. economy by Weisskopf (1979) and Wolff (1979 and 1986) concluded that the rate of profit declined, as predicted by Marx, but for a different reason: because the rate of surplus-value declined significantly, not because the composition of capital increased (their estimates of the composition of capital remained roughly constant).

However, I have argued elsewhere (Moseley 1985, 1988, and 1992, pp. 80-95) that Weisskopf's and Wolff's estimates are not rigorous estimates of the Marxian variables because they do not take into account Marx's important theoretical distinction between productive labor (employed in production activities that produce value and surplus-value) and unproductive labor (employed in circulation and supervision activities that do not produce value and surplus-value). (For discussions of Marx's concepts of productive labor and unproductive labor, see Rubin 1972, Chapter 19; Gough 1972; Braverman 1974, Chapter 19; and Moseley 1982, Chapter 4, and 1992, Chapter 2. Blaug's interpretation of these concepts seems to be broadly similar to the one adopted here; see ETR, pp. 275-76. Gillman's estimates relied upon by Blaug also take this distinction into account.) I have presented alternative estimates of the Marxian variables for the postwar US economy which do take into account this important distinction in Marx's theory (following Gillman in many respects).[6] These estimates show that the rate of profit declined over the postwar period approximately 20% because the composition of capital increased faster (40%) than the rate of surplus-value (15%), consistent with Marx's theory (see Moseley 1988 and 1992, Chapter 3).

It should also be pointed out that Marx's theory of the trend of the rate of profit is focused on one key question: the effect of technological change on the rate of profit. There are other factors besides technological change which also affect the value composition of capital and hence the rate of profit. The most important of these "other factors" are: the real wage of workers, the distribution of capital across industries with unequal compositions of capital, and the turnover time of both fixed and circulating capital. Marx wished to ignore all these other factors in order to focus his analysis of the trend in the value composition of capital and the rate of profit specifically and solely on the effects of technological change. The concept of the organic composition serves the purpose of focusing Marx's analysis in this way. In effect, the concept of the organic composition serves as an abbreviation for a set of ceteris paribus assumptions, i.e. that the other factors listed above remain constant (see Moseley 1992, pp. 3-6, for a further discussion of Marx's concept of the organic composition of capital). However, the recognition that the rate of profit depends on other factors besides technological change makes it more difficult to isolate the effects of technological change. The effects of these other factors on the rate of profit in the postwar U.S. economy are analyzed in Moseley (1992, pp. 69-75 and 79); the conclusion of this analysis is that all these other factors had a positive effect on the rate of profit, so that the effect of technological change by itself on the rate of profit was even more negative than the unadjusted estimates of the rate of profit indicate. According to this analysis, technological change by itself reduced the rate of profit by approximately 30%, even more consistent with Marx's theory.

Empirical studies of Marx's theory of the falling rate of profit using data from other advanced capitalist countries generally use a methodology similar to Weisskopf's and Wolff's and come to similar conclusions: that the rate of profit decline, but due to a decline in the rate of surplus-value rather than to an increase in the composition of capital (e.g. Reati 1986 and 1989). Only one set of estimates of the Marxian variables for these countries has been published which distinguishes between productive labor and unproductive labor: Freeman's recently published paper (1991) for the U.K., which show trends similar to mine for the U.S., i.e. the rate of profit declined because the composition of capital increased faster than the rate of surplus-value, consistent with Marx's theory. Further research along these lines for other countries is clearly called for and would hopefully enable us to determine whether the trends identified in the U.S. and the U.K. were general trends for the world capitalist economy as a whole during the postwar period.

Thus it appears that a more rigorous and thorough examination of the empirical evidence related to Marx's theory of the falling rate of profit lends much more support to Marx's theory than Blaug suggests. Further research is clearly needed, both for earlier periods and for other countries besides the U.S., before more definite conclusions can be reached. However, one cannot justifiably conclude on the basis of the evidence available at the present time that Marx's theory of the falling rate of profit is refuted by the historical evidence. To the contrary, on balance the evidence tends to support rather than contradict Marx's theory.

b. Impoverishment of workers

With regard to Marx's prediction of impoverishment, I agree with Blaug that the meaning of impoverishment for Marx was not in the absolute sense of declining real wages. Instead, impoverishment meant a relative decline in the income of workers compared to capitalists. (For similar interpretations, see Sowell 1960; Baumol 1984; and Rosdolsky 1977, pp. 282-313; and Kolakowski 1978, pp. 288-9[7]

Furthermore, it is less generally recognized that Marx's theory of the relative impoverishment of workers is developed solely in terms of productive labor; in other words, this theory abstracts from unproductive labor, as indeed does the entire Volume 1 of Capital in which this theory is presented (see references cited in previous section). Thus, wages in Marx's theory of relative impoverishment refer only to the wages of productive labor and the total surplus-value is assumed to be the income of capitalists. Under these assumptions, the conclusion that the income of productive workers will decline relative to that of capitalists is equivalent to the conclusion that the rate of surplus-value will tend to increase, where the rate of surplus-value is defined as the ratio of surplus-value to variable capital, and variable capital refers only to the wages of productive labor (see below for a further clarification of these concepts).

