Marx on Absolute and Relative Wages and the Modern Theory of Distribution

ENRICO SERGIO LEVRERO*

Dipartimento di Economia, Università degli Studi Roma Tre, Italy

ABSTRACT *This paper aims at clarifying some aspects of Marx's analysis of the determinants of wages and of the peculiarity of labour as a commodity, focusing on three related issues. The first is that of Marx's notion of the subsistence (or natural) wage rate: the subsistence wage will be shown to stem, according to Marx, from socially determined conditions of reproduction of an efficient labouring class. The second issue refers to the distinction between the natural and the market wage rate that can be found in Marx, and his critique of Ricardo's analysis of the determinants of the price of labour. Here the 'law of population peculiar to the capitalist mode of production' (that is, Marx's industrial reserve army mechanism) will be considered both with respect to cyclical fluctuations of wages and to their trend over time. Moreover, a classification of the social and institutional factors affecting the average wage rate will be advanced. Finally, the last issue concerns Marx's analysis of the effects of technical progress on both absolute and relative wages (that is, the wage share). It will also be discussed by relating it back to the longstanding debate on the Marxian law of the falling rate of profit, and addressing some possible scenarios of the trend of wages and distribution.*

1. Introduction

The revival of the surplus approach to value and distribution after the publication of Sraffa's *Production of Commodities by Means of Commodities* (1960) has led to the rediscovery of the classical theory of wages and to the critique of its neoclassical interpretations put forth by Samuelson (1978), Hicks & Hollander (1977), Hollander (1979) and Casarosa (1985). Less attention has been devoted to a deeper investigation of Smith's and Ricardo's wage theories as advanced by Marx, who undoubtedly

* *Correspondence Address:* Sergio Levrero, Dipartimento di Economia, Facoltà di Economia, Università degli Studi Roma Tre, Via Silvio D'Amico, 77, 00145 Roma, Italia. Email: levrero@uniroma3.it

represented the highest point of development of the classical theory before its displacement by the marginalist approach.

The aim of this paper is to make a start on filling this gap by clarifying some aspects of Marx's analysis of the determinants of wages and of the peculiarity of labour as a commodity. In particular, the paper will concentrate upon three related issues. The first is that of Marx's notion of the subsistence (or natural) wage rate: the subsistence wage will be shown to stem, according to Marx, from socially determined conditions of reproduction of an *efficient* labouring class. The second issue concerns Marx's distinction between the natural and the market wage rate, and his critique of Ricardo's analysis of the determinants of the price of labour. Here the 'law of population peculiar to the capitalist mode of production' (that is, Marx's industrial reserve army mechanism) will be considered both with respect to cyclical fluctuations of wages and to their trend over time. Moreover, a classification of the social and institutional factors affecting the average wage rate will be advanced. Finally, the third issue refers to Marx's analysis of the effects of technical progress on both absolute and relative wages (that is, the wage share). This aspect of Marx's thought will also be treated by relating it back to the longstanding debate on the Marxian law of the falling rate of profit, and addressing some possible scenarios of the trend of wages and distribution. In addition, some points concerning the relation between money and real wages in a fiat money economy will be discussed in order to assess the ability of Marx's theory of wages to explain income distribution in modern-day capitalist societies.

2. Labour-Power as a Commodity and its Natural Price

According to Marx (1867–94, I, pp. 40–41), a commodity is something that is useful, is produced by labour and is exchanged. Labour-power is a commodity, but with some peculiarities. First, in order to be sold in the market it 'must at all events exist before it

is sold. But could the labourer give it an independent objective existence, he would sell a commodity and not labour …' (Marx, 1867–94, I, p. 535–536). Consequently, unlike the other commodities, which are first produced and then brought to market, labour-power is created only *at the moment* it is brought to market (Marx, 1867–94, I, p. 536n). Second, in order for labour-power to be created, the labourer—who, as a free man, disposes 'of his labour-power as his own commodity'—must be forced to sell it, having 'no other commodity for sale' and himself being 'short of everything necessary for the realisation of his labour-power' (Marx, 1867–94, I, p. 169). Third, labour-power is in any case a special commodity, since there is no other commodity whose price embodies an historical and moral element and whose conditions of use (that is, the intensity and conditions of work) influence the 'exchange-value resulting from it' (Marx, 1862–63, I, p. 45) and are a terrain of conflict between sellers and buyers (see Foley, 1986, p. 43).

Now, if labour-power is a commodity, albeit one with special characteristics, it must exist on the market, that is, its production 'pre-supposes its existence.' In fact 'there can be no labour unless the worker lives and maintains himself, i.e., receives the necessary wages (the minimum wages—wages is synonymous with the value of his labour-power)' (Marx, 1862–63, II, pp. 417–418). As in the case of every other commodity, the value of labour-power is thus determined, according to Marx (1867–94, I, pp. 170–171), by 'the labour-time necessary for the production, and consequently also the reproduction, of this special article.'[1] Indeed,

> Labour-power exists only as a capacity, or power of the living individual. Its production consequently *pre-supposes its existence*. Given the individual, the production of labour-power consists in his reproduction of himself or his maintenance. For his maintenance he requires a given quantity of the means of

[1] In modern terms, it is given by the price of the bundle of wage goods which comprise the subsistence of the worker.