Even in this restricted sense, I agree with Blaug that Marx's theory does not provide a definite prediction with respect to the trend in the relative income of productive workers or in the rate of surplus-value. However, I think that there is more of a substantial argument than Blaug acknowledges. The trend in the rate of surplus-value depends primarily on the relative rates of increase in the productivity of productive labor and the real wages of productive labor.[8] If the productivity of productive labor increases, due to technological change, faster than the average real wage of productive labor, then the rate of surplus-value will increase (C.I. Part 4). Marx argued that this condition would in general be fulfilled because of the downward pressure exerted on the real wage by the reserve army of unemployed workers and because of the rapid rates of productivity growth that are likely to result from capitalism's inherent tendency toward technological change. Blaug mentions only the downward pressure on real wages and does not mention the likely rapid productivity growth. (For a further discussion of Marx's theory of the tendency of the rate of surplus-value to increase, see Moseley 1982, Chapter 4). As in the case of the falling rate of profit, since Marx's theory does not make a definite prediction that the rate of surplus-value will increase, estimates of the rate of surplus-value do not provide a conclusive test of the fundamental assumption of the labor theory of value, but only of the auxilary assumption that the productivity of productive labor would increase faster than the real wage of productive labor.

With respect to the empirical evidence, Blaug argues that Marx's conclusion of relative impoverishment is contradicted by the general trend of an increase in the wage share of national income in most capitalist countries. I argue to the contrary that the wage share of income does not distinguish between productive labor and unproductive labor and therefore is not the appropriate evidence related to Marx's conclusion of relative impoverishment. The main difference between the wage and profit shares of income and the rate of surplus-value may be briefly summarized as follows (for a further discussion of these differences, see Moseley 1985): According to Marxian theory, the conventional concept of wages (W) should be divided into variable capital (V) and the wages of unproductive labor (U_w):[9]

$$W = V + U_w$$

Similarly, the conventional concept of profit is equal to the difference between the annual flow of surplus-value (S) and the annual flow of unproductive capital (U_f) (mostly the wages of non-production workers, but also the annual costs of non-production buildings and equipment):[10]

$$P = S - U_f$$

Combining these two equations, we obtain the following expression for the ratio of profit to wages (a simplified version of the profit share with roughly the same trend):

$$\frac{P}{W} = \frac{S - U_f}{V + U_f}$$

Finally, dividing all terms on the right-hand side by variable capital (the "source" of surplus-value, according to Marx's theory), we obtain:

$$\frac{P}{W} = \frac{S/V - U_f/V}{1 + U_w/V} = \frac{RS - UF}{1 + UW}$$

Thus according to this Marxian analytical framework, the conventional ratio of profit to wages (i.e. relative income shares) depends not only on the rate of surplus-value, but also on the two ratios of unproductive capital to variable capital, UF and UW, which in turn depend primarily on the underlying ratio of unproductive labor to productive labor. Therefore, the trend in the profit share may be very different from the trend in the rate of surplus-value and estimates of the profit share do not provide a reliable empirical test of Marx's theory of an increasing rate of surplus-value or the relative impoverishment of productive workers. More specifically, even though the rate of surplus-value increases, the wage share which Blaug emphasizes may also increase, due to increases in the ratios UF and UW, i.e. due to a relative increase of unproductive labor (see Moseley 1985 for a further discussion of this Marxian theory of income shares).

By contrast, neoclassical theory provides no rigorous theory of aggregate income shares. Hicks (1935) presented a neoclassical theory of aggregate income shares, but this theory was based on the assumption of an aggregate production function. After the "capital controversy" of the 1960s, such an assumption is no longer tenable, and neoclassical economists have generally retreated to microeconomic production functions and general equilibrium theory, which provides no theory of aggregate income shares (see Blaug, ETR, pp. 465-72).

Rigorous estimates of the rate of surplus-value which take into account Marx's distinction between productive labor and unproductive labor generally show a rising trend, consistent with Marx's conclusion. Three such sets of estimates have already been mentioned above: Gillman's (1958) estimates for the U.S. economy for the period 1880-1952, my (1985 and 1992) estimates for the post-World War II U.S. economy,[11] and Freeman's (1991) estimates for the post-World War II U.K. economy. Similar estimates of the rate of surplus-value in advanced capitalist countries also show an increasing trend; see Delaunay (1989) for France from 1896 to 1980 and Gouveneur (1983) for five European countries from 1966 to 1978.[12]

In spite of the increase in the rate of surplus-value in the postwar U.S. economy, the wage share of income, which Blaug emphasizes, also increased significantly during this period. According to the Marxian theory of income shares sketched above, this increase in the wage share (or decrease in the profit share) was due to a very significant increase in the ratio of unproductive labor to productive labor during this period (approximately 70%). (This Marxian explanation of the decline in the profit share is presented more fully in Moseley 1985.)

Thus it appears that, similar to the falling rate of profit, the empirical evidence generally supports Marx's conclusion of a rising rate of surplus-value or the relative impoverishment of productive workers.

c. Other conclusions

I emphasize these remaining conclusions more than Blaug does. I consider these other conclusions important evidence of the explanatory power of Marx's theory. The most important of the remaining conclusions of Marx's theory discussed by Blaug is the inherent tendency toward technological change. As mentioned above, Blaug does not explicitly discuss whether this prediction follows from Marx's premises. I argue that in this case Marx's theory does provide a definite prediction. Marx derived the inherent tendency toward technological change in a straightforward way from his labor theory of value and surplus-value in Chapter 12 of Volume 1 of Capital. Marx argued that since the amount of surplus-value depends on the amount of surplus labor, the development capitalism will be characterized by continual attempts to increase the surplus labor portion of the working day. Once legal limits to the length of the working day are established, the primary means by which surplus labor can be increased is through technological change which increases the productivity of labor and which thereby reduces necessary labor. Marx concluded:

> Capital therefore has an immanent drive, and a constant tendency, towards increasing the productivity of labor ... (Marx 1977, pp. 436-37)

The historical evidence obviously strongly supports this definite prediction of Marx's theory. Technological change which increases the productivity of labor is one of the most prominent characteristics of capitalist economies. By contrast, neoclassical theory provides no explanation of the necessity of technological change in capitalist economies and certainly no definite prediction that technological change will necessarily increase the productivity of labor. Instead, technology in neoclassical economics is usually treated as "exogenously given." Blaug has noted elsewhere that Marx's "persistent emphasis on technological change as an inherent feature of the process of capital accumulation provides a healthy antidote to the static bias of received doctrine" (1960/1968, p. 227).

A related prediction of Marx's theory, which Blaug does not discuss, is that the physical ratio of machinery to current labor (analogous to the capital-labor ratio in neoclassical economics) would increase over time. This prediction follows from the tendency toward technological change which increases the productivity of labor, just discussed, and from the technological fact that, except for a few minor exceptions, it is almost always necessary to replace current labor with machinery in order to increase the productivity of total (current and past) labor. (C.I. Chapter 25, Section 2).[13]

> The increasing productivity of labor (insofar as it is concerned with machinery) is identical with the decreasing number of workers relatively to the number and the extent of the machinery employed. (Marx 1971, pp. 365)

Again, the history of all capitalist nations strongly supports this definite prediction of Marx's theory. Again by contrast, neoclassical theory makes no prediction concerning the trend in the capital-labor ratio.[14]

A related and even more striking prediction of Marx's theory is that technological change will tend to substitute machinery for labor even in capitalist economies which are "labor-abundant" or "capital scarce," such as England in the early 19th century and most of the developing countries today. Even under such conditions of labor abundance, it remains true, according to Marx's theory, that the primary way to increase surplus labor and surplus-value is to increase the productivity of labor, which usually requires the substitution of machinery for current labor, as just discussed. In other words, Marx's theory assumes that relative factor supplies have little effect on the tendency to substitute machinery for current labor. Neoclassical theory, on the other hand, seems to predict that such labor abundant economies should be characterized by the widespread replacement of machinery with labor, both by "substitution" and perhaps by an induced "labor-saving" bias in technological change. The history of developing countries supports Marx's prediction and contradicts the neoclassical theory. For example, in recent decades most of the large cities in these countries have exploded in population and yet there has continued to be "labor-saving" technological change in capitalist firms in these countries.

Another important conclusion of Marx's theory, which Blaug does not discuss in this paper, but does discuss in a related paper, is the inherent conflict over the length of the working day. As mentioned above, Blaug acknowledges that Marx's theory makes a definite prediction in this case, although again the logic of this prediction is not discussed. I argue that Marx's conclusion of conflict over the working day follows directly from his theory of value and surplus-value, similar to the conclusion of technological change just discussed: since the amount of surplus-value is determined by the amount of surplus labor, capitalists will continually attempt to increase the length of the working day in order to increase surplus labor, or will resist attempts of workers to reduce the length of the working day. Thus a conflict over the length of the working day is inevitable in capitalism. This conclusion is derived in Chapter 10, Section 1, of Volume 1 of Capital:

> Hence, in the history of capitalist production, the establishment of a norm for the working day presents itself as a struggle over the limits of that day, a struggle between collective capital, i.e. the class of capitalists, and collective labor, i.e. the working class. (Marx 1977, pp. 344)

This conclusion is obviously supported by the actual conflict over the length of the working day throughout the history of capitalism.