> subsistence. Therefore the labour-time requisite for the production of labour reduces itself to that necessary for the production of those means of subsistence: in other words, the value of labour-power is the value of the means of subsistence necessary for the maintenance of the labourer. *Labour-power, however, becomes a reality only by its exercise*; it sets itself in action only by working. But thereby a definite quantity of human muscle, nerve, brain &c., is wasted, and these require to be restored. This increased expenditure demands a larger income. If the owner of labour-power works to-day, to-morrow he must again be able to repeat the same process *in the same conditions as regards health and strength.* (Marx, 1867–94, I, p. 171; our emphasis; see also Marx, 1862–63, I, p. 45, and Marx & Engels, 1986, pp. 248–249)

The means of subsistence to be given to the labourer must therefore be sufficient to maintain him *in his normal state* as a labouring individual. In this sense, subsistence is like the oil and fuel for an engine. Hence, Marx stated, in order for subsistence to be calculated, a certain length of the labourer's life, to which correspond a certain length and intensity of the working day, must be considered. The value of labour-power might in fact remain the same if the natural price of labour increases to compensate a longer working day, while it will be reduced if the working day is lengthened and wages remain the same.[2]

But as the expected returns from the use of machinery are gross of its wear and tear, Marx maintains that the necessary wage must also include the amount of commodities to be given for replacing the 'wear and tear' of the labourer, that is, it must be sufficient to reproduce the labourer in accordance with the demographic and social conditions of his time. Here, however, a difference with machinery clearly emerges, i.e. in calculating the price of labour a moral and historical element must be considered. Not only do the

[2] Following Marx (e.g. 1867–94, I, pp. 525–527), an operational definition of subsistence should therefore consider what part of an increase in the bundle of commodities given to the labourers truly corresponds to a surplus wage and what part instead merely compensates a greater or faster consumption of the worker as living machinery.

natural wants of the labourer, 'such as food, clothing, fuel, and housing, vary according to the climatic and other physical conditions of his country', but

> the number and extent of his so-called *necessary wants*, as also the mode of satisfying them, are themselves the product of historical development, and depend therefore to a great extent on the degree of civilisation of a country, more particularly on the conditions under which, and consequently on the habits and degree of comfort in which, the class of free labourers has been formed. In contradistinction therefore to the case of the other commodities, there enters into the determination of the value of labour-power a historical and moral element. Nevertheless, in a given country, at a given period, the average quantity of the means of subsistence necessary for the labourer is practically known. (Marx, 1867–94, I, pp. 171–172; our emphasis)[3]

From the foregoing it is clear that, according to Marx, the natural or necessary price of labour is different from the minimum limit of physiological subsistence (see also Baumol, 1983).[4] Thus Marx (1867–94, I, p. 173) wrote:

---

[3] Marx is referring here to the price of unskilled labour. If we consider labour-power of specialised skilled workers we must add the cost of the commodities necessary 'to modify the human organism, so that it may acquire skill and handiness in a given branch of industry' (Marx, 1867–94, I, p. 172). Notice that in order to calculate the wage rates of skilled workers Marx, unlike Smith (1776, Book I, chapter X, pt. 1, pp. 113–114) and modern human capital theory, does not suggest that their wages should also strictly recompense the interests on the sum spent to obtain those 'expensive machines' (which would otherwise be the sum invested in other activities).

[4] Ramirez (2007, p. 30) correctly observes that in Marx (1865, p. 72), the physical minimum is the 'ultimate limit' of wages. But he maintained that in the classical economists we find only a bare physiological minimum, while the necessary wage of Smith and Ricardo contains instead an historical and moral element like that of Marx (see, for example, Smith, 1776, Book V, chapter II, pp. 393, 399–401). Indeed, their notion of subsistence wage can be said to be similar to that of Sen (1987), who posits a relation between commodities and 'capabilities' and observes that in a richer country the collection of commodities needed to satisfy the same

> The minimum limit of the value of labour-power is determined by the value of the commodities, *without the daily supply of which* the labourer cannot renew his vital energy, consequently by the value of those means of subsistence that are physically indispensable. If the price of labour-power falls to this minimum, it falls below its value, since under such circumstances it can be maintained and developed only in a crippled state.

From the foregoing it is also clear that Marx's definition of the natural price of labour is somewhat different from that advanced by Ricardo in Chapter V of his *Principles* ('On Wages'), although it means, according to Marx as well as to Ricardo, the *necessary* price of labour, that is the *cost of reproduction* of the labourer (Marx, 1867–94, I, p. 538). In fact, like Smith, Marx does not refer to an 'unchanged population' as Ricardo (1951–73, I, p. 93) did, to define the natural wage. Marx refers only to the conditions to be satisfied in order to reproduce the amount of employed people at a given stage of accumulation, whatever the owners of the corresponding wear and tear fund will make of it. In the words of Torrens, quoted with approbation by Marx (1867–94, I, p. 172), this price consists in

> such a quantity of necessaries and comforts of life, as, from the nature of the climate, and the habits of the country, are necessary to support the labourer and to enable him to reach such a family as may preserve, in the market, *an undiminished supply of labour*. (Torrens, 1815, p. 62; our emphasis)[5]

'capabilities', so that people can avoid the shame of failing to conform to conventions, will increase or change, just as needs can change.

[5] Therefore, no possibility emerges of ascribing to Marx, as for Ricardo (see for example, Samuelson, 1978; Hicks & Hollander, 1977), J. S. Mill's idea that the wage rate will reach subsistence level only in the far off stationary state in which the rates of change of the capital stock and population are zero.

3. Natural and Market Wage Rates

When looking at Marx's definition of the subsistence wage, it is therefore apparent that, contrary to Rowthorn (1980, p. 208), there is no incompatibility for Marx between a historically determined subsistence wage and the need for the subsistence wage to be sufficient to enable the reproduction of the labourer.