As noted above, Blaug argues that an alternative explanation of this conflict over the working day can be provided and thus that the actual conflict over the working day does not conclusively prove that the explanation provided by Marx's theory of value and surplus-value is necessarily the correct one. This is not the place to examine in detail Blaug's alternative explanation of the conflict over the working day. But one point will be noted. Blaug's explanation of the conflict over the working day does not depend in any way on the general neoclassical theories of profit or interest, i.e. the marginal productivity and/or time preference theories. Instead, Blaug's explanation assumes that profit depends on the productivity of labor, which seems more similar to Marx's theory than to these neoclassical theories. A conflict over the working day cannot be deduced from these neoclassical theories. According to these theories, profit depends on the marginal product of capital and/or the time preferences of capitalists, and does not depend in any way on the length of the working day. Thus Marx's theory has the advantage over these neoclassical theories that it provides an explanation and indeed a prediction of continuing conflict over the working day. In other words, the actual conflict over the working day lends empirical support to Marx's theory, but not to these neoclassical theories.[15]

A related definite prediction of Marx's theory which Blaug does not discuss in these papers, but does discuss in ETR (pp. 243-44), is the <u>conflict over the intensity of labor effort</u>. This prediction also follows directly from Marx's labor theory of surplus-value in the same way as the conflict over the length of the working day just discussed. An increase in the intensity of labor is an alternative means, besides an increase of the working day, of increasing the total labor and thus of increasing the surplus labor (an "intensive" increase of labor rather than an "extensive" increase).

> The sole driving motive and determining purpose of capitalist production is the self-valorization of capital to the greatest possible extent, i.e. the greatest possible production of surplus-value, hence the greatest possible exploitation

> of labor-power by the capitalist. As the number of cooperating workers increases, so too does their resistance to the domination of capital, and necessarily, the pressure put on by capital to overcome this resistance.... The control exercised by the capitalist ... is a function of the exploitation of a social labor process, and is consequently conditioned by the unavoidable antagonism between the exploiter and the raw material of his exploitation. (Marx 1977, pp. 449; see also pp. 533-43)

Blaug argues in ETR that Marx's prediction of conflict over the intensity of labor has nothing to do with Marx's labor theory of value, but is instead based on Marx's remarkable sociological insights concerning the "despotism of the workplace" (p. 243). One can only conclude that Blaug does not understand the logic of Marx's theory on this point: the conflict of the intensity of labor follows as a straightforward logical deduction from the labor theory of value and surplus-value, as do technological change and the conflict over the working day. This definite prediction of Marx's theory is also clearly supported by the historical evidence.

By contrast, the neoclassical theories of profit or interest (marginal productivity, time preference, etc.) provide no explanation of the conflict between firms and workers over the intensity of labor. Instead, according to these theories, profit or interest is independent of the intensity of labor; thus these theories cannot explain why there should be a conflict over the intensity of labor. The traditional neoclassical theory of the firm also provides no explanation of the conflict over the intensity of labor because this theory assumes perfect knowledge of all the relevant variables, including the intensity of labor effort, which firms simply take as a given. In recent years, a new neoclassical theory has emerged primarily within the field of labor economics to explain the conflict between firms and workers over the intensity of labor effort. This new theory is generally developed in terms of a "principal-agent" model. According to this theory, there is a conflict over the intensity of labor because labor effort partially determines net output which in turn partially determines the profit of firms (see e.g. Stiglitz 1975, Holstrom 1979). However, this principal-agent theory assumes an entirely different theory of profit than the standard neoclassical theories of profit or interest. Instead of profit depending on the marginal product of capital or the time preferences of individuals, principal-agent theory assumes that profit depends, at least in part, on the labor effort of workers. Thus, neoclassical theory has not yet been able to provide a coherent, integrated explanation of profit and the conflict over the intensity of labor.

Another conclusion of Marx's theory which Blaug mentions is the increasing severity of depressions and recurring unemployment. Blaug interprets this conclusion as a corollary of a secular decline in the rate of profit. I have argued above that Marx's theory does not necessarily predict that the rate of profit will decline over the secular long run because the rate of profit is increased during periods of depression and it is difficult if not impossible to predict the extent of these increases during depressions. Therefore, it does not necessarily follow from Marx's theory of the falling rate of profit that depressions and unemployment will become increasingly severe over time, but only that depressions and high unemployment will continually recur.[16] It should be noted that Marx's theory was the first to predict that the development of capitalism would be characterized by periodic depressions, which would seem to be a significant strength of Marx's theory. In terms of Lakatos' methodology, Marx's prediction in the 1860s of recurring depressions would seem to qualify as a "novel fact" which was later corroborated by the evidence, which according to Lakatos is the primary indicator of a "progressive" research program.[17]