The sense of Marx's reference to the reproduction of workers emerges clearly in the *Theories of Surplus Value*, when Marx himself tackles the definition of the natural price of labour advanced by Smith and Ricardo. Marx observes that in Smith and Ricardo the natural rate of wages 'is the value of labour-power itself, *the necessary wage*' (Marx, 1862–63, II, pp. 222, 400).[6] He also observes that according to Smith wages can be 'above the level of the natural rate' depending on the 'rapidity with which capital accumulates' (Marx, 1862–63, II, p. 223), and that this might bring about a rise in *the natural or subsistence wage itself* (Marx, 1862–63, II, p. 224). Then, in considering Ricardo's mechanism of the adjustment of the market to the natural wage, Marx comes to criticise the principle of population. He notes that, according to Ricardo, in the case of all commodities, the agreement of the market and natural price depends on the facility with which the supply can be increased or diminished. Ricardo stated that in the case of gold, houses and labour, this effect cannot be speedily produced, but in

[6] Some recent interpretations of Smith's theory of wages do not concur with Marx's view that Smith's natural price of labour is the subsistence wage (see e.g. Stirati, 1994). An argument in favour of Marx's view might be traced (see O'Donnel, 1980) in the concomitant facts that (a) Smith argued that 'the subsistence of the labourer' will be 'very different upon different occasions'—that it will be 'more liberal' in a society 'advancing to opulence than in one standing still; and in one standing still than in one going backwards' (Smith, 1776, Book I, chapter V, p. 40); and (b), that at the end of chapter VII, Book I of *The Wealth of Nations*, he stated his intention to show that in every society the *natural* rate of wages 'varies according to their circumstances', that is 'according to their riches or poverty, their advancing, stationary, or declining condition' (Smith, 1776, Book I, chapter VII, p. 71).

principle, Marx (1862–63, II, p. 378) observes, this is not a problem, as it is 'only a question of the more or less rapid or slow operation' of an economic law. Instead the problem resides in Ricardo's emphasis on the action of such a mechanical element in determining the wage rate, as well as in the need for a more efficient mechanism able to keep the wage rate at the subsistence level (cf. also de Vivo, 1982).[7]

For Marx there is, however, a historical reason why the classical economists refer to the population principle. It is that they often identify the accumulation of capital with growing demand for labour, continual rise of wages, and consequently with a fall of profits (see Marx, 1862–63, III, p. 335; 1867–94, I, p. 634). If this is so, Marx comments, 'An increasing population appears to be the basis of accumulation as a continuous process' and 'this presupposes an average wage which permits not only reproduction of the labouring population but also its constant growth' in order to assure

[7] Indeed Ricardo used the Malthusian population principle mainly to refute Malthus's denial that capital accumulation will be accompanied by a fall in the rate of profit due to decreasing returns in agriculture. The population principle allowed Ricardo to distinguish between changes in the price of labour due to decreasing returns in agriculture and those arising from a rate of population growth different from that of capital. But in discussing both the secular trend of wages and the effects of taxation on them, Ricardo recognises that the population adjusts slowly to changes in the capital stock, since labour supply 'cannot be altered at pleasure'. Hence he introduces a different mechanism of adjustment of the actual price of labour to the normal one, which was based upon the relative strength of the parties involved in wage bargaining and the fear of an increasing social conflict if the real wage rate did not reflect that strength (see for instance Ricardo, 1951–73, VIII, p. 196). It is the mechanism which Malthus (1836, p. 181) denied when he argued that it was not Smith's notion of 'common humanity' but the principle of supply and demand that would prevent wages from falling below the subsistence wage; for, according to Malthus, if the wage did fall below subsistence, the resulting diminution of the population would quickly restore the wage back to subsistence. Marx's concurrence with Say's opinion that Ricardo 'determines' the value of labour 'by demand and supply' (Marx, 1862–63, II, p. 400) therefore seems ill-advised to a large extent (see also Steedman, 1982).

an increasing stock of living machineries (Marx, 1862–63, II, p. 477).[8] In fact, if a rate of capital accumulation greater than the increase in population absorbed all the unemployed and underemployed labour, it would be necessary for a worker to raise, for instance, not two, but three or four or five, sons, in order for capital accumulation to proceed at the same rate, and wages would have to rise above the subsistence level in order to achieve this result. It is also clear that, if population achieved the same growth rate as capital, the pool of unemployed labour would stop shrinking, so that capital accumulation would continue without a further fall in the rate of profit.

But according to Marx a wage rate greater than the subsistence wage could not bring about such an increase in population, since there is no certainty that the surplus wage gained by the labourers will be spent by them on necessary consumption instead of on enlarging their life enjoyments. As John Barton had already pointed out (Marx, 1862–63, II, pp. 581–582), there is no univocal relation between wages and population, or even an inverse relation between them. Moreover, what regulates population is more the 'facility of finding employment' than the wage level. It is thus necessary for the capitalist mode of production to create 'a peculiar law of population' so that capital accumulation can be sustained, and that law is based on the transformation of 'circulating' into 'fixed capital'. Through such a transformation, capitalist production provides 'for unexpected contingencies by overworking one section of the labouring

[8] See Smith (1776, Book I, Chapter VIII, p. 89) and Ricardo (1951–1973, I, pp. 218–219), who sometimes called this average wage the 'necessary rate'. Note that in Smith and Ricardo, the subsistence wage can itself change in the course of capital accumulation, thus changing the average rate itself; and that wages can be at the subsistence level also in a 'progressive state' of the economy depending upon how quickly the supply of labour adjusts to demand. Smith and Ricardo also recognised that the adjustment of labour supply may take place through immigration, changes in working hours and so on, as well as through changes in the population's birth and mortality rates.

population and keeping the other as a ready reserve army consisting of partially or entirely pauperised people' (Marx, 1862–63, II, p. 477–478).