I argue that the empirical evidence generally supports this prediction of Marx's theory at least up through the Great Depression of the 1930s. Indeed, one could even argue that depressions in general became increasingly severe up through the 1930s. On the other hand, the absence of a severe depression since the 1930s has made it appear that this prediction is no longer supported by the facts. However, the increasing instability of the last two decades has eroded this optimism and once again raised fears of another serious depression. Marx's theory suggests that such a depression is very likely to occur. In this sense, the next decade or so will provide further evidence related to the validity of this all-important conclusion of Marx's theory (see Moseley 1992, Chapter 6, for a further discussion of the implications of Marx's theory for the U.S. economy in the 1990s). In any case, I argue that it is one-sided and premature to conclude, as Blaug does, that this conclusion has been "glaringly refuted" by the evidence. Green (1991) also concluded that "it is hard to come away from a historical overview without endorsing the view of mass unemployment as somehow endemic to capitalism."

Another conclusion of Marx's theory mentioned by Blaug is the increasing concentration of capital, in the sense of an increasing size of firms and the related phenomenon of an increasing share of output produced by fewer and fewer large firms (i.e. a decline in competition and an increase of monopoly power). Blaug does not discuss Marx's derivation of this conclusion, which follows from the conclusions already discussed of inherent technological change, the falling rate of profit, and periodic depressions (see Marx 1977, pp. 775-80).

> Apart from the terror which the law of the falling rate of profit inspires in economists, its most important corollary is the presupposition of a constantly increasing concentration of capitals, that is, a constantly increasing decapitalisation of the smaller capitalists. This, on the whole, is the result of all laws of capitalist production.
> (Marx 1971, pp. 447)

The historical evidence obviously supports this prediction of Marx's theory; Blaug himself states that this is "one of Marx's more remarkable predictions" (p. 47). Marx's definite prediction which is strongly supported by the evidence stands out in sharp contrast to the neoclassical theory of the firm, which makes no prediction regarding the trend in the size of firms.[18] Marx's prediction in the 1860s of an increasing concentration of capital would also seem to qualify as another "novel fact" which has been later corroborated by the evidence.

A related prediction of Marx's theory mentioned by Blaug is the declining percentage of self-employed producers and the increasing percentage of the labor force who are employees. Blaug does not discuss the logic behind this conclusion nor comment on its empirical validity. In Marx's theory, this conclusion follows primarily from the inherent technological change of capitalism and the resulting concentration of capital which leads to the destruction of small-scale self-employed producers in both agriculture and manufacturing. No other economic theory makes a prediction concerning the evolution of the class structure in capitalist societies. The historical evidence also strongly supports this prediction of Marx's theory. In the United States, for example, the percentage of the labor force that were employees increased from 5% in 1790 to 50% in 1890 to 85% in 1990. Other major capitalist nations have experienced similar evolutions.

Finally, another important prediction of Marx's theory, which Blaug does not discuss at all, is the <u>necessity of money</u> in a commodity (or market) economy. This conclusion follows from Marx's fundamental assumption of the labor theory of value and is derived in the important but usually neglected Section 3 of Chapter 1 of Volume 1 of <u>Capital</u>.[19] Briefly, Marx's argument is the following: In order for each commodity to be exchangeable with all other commodities, the value of each commodity must be comparable with the value of all other commodities in some objective, socially recognizable form. Because the abstract labor which Marx assumed to determine the value of commodities is not directly observable or recognizable as such, this abstract labor must acquire an objective "form of appearance" which renders the values of all commodities observable and mutually comparable. This necessity of a common unified form of appearance of the abstract labor contained in commodities ultimately leads to the conclusion that this form of appearance must be money.

> Because all commodities, as values, are objectified human labor, and therefore in themselves commensurable, their values can be communally measured in one and the same specific commodity, and this commodity can be converted into the common measure of their values, that is into money. Money as a measure of value is the necessary form of appearance of the measure of value which is immanent in commodities, namely labor-time. (Marx 1977, p. 188)

(For discussions of Marx's derivation of the necessity of money from the labor theory of value, see Rosdolsky 1977, Chapters 5 and 6; Weeks 1981, Chapter 6; Murray 1988, Chapter 14; Moseley 1982, pp. 53-66).

Marx emphasized that this derivation of the necessity of money from the labor theory of value was a significant theoretical advance over classical economics, which had simply taken money for granted or had explained the existence of money in ad hoc fashion on the basis of the practical difficulties of barter, unrelated to any theory of value.[20]

> Now, however, we have to perform a task never even attempted by bourgeois economics. That is, we have to show the origin of this money-form, we have to trace the development of the expression of value contained in the value-relation of commodities from its simplest, almost imperceptible outline to the dazzling money-form. When this has been done, the mystery of money will immediately disappear. (Marx 1977, p. 139)

Marx's derivation of the necessity of money is also clearly superior to neoclassical utility theory, which has so far not been able to provide a satisfactory explanation of the existence of money in commodity economies and thus has not yet satisfactorily overcome the separation between value theory and monetary theory in neoclassical economics. As expressed by Frank Hahn, one of the leading proponents of neoclassical theory: "The most serious challenge that the existence of money poses to the theorist is this: the best developed model of the economy cannot find room for it." (1983, p. 1) By "the best developed model," Hahn means neoclassical general equilibrium theory.[21] The fundamental reason why utility theory has not been able to explain the existence of money is that this theory is based on the utility preferences of individuals, and money itself yields no direct utility.

The empirical evidence obviously supports this important prediction of Marx's theory. A generalized barter economy without money has never existed, as Marx's theory suggests.

CONCLUSION

I conclude from this reexamination of the evidence that Marx's theory is much stronger on the scientific criterion of empirical validity than Blaug suggests and is commonly thought. Marx's theory does make some important definite predictions, all of which are supported by the historical evidence: the necessity of money, inherent technological change, increasing of ratio of machinery to labor, conflict over the length of the working day and over the intensity of labor, increasing concentration of capital, and the increasing percentage of wage-laborers. Furthermore, although Marx's theory does not provide a definite prediction concerning the all-important trend in the rate of profit, it does provide a more substantial theory of this trend than any other economic theory, and the empirical evidence largely supports Marx's conclusion of a declining rate of profit during long-wave periods of expansion. Similar evaluations apply to Marx's conclusion of an increasing rate of surplus-value, or the relative impoverishment of productive workers.

Therefore, Blaug's strong conclusion that Marx's theory has been largely refuted by the evidence is not supported by this reexamination of the empirical evidence. On the contrary, the evidence available thus far as discussed above generally supports the opposite conclusion: that Marx's theory is largely consistent with the empirical evidence and has an impressive range of explanatory power.

Further consideration of the empirical validity of Marx's theory should compare the explanatory power of Marx's theory with that of other competing economic theories, especially the predominant neoclassical theory, and especially with respect to their respective theories of profit. The same kind of questions which have been asked above about Marx's theory should also be asked about neoclassical theory. What definite predictions are made by the neoclassical theories of profit or interest? What are the empirical evidence related to the conclusions of these neoclassical theories? In sum, what is the relative explanatory power of neoclassical theory of interest compared to Marx's theory? I have made a few brief remarks in this paper about the relative explanatory power of Marx's theory and neoclassical theory, but all these comparisons need to be examined in much greater detail and other relevant comparisons need to be explored.

It is my preliminary conjecture that such a full-scale reevaluation of the relative explanatory power of Marx's theory of profit and the neoclassical theories of profit would reveal Marx's theory to be superior. Although Marx's theory does not always provide definite predictions and the empirical evidence related to Marx's conclusions is not always conclusive, I believe that such a reevaluation would show that Marx's theory of profit provides a much more substantial theory of capitalism's important dynamic tendencies than does neoclassical theory and that the empirical evidence supports Marx's conclusions more strongly than the neoclassical conclusions.[22]

EPILOGUE

My response to Blaug's appraisal of Marx's economic theory originally appeared in (Moseley 1995). Blaug was invited to write a reply to my response and Blaug's reply was also included in this volume. In Blaug's reply, he considerably modifies the very strong negative conclusion of his initial appraisal. Blaug disputes a few points, but at least implicitly accepts many of my arguments, including that Marx's theory does make important definite predictions regarding inherent technological change, conflicts over the working day and over the intensity of labor, the increasing concentration of capital, and the necessity of money, and that Marx's conclusions are in general supported by the empirical evidence. It appears that my reexamination of the empirical evidence has forced Blaug to concede that Marx's theory does indeed have considerable explanatory power.

Blaug also appears to agree that Marx's theory provides a better theory of the dynamic tendencies of capitalism than does neoclassical theory. Blaug quotes my conclusion to this effect and then says:

> The point is made as soon as it is said: neoclassical economics is essentially a static theory of resource allocation ... , and as such does not make predictions about the dynamic evolution of the capitalist system. (p. 135)

However, Blaug argues further that, because of this restricted focus of neoclassical theory, it is not possible to compare the two theories. The two theories address completely different sets of questions; i.e. they are "incommensurable". Marx's theory addresses the big questions of the dynamic laws of motion of capitalism and neoclassical theory addresses the small, static, short-run questions.

I agree in part with Blaug's argument, which seems to me to be a significant indictment of neoclassical theory. However, I think there is one significant area of overlap between Marxian theory and neoclassical theory: they both attempt to provide an explanation of profit or interest (or the return to capital). Therefore, it should be possible to conduct a comparative appraisal of the relative explanatory power of the Marxian and neoclassical theories of profit, as suggested above.