The above reconstruction helps us to clarify what ideas about the natural and market wage rates are traceable in Marx. Like Ricardo and Smith, Marx distinguished temporary and permanent factors affecting wages. He thus separates 'the general law of the rise or fall in the profit rate' from the rise or fall in the rate of profit insofar as it is determined by a rise or fall in wages resulting from 'the *temporary* rise or fall in the prices of necessaries' (Marx, 1862–63, III, p. 312).[9] Moreover, when considering *cyclical* variations in labour unemployment as distinct from changes in *permanent* unemployment associated with capital accumulation, Marx distinguished a short-run market wage rate from a long-run market wage rate—which we may say is, like the subsistence wage, an average or 'normal' wage, to be included in the *normal* price of commodities.[10] Thus, in dealing with changes in the average market wage, Marx (1867–94, I, p. 640–64–1) tells us he will abstract from 'the great periodically recurring forms that the changing phases of the industrial cycle impress on [the surplus-population]'. In this latter cyclical context, the changes in the wage rate (relative to the average) will be due to the effect that oscillations of the demand for labour around the

[9] This does not exclude the possibility that temporary variations may be transformed into permanent changes. Thus Marx (1862–63, III, p. 313) seems to agree with the Ricardian view expressed by Malthus that if a rise in wages can lead *for a period of time* to an increase in the price of certain necessaries, especially food, then 'for the less proportional returns to increased tillage', it is possible that 'part of that increase of price becomes permanent, and thus it prevented a complete reaction from taking place through the principle of population'.

[10] 'In times of prosperity, intense expansion, acceleration and vigour of the reproduction process, labourers are fully employed. Generally, there is also a rise in wages which makes up in some measure for their fall below the average during other periods of the business cycle. At the same time, the revenues of the capitalists grow considerably. Consumption increases generally. Commodity prices also rise regularly…' (Marx, 1867–94, III, p. 437).

average or usual level of employment can have on the relative power of the parties involved in wage bargaining. Those effects probably vanish when the actual level of employment comes back to its normal level.

In the case of capital accumulation, a higher average demand for labour will be satisfied by drawing on or increasing the '*customary* supply of labour', through a reduction in permanent labour unemployment or in labour underemployment, so that the wage rate will possibly remain at least to some extent at its natural or necessary level, with no need for any change in population (Marx, 1867–94, I, p. 613; our emphasis). However, according to Marx, the workers' improved bargaining position due to the permanent change in the reserve army of labour may lead to an increase in wages above the subsistence level, and thus also to a change in the value of labour-power, as is implicit in a historically determined notion of subsistence.

This rules out any basis for an interpretation of Marx's theory of wages along the lines of the so-called Canonical Classical Model put forth by Samuelson (1978), Casarosa (1978) and Hollander (1979). Hollander (1984, 2008) makes precisely this error when he argues that we find in Marx a *physiological* subsistence wage compatible with zero population growth, and a different subsistence wage for any required increase in population equal to that of capital. The Canonical model, on the other hand, has been criticised even with respect to its ability to interpret the wage theories of Smith and Ricardo, on the ground that in the classical economists the adjustment of population to capital growth did not imply full employment and was considered complex in character, so that no univocal relation between the wage rate and the rates of capital and population growth can be traced (cf. Caravale, 1985; Garegnani, 1990; Stirati, 1994).

The same point is also useful in clarifying that, unlike what Cottrell & Darity (1988) argue, we do not find in Marx any suggestion that capitalist competition operates in the sphere of the labour market through changes in the total supply, as is it does with other

commodities. Were it to operate in the labour market as it does in other markets, it would require wages to fall as long as there is an excess labour supply. This is not consistent with Marx's emphasis on the existence of permanent labour unemployment, since it would lead to the absurd conclusion that wage rate tends to zero in the absence of a mechanism drawing the economy to full employment.[11] Indeed, as in the classical economists, who similarly admitted permanent labour unemployment (see e.g. Ricardo, 1951–73, I, pp. 389–390; II, p. 241; IV, pp. 346, 368; Smith, 1776, Book I, Chapter VIII, p. 80), Marx viewed competition in the labour market as operating within a context of norms, laws and habits which are respected, consciously or unconsciously, in intentional competitive behaviour. Competition merely guarantees uniform wage rates for the same kind of labour, whose normal levels, however, are fixed *outside* the competitive process, according to the relative strength of workers and capitalists in wage bargaining (cf. Levrero, 2011).[12]

4. Some Determinants of the Trend of the Wage Rate

[11] Thus, according to Blaug (1978, p. 251) and Samuelson (1951), who interpreted Marx through the lens of the neoclassical concept of competition, Marx ought to admit that if there are unemployed people, there might not be a tendency to preserve wages at the value of labour-power.

[12] Hence, to explain why wages do not fall below the necessary level, it is not necessary to appeal to non-competing groups or to the hypothesis that the unemployed are kept out of competition with employed workers by means of their transformation into a stratum of 'broken and degraded workers' (see Cottrell & Darity, 1988, p. 179), though this phenomenon no doubt occurs. On the other hand, as Green (1991, p. 206) has noted, labour supply is viewed by Marx as particularly elastic 'in the region of the value of labour-power'. The factors enforcing a degree of wage rigidity are indeed what Smith called the common humanity, tacit combinations among workers and capitalists, the intervention of the State and so on.

But what factors according to Marx will in fact shape the trend of the real wage rate? In particular, what determines whether the wage rate will be at the subsistence level, or above it (thus possibly changing the subsistence level itself)?

As seen above, for Marx the level of the average wage rate is shaped in part by the reserve army of labour and its changes over time. Marx (1867–94, I, p. 640–644) made a distinction between (a) the floating reserve army of unemployed labourers in the centres of modern industry; (b) the latent forms of the reserve army, for instance the overabundant agricultural labouring population paid at very low wages; (c) the stagnant form, formed by that part of the active population with extremely irregular employment; and (d) pauperism, formed by vagabonds, criminals, prostitutes, that is the 'dangerous classes', a part of which would be able to work, now or in the future.

A change in the size of the reserve army of labour can result both from a change in the amount of productive capacity relative to the amount of working age population, and from changes in labour productivity. For Marx, these changes ought to be such as to remove any obstacle to capitalist reproduction. Thus, if the improved bargaining position of the workers stemming from a reduction of the reserve army leads to a rise in the price of labour, the consequent diminution of the surplus-value would imply, for given methods of production, two alternatives according to Marx. Since 'a great stock, though with small profit, generally increases faster than a small stock with a great profits', the fall in profits would not conflict with 'the extension of the domain of capital'. Yet it can happen that capital accumulation slackens 'because the stimulus of gain is blunted'. In this case:

> The mechanism of the process of capitalist reproduction removes the very obstacles that it temporarily creates. The price of labour falls again to a level corresponding with the needs of the self-expansion of capital,

> whether the level be below, the same as, or above the one which was normal before the rise of wages took place. (Marx, 1867–94, I, p. 619)

It is in this sense that Marx writes that 'the rate of accumulation is the independent, not the dependent, variable; the rate of wages the dependent, not the independent variable', that is, 'The rise of wages … is confined within limits that not only leave intact the foundations of the capitalistic system, but also secure its reproduction on a progressive scale' (Marx, 1867–94, I, p. 620).

This idea of narrow limits for an increase in wages in the capitalistic system is central in Marx and founded upon 'a law of population peculiar to the capitalist mode of production …' (Marx, 1867–94, I, p. 632; see also pp. 637–638). Due to the uncertain effects of changes in wages on either capital accumulation or the rate of population growth, Marx emphasised the tendency to introduce machinery as a reaction to a rise in wages. Over time this tendency would bring about an increase in employment that would be progressively less than the increase in total capital,[13] thus assuring, for a given population growth rate, a stable or even increasing reserve army of labour, and hence an increasing competition among the labourers, which would allow 'the capitalist to beat down the price of labour' and 'to screw up … the working-time' (Marx, 1867–94, I, p. 549; see also pp. 635–636).

[13] According to Marx in this way only ½; 1/3, ¼…1/8… of total capital will be transformed into labour-power, and the remainder into means of production; that is, over time the proportion will be not 1:1, but 2:1; 3:1; 4:1 and so on. In other words, the increase in total capital ought to be progressively greater in order to absorb a given increase in the working-class population. Note that Samuelson's (1957, 886n) critique of Marx not having a quantitative equation to explain why employment is as high as it is appears misleading. The idea that there exists a natural rate of growth determined by the rate of increase of population to which the growth rate of employment must adapt rests in fact on the neoclassical substitution mechanism, which cannot be found in Marx, or in the classical economists.

However, the introduction of machinery has further effects on the workers' bargaining position. By deskilling workers, it increases the degree of substitutability of the labour force (Marx, 1867–94, I, p. 420–421) and throws onto the market all the members of the labourer's family, spreading 'the value of the man's labour-power over his whole family' (Marx, 1867–94, I, p. 395). Moreover, it changes the composition of the labour force and thus the weight of the unskilled and skilled workers comprising it. While in fact in manufacturing you have a group of men *with different skills* working together, in the factory 'you have operatives working with the machinery and assisted by few attendants' and a 'numerically unimportant class' of persons who 'look after the whole of the machinery and repair it from time to time', such as 'engineers, mechanics, joiners' (Marx, 1867–94, I, p. 420). Also this change in the composition of the labour force may affect the workers' bargaining position by affecting their cohesiveness in wage bargaining.[14]

But according to Marx the workers' degree of organisation depends also on the cooperation between employed and unemployed workers, their degree of concentration, their class consciousness, political and cultural factors, as well as on the possibility of State interference in the labour market on behalf of one or the other of the competing parties (see e.g. Marx, 1867–94, I, p. 640). Moreover, the workers' bargaining position

[14] Of course when considering heterogeneous labour, it is possible that 'one section of the workers starves, another section may be better fed and clothed, as may also the unproductive workers and the middle strata between worker and capitalist' (Marx, 1862–63, II, p. 561). It is also possible that an increase in the wage rate of a group of workers does not lead to a decrease in the rate of profit, but of the wages of the other workers. Thus in this case preserving a given scale of differential wage rates becomes a way of obtaining a general increase in wages. For a Marxian analysis of the relationships among workers and of differential wages see Bowles & Gintis (1975), Braverman (1974), Edwards, Gordon & Reich (1982), Elbaum, Lazonick & Zeitlin (1979). On differential wages, see also Kurz & Salvadori (1995, pp. 325–338).

is also related to the general structure of society. With respect to Ricardo's analysis of the effects of machinery, Marx noted that, in considering the use of the net product