Finally, Blaug concludes his reply with the suggestion that Marx's attempt to develop a theory of the long-run dynamics of capitalism is really "too ambitious", and that we should:

> lower our sights theoretically speaking ... and settle for loosely structured histories of the evolution of capitalist systems, predicting little because we can explain so little. (p. 135)

This suggestion is astonishing, coming from such a staunch Popperian, who has for most of his career emphasized definite predictions as the hallmark of scientific theory. This abandonment of the attempt to develop a general, predictive, dynamic theory is a further indication of the failure of neoclassical economics. Therefore, if we want to continue to develop a general theory of the dynamic evolution of capitalist economies, it appears that Marx's theory is the best alternative, and indeed perhaps the only alternative.

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ENDNOTES

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2. Popper's famous criticism of Marx's theory is also based primarily on the refutation of absolute impoverishment and the absence of revolution in advanced capitalist countries and thus is also not an appropriate appraisal of Marx's economic theory.

3 . Parekh (1982, Chapter 8) also argues that correspondence with reality was Marx's primary criterion for the validity of social theories and that Marx did not regard praxis to be a criterion for truth, but rather the goal or aim of theoretical activity. Parekh also argues that another important aspect of Marx's empirical evaluation of the validity of social theories is the extent to which theories are able to demonstrate the necessity of the observed phenomena, which shows the influence of Hegel on Marx's thinking.

4. Thus I disagree with Wolff and Resnick's (1987) "post-modern Marxist" methodology, according to which it is not possible to objectively determine the validity of different theories and instead theories should be accepted or rejected on the basis of their political consequences (i.e. whether their assumptions and conclusions are favorable to or critical of capitalism). I argue, to the contrary, that the political consequences of different economic theories, although certainly important, have nothing to do with the validity of these theories. The validity of different theories depends on their correspondence with empirical reality, not on their political consequences. For a further critical discussion of Wolff and Resnick's methodology, see Moseley 1990.

5 . For a further discussion of Marx's theory, see Moseley 1992, Chapter 1.

6 . One important distinction between Gillman's estimates and my estimates is that Gillman's estimates refer only to the manufacturing sector of the economy and my estimates more appropriately refer to the total capitalist economy.

7 . Impoverishment also had a qualitative connotation for Marx: the decline of workers power relative to capitalists, the degradation of the labor process, etc. In ETR, Blaug mentions this qualitative aspect of Marx's notion of impoverishment (p. 257).

8 . The rate of surplus-value also depends on the length of the working day and the intensity of labor. But Marx argued that these other two factors would in general mutually offset each other (a decline in the working day offset by an increase in the intensity of labor) so that the net effect of the trend of the rate of surplus-value would be minor.

9 . Marx's concept of unproductive labor consists of two main types: unproductive labor employed by <u>capital</u> (i.e. by capitalist enterprises) and unproductive labor employed by <u>revenue</u> (i.e. by governments and households) (For a further discussion of these types of unproductive labor, see Moseley 1982, Chapter 5). In order to simplify, unproductive labor refers in this paper only to unproductive labor employed by <u>capital</u>. Thus the resulting expressions for the wage and profit shares refer to shares of <u>business</u> income, not to shares of <u>national</u> income. Unproductive labor employed by revenue is an additional reason why the wage share of national income is different from Marx's concept of the rate of surplus-value.

10 . The conventional rate of profit also differs from Marx's concept of surplus-value in the following minor respects which are ignored in this analysis: indirect business taxes are not included in profit and are included in surplus-value; and various imputations for non-market transactions are included in profit and are not included in surplus-value. These differences have very little effect on the trends of income shares.

11 . In the U.S., real wages have actually declined about 10-15% since the mid-1970s, thus indicating absolute impoverishment during this period of stagnation.

12 . There has also been widespread absolute impoverishment in most of the less developed countries (especially Africa and Latin America) during the last decade or so of worldwide economic stagnation.

13 . Marx's prediction is actually in terms of the ratio of the quantity of machinery <u>and raw materials</u> to labor. Marx called this ratio the "technical composition of capital." The tendency of the technical composition of capital to increase is the starting point of Marx's analysis of the effects of technological change on the rate of profit, discussed above. Marx argued that technological change would increase both the quantity of machinery and the quantity of raw materials relative to labor; the former is a "condition" for increased productivity of labor and the latter is a "consequence" of increased productivity. This tendency is discussed here in terms of the ratio of machinery to labor for purposes of comparison with the neo-classical capital-labor ratio.

14 . According to neoclassical theory, the trend in the capital-labor ratio depends on the relative rates of increase of factor supplies and factor demands (the latter of which depends on the bias of technological change). But neoclassical theory makes no predictions concerning these relative rates of increase over time. Furthermore, according

to Blaug, neoclassical theory cannot even provide an ex-post explanation the causes of the observed increase in this ratio, because it cannot discriminate empirically between supply causes and demand causes (Blaug, ETR, 477-78).