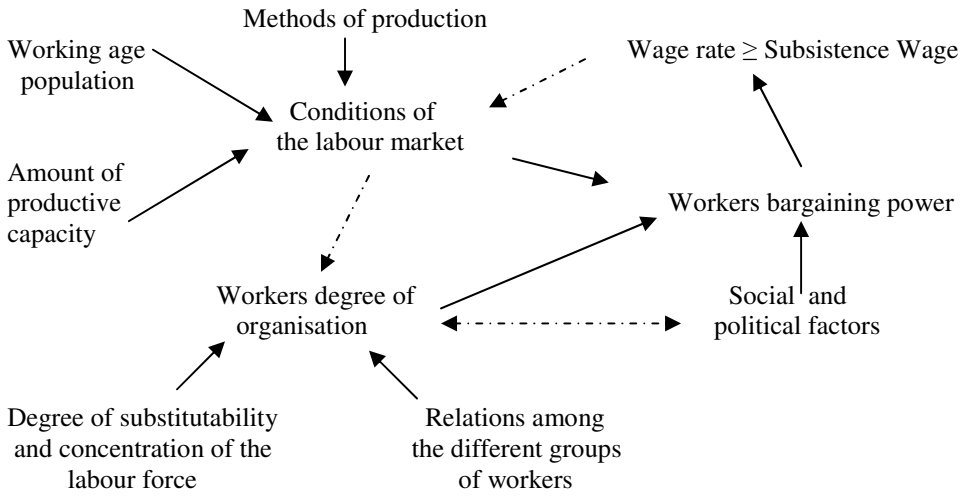
> '[Ricardo] forgets to emphasise … the constantly growing number of the middle classes, those who stand between the workman on the one hand and the capitalist and landlord on the other. The middle classes maintain themselves to an ever increasing extent directly out of revenue, they are a burden weighing heavily on the working base and increase the social security and power of the upper ten thousands. (Marx, 1862–63, II, p. 573; see also 1862–63, II, p. 571)

Indeed, according to Marx, another reason that a revenue constantly growing in value and quantity will not result in a proportionately larger part of the total product being laid out in wages is that 'Those classes and sub-classes who do not live directly on their labour become more numerous and live better than before, and the number of unproductive workers increases as well' (Marx, 1862–63, II, p. 562).

Though it can acquire concreteness only with respect to a specific country and period of time, Figure 1 schematises some of the factors affecting wages that we have described above. As we have noted, in addition to the conditions of the labour market, Marx considers the degree of organisation of the workers, as well as social and political factors. All of them have some degree of autonomy in determining the strength of the workers in wage bargaining, and thus in determining if the wage rate will be higher than or equal to the subsistence wage—the wage inherited from the past, and which forms a minimum floor in wage bargaining.[15]

[15] This does not preclude that circumstances may arise that can reduce subsistence itself, as when there is a large-scale immigration of workers accustomed to a lower standard of living, or the economy falls into a retrograde state.

Figure 1 - Some factors affecting the workers' bargaining position



**Continuous arrows:* direct influence *Broken arrows:* indirect or reciprocal or less definite influence

5. Relative or 'Real Wages'

But according to Marx, to evaluate the effects of an increase in wages on the standard of living of the labourers, we must consider that the necessary price of labour 'resolves itself into the *value* of a definite quantity of the means of subsistence' and 'therefore varies with the value of these means' (Marx, 1867–94, I, p. 172). To Marx it was a great scientific merit of Ricardo to have distinguished between absolute and relative wages, since the value of wages has 'to be reckoned not according to the quantity of the means of subsistence received by the worker, but according to the quantity of labour which these means of subsistence cost'. It is in fact possible that, 'reckoned in terms of use-value (quantity of commodities or money), his wages rise as productivity increases and yet the value of the wages may fall and vice versa' (Marx, 1862–63, II, p. 419). To consider the 'relative or real wages', that is the '*relative share* of the total product, or rather of the total value of this product, which the worker receives', is therefore the right way to evaluate the social position of the workers. Indeed

> ‘[u]p to this time, wages had always been regarded as something simple and consequently the worker was considered an animal. But here he is considered in his social relationships. The position of the classes to one another depends more on relative wages than on the absolute amount of wages. (Marx, 1862–63, II, p. 419; see also p. 404)

On the other hand, with respect to these social relationships, Marx notes that with an increase in labour productivity, ‘the same number of labourers will enable the higher classes to extend, refine, and diversify the circle of their enjoyments, and thus to widen the economic, social, and political gulf separating them from their betters’ (Marx, 1862–63, II, p. 572). He further observes that, according to ‘the political economist’, the working class should not receive any surplus wage because the only portion of the individual consumption of the labourer that is productive is that ‘which is requisite for the perpetuation of the class, and which therefore must take place in order that the capitalist may have labour-power to consume; what the labourer consumes for his own pleasure beyond that part, is unproductive consumption’ (Marx, 1867–94, I, p. 573).

Yet Marx does not overlook the possibility that the workers share in the benefits of increased productivity. It is possible, he observes, that ‘owing to an increase of productiveness, both the labourer and the capitalist may simultaneously be able to appropriate a greater quantity of these necessaries, without any change in the price of labour-power or in surplus-value’ (Marx, 1867–94, I, p. 523). However, the usual situation for Marx is that the price of labour-power falls, and yet this fall will be ‘accompanied by a constant growth in the mass of the labourer’s means of subsistence’. Thus Marx wrote:

> ‘because in a given country the value of labour is falling relatively to its productivity, it must not be imagined that wages in different countries are inversely proportional to the productivity of labour. In fact exactly the opposite is the case. The more productive one country is relative to another in the world

> market, the higher will be its wages as compared with the other. In England, not only nominal wages but [also] real wages are higher than on the continent. The worker eats more meat; he satisfies more needs' (Marx, 1862–63, II, p. 16–17).[16]

But although more of their needs are satisfied in this situation, the relative social position of the workers is worsened, since the extremes of wealth have increased. In fact, if you have a modest home near a palace, you feel more uncomfortable and more dissatisfied, because '[o]ur wants and pleasure have their origin in society', and we 'do not measure them in relation to the objects which serve for their gratification' but 'in relation to society', so that 'they are of a relative nature' (Marx, 1884, p. 33).

6. Relative Wages and the Law of the Falling Rate of Profit

What the wage share will actually be will depend 'on the relative weight, which the pressure of capital on the one side, and the resistance of the labourer on the other, throws into the scale' (Marx, 1867–93, I, p. 522–523). Marx believed that the balance of power will remain on the side of capital. At least in part such a prediction was linked to his belief in a tendency of the rate of profit to fall due to an ever-increasing organic composition of capital, that is, to his views regarding technical progress in the capitalist economy (cf. Meek, 1967). For Marx, this law is 'just an expression peculiar to the capitalist mode of production of the progressive development of social productivity of labour' (Marx, 1867–94, III, p. 208). Marx admitted that '[t]he rate of profit could ... rise if a rise in the rate of surplus-value were accompanied by a

[16] This should convince Gottheil (1962) and other interpreters of Marx that he did not forecast an absolute, but a relative, impoverishment of the working class. See also Lapides (1998), Lebowitz (2003), Meek (1967) and Sowell (1960), who discuss the evolution of Marx's views on this issue.

substantial reduction in the value of the elements of constant, and particularly of fixed, capital'. But he thought that 'in reality … the rate of profit will fall in the long run' (Marx, 1867–94, III, p. 225).[17] That is, Marx thought the actual tendencies of the rate of surplus-value and of the organic composition of capital will lead to a fall in the rate of profit. If this happens, any increase in wages limiting the rate of surplus-value would strengthen that fall, and thus irresistible forces would be conjured up to compress wages to a minimum.

However, Marx's analysis of technical progress is not always consistent with the manifestation of that law, and thus with a necessary manifestation of a tendency to compress wages to a minimum level. Even if we were to accept that the rate of profit is determined by the theory of labour value, the law can be proved only by introducing specific hypotheses regarding the prevailing pattern of technical progress and the trend of the rate of surplus-value.

With respect to the latter, Marx (1862–63, III, p. 310) does recognise that there are some limits on any increase in the rate of surplus-value. First, he thinks that the rise in labour productivity will be accompanied by an increase in wages. Thus he observes that the necessary labour-time could not be reduced to zero and that 'the workers themselves, although they cannot prevent reductions in (real) wages, … achieve a certain quantitative participation in the general growth of wealth' (Marx, 1862–63, III, p. 312). Second, even if the wage basket remained unchanged, increasing the surplus-value would encounter natural and social limits. There are in fact physical and moral limits to extending the working day (Marx, 1867–94, I, p. 305). Furthermore, there are

[17] According to Gillman (1957) and Dobb (1945) Marx had picked up the law of the tendency of the profit rate to fall from Smith and Ricardo, and had doubts about its empirical validity. But the fact that Marx (1867–94, III, p. 233) spoke of the difficulty of explaining why in actual fact the rate of profit rate does not fall even more seems to indicate that he believed that that law would manifest itself empirically.

limits on the degree to which a reduction in employment due to the mechanization of production can be compensated by a lengthening of the working day, because '[t]wo labourers, each working 12 hours daily, cannot produce the same mass of surplus-value as 24 who work only 2 hours, even if they could live on air and hence did not have to work for themselves at all' (Marx, 1867–94, III, p. 242.).

Even the shift of emphasis from duration to intensity of labour as soon as the revolt of the working class made it necessary to shorten the hours of labour cannot guarantee an ever-increasing rate of surplus-value according to Marx. In fact 'the proportional increase or diminution in surplus-value, consequent on a given change in the productiveness of labour, depends on the original magnitude of that portion of the working-day which embodies itself in surplus-value; the smaller that portion, the greater is the proportional change; the greater that portion, the less is the proportional change' (Marx, 1867–94, I, p. 521–522). Moreover, '[t]he more the productiveness of labour increases, the more can the working-day be shortened; and the more the working-day is shortened, the more can the intensity of labour increase' (Marx, 1867–94, I, p. 530); that is, some compensation in terms of an increase in wages or a decrease in working hours is needed to increase the intensity of labour.