15 . Blaug's explanation of the conflict over the working day also contradicts the neoclassical theory of labor supply, according to which the working day is determined by the preferences of workers, because competition among firms forces them to accommodate workers' preferences. (e.g. Owen 1979) According to this theory, there should be no conflict between firms and workers over the length of the working day. Blaug argues that competition has the opposite effect: that it forces firms to resist attempts by workers to reduce the working day because such a reduction will reduce profit in the short run. In ETR, Blaug severely criticizes the neoclassical theory of labor supply; he argues that this theory "simply does not fit the facts of the labor market." (p. 314).

16 . It might be asked whether government policies might be able to offset capitalism's inherent tendency toward depressions, so that this conclusion of Marx's theory might have to be modified. I have argued elsewhere (Moseley 1992, pp. 159-60), following the pioneering work of Paul Mattick (1969), that government policies are able only to postpone the onset of depressions, but cannot completely eliminate capitalism's tendency toward depressions, because such policies can have only a minimal effect on the rate of profit. As early as the 1950s, Mattick predicted on the basis of Marx's theory, and almost alone among economists, that sooner or later the effectiveness of government policies would come to an end and that the postwar boom would be followed by yet another period of crisis and stagnation. The events of the last 20 years support Mattick's conclusions.

17. Lakatos himself had this to say about Marx's theory:

> Has, for instance, Marxism ever predicted a stunning novel fact successfully? Never! It has some famous unsuccessful predictions. It predicted the absolute impoverishment of the working class. It predicted that the first socialist revolution would take place in the industrially most developed society. It predicted that socialist societies would be free of revolutions. It predicted that there will be no conflict of interests between socialist countries. Thus the early predictions of Marxism were bold and stunning, but they failed. (1978, pp. 5-6)

Not one of the predictions mentioned by Lakatos in this strident passage is a prediction of Marx's economic theory. On the other hand, the predictions of Marx's theory discussed in this paper are not mentioned by Lakatos. Thus Lakatos' sweeping denunciation of Marx's theory is completely unjustified.

18. In ETR, Blaug remarks: "Once again, it is apparent how remote is the traditional theory of the firm from the actual laws which govern the growth of the firm in the real world." (p. 457)

19. Blaug misses entirely the importance of Marx's derivation of the necessity of money. He states in ETR (p. 268): "The reader will miss little by skipping over the pedantic third section of chapter 1 on which the hands of Hegel lie all too heavily." Thanks to Cesare Giuseppe Galvan for pointing out this passage to me.

20. De Marchi (1991, pp. 7 and 13-14) argues that Lakatos included in his definition of "novel facts" events which were previously known, but which were "fortuitous" or not explained in other theories. Marx's explanation of the necessity of money would seem to qualify as such a novel fact; so also do Marx's explanations discussed above of the conflict over the working day and the intensity of labor, the necessity of technological change, and the falling rate of profit.

21. Elsewhere Blaug (1980, p. 188) also discusses the difficulty of incorporating money into general equilibrium theory. He argues that the main way money has been incorporated has been to assume some form of uncertainty, but this assumption is inconsistent with the rest of general equilibrium theory which is based on the assumption of perfect information. Davidson (1977), a more severe critic of general equilibrium theory, has argued that the repeated efforts of general equilibrium theorists (e.g. Patinkin, Clower, Grandmont) to explain the essential role of money in a commodity economy have all been ad hoc, artificial, and contrived adjustments. Davidson argues further that such ad hoc hedging of general equilibrium theory is suggestive of a "degenerate research program" in the sense of Lakatos (p. 556).

22. In earlier comparisons between Marxian theory and neoclassical theory, Lange (1935/1968) and Leontieff (1938/1968) have both argued that the explanatory power of Marxian theory is superior to that of neoclassical theory.

> Thus the Marxian claim that "bourgeois" economists failed to grasp the fundamental developmental tendencies of the evolution of the Capitalism system proves to be true. They either denied the existence of these tendencies or if they took account of them they never succeeded in explaining them by a consistent theory of economic evolution... On the other hand, Marxian economics must be admitted to have developed a theory which investigates the causal mechanism of this evolution and shows its inevitability. (Lange, pp. 70-71)

However important these technical contributions to the progress of economic theory, in the present-day appraisal of Marxian achievements they are overshadowed by his brilliant analysis of the long-run tendencies of the capitalistic system. The record is indeed impressive: increasing concentration of wealth, rapid elimination of small and medium-sized enterprise, progressive elimination of competition, incessant technological progress accompanied by the ever growing importance of fixed capital, and, last but not least, the undiminishing amplitude of recurrent business cycles - an unsurpassed series of prognostications fulfilled, against which modern economic theory with all its refinements has little to show indeed. (Leontief, p. 94)

However, these evaluations are too much brief to be conclusive, and in any case, need to be reexamined after 50 years.