But an increase, however limited, in the rate of surplus-value would lead to an increase in the rate of profit unless there was an increase in the organic composition of capital. As Marx (1862–63, II, pp. 380–381) himself admits, if technical change reduced proportionally the value of variable and constant capital even for an unchanged quantity of the mass of commodities of which capital is formed, the rate of profit ought to rise, since the rate of surplus-value has risen. You could have, on the other hand, increasing returns to scale due to concentration of production, as well as a fall in the cost of constant capital, or a greater quantity of product out of the same quantity of

means of production, so that even the organic composition of capital might fall (see Gillman, 1957; Rosenberg, 1989).[18]

Marx is therefore forced to adopt some assumptions assuring an increase in the organic composition of capital. First, he assumes that capitalist development will bring about an ever-increasing physical mass of constant capital. Second, as emphasised by Schefold (1976), he ultimately appealed to the Ricardian increasing avarice of nature (cf. Marx, 1862–63, III, pp. 368–369; 1867–94, I, p. 506) to ensure that the *value* of the organic composition of capital will also rise, that is, that the fall in the price of capital goods will never be of such an extent as to avoid that increase.[19]

In this way Marx can argue that at some point in time the fall in the ratio of variable to constant capital will be greater than the increase in the rate of surplus-value, thus determining a fall in the rate of profit.[20] As Dickinson (1957) and Petith (2005) have noted, it implies some specific functional relation between the organic composition of capital *C/V* and the rate of surplus value *S/V*, according to which the rate of labour productivity growth will decrease over time and the value of labour power will not fall at the same rate as the rise in the productivity of labour. Marx thinks that it will be

[18] Marx, who had analysed capital-saving technical progress in depth, observed that 'the concentration of means of production yields a saving on buildings of various kinds, not only for the actual workshops, but also for storage etc. The same applies to expenditures for fuel, lighting etc' (Marx, 1867–94, III, p. 79; see also, pp. 82, 96 and 103).

[19] Note that Marx assumes that technical progress will lead to a fall in the maximum rate of profit *R*, that is, of the ratio of living to dead labour, or $(S+V)/C$, where *S* is the surplus-value, *V* the variable capital and *C* the constant capital. Then, since $C/V = (1+s)/R$, where *s* is the rate of surplus value, an increase in *s* and a decrease in *R* must necessarily be associated in Marx with an increase in *C/V*.

[20] The inversion point would be increasingly distant the lower the initial rate of surplus-value *S/V* and the organic composition of capital *C/V*. Assuming on the other hand a falling maximum rate of profit, the rate of profit would necessarily fall at a certain point in time (see Marx, 1867–94, III, pp. 234, 255).

assured by the fact that capital accumulation will be associated with the concentration of capital, which will generate a concentrated and organised labour force able to claim a share of progress and to limit the increase in the rate of exploitation (Marx, 1867–94, I, p. 763). This would happen even though the fall in the rate of profit will probably lead to an increase in total capital that is increasingly unable to absorb the available number of workers (see Rosdolski, 1977).

Yet the peculiar nature of the hypotheses underlying Marx's arguments concerning the trend of the wage share and the rate of profits is now clear. First, they contrast with his belief that science will become a productive force and that economic needs shape specific forms of scientific knowledge and of technical progress. As emphasised by Rosenberg (1989), both inventions (which are also complementary to, and not only substitutes for, current techniques) and innovations are generated, according to Marx, by 'supply factors' (general knowledge and costs) as well as by demand factors.[21] Second, it is precisely when we take into account the forms of technical progress which Marx considered—that is, the division of labour, capital saving, the mechanization of production, and innovations—that it becomes evident that Marx's scenario of a fall over time in the maximum rate of profit can occur only in very particular cases, and that wages need not remain at a minimum in order to avoid a fall in the profit rate.[22]

[21] The usual example given is Smith's analysis of the relation between the extension of the market and the division of labour. On the other hand, both the resources for financing inventions and the introduction and success of innovations seem to be linked to the actual and expected demand (cf. Schmookler, 1966).The stimulus to innovate, however, also arises from the struggle to survive, which explains why, during crises, there is a strong tendency to introduce process innovation.

[22] We are not referring here to the case envisaged by Marx regarding a fall in the average rate of profit for a given wage rate, since, as noted by Okishio (1961), a new method of production, if adopted, increases the wage rate for a given rate of profit even if the organic composition of capital increases. Otherwise it is not introduced, as there would not be a reduction in the costs of

To grasp the point more fully let us write the price system as:

$$\mathbf{Ap}(1+r) + w\boldsymbol{\ell} = \mathbf{p}$$

$$\mathbf{yp} = 1$$

and derive by substitution the wage-profit curve

$$w = 1/\{\mathbf{y}[\mathbf{I} - (1+r)\mathbf{A}]^{-1}\,\boldsymbol{\ell}\}$$

where $\mathbf{y} = \mathbf{x}(\mathbf{I}-\mathbf{A})$ is the vector of the net products, $\mathbf{x}$ that of the gross products, $\mathbf{I}$ the identity matrix, $\mathbf{A}$ the matrix of commodity inputs, r the normal rate of profit, w the wage rate, $\mathbf{p}$ the vector of prices, $\boldsymbol{\ell}$ the vector of labour inputs.[23] Total employment L will be given by the sum of the dated quantities of labour employed in the production of the net output:

$$L = \mathbf{x}\boldsymbol{\ell} = \mathbf{y}(\mathbf{I}-\mathbf{A})^{-1}\boldsymbol{\ell}$$

If the rate of profit is equal to zero, you obtain the maximum wage rate W^* which is equal to labour productivity $1/L$, while if the wage rate is zero, the rate of profit is equal to the maximum rate of profit R^*. Drawing the wage-profit curve (see Figure 2, where

---

production. Indeed, technical change may cause both labour productivity and the maximum rate of profit to increase, or the technique with a lower labour productivity may be that associated with lower costs of production at a given rate of profit. Only if there is the same organic composition of capital in all industries, is the technique which minimises the cost of production necessarily that associated with a greater labour productivity (see Steedman, 1977).

[23] Here we assume that wages are paid *post factum*, but none of our conclusions would change if wages were paid *ex ante*.

two possible curves are drawn in the case of two industries), we see that with respect to the wage rate w_1

$$\tan \alpha = w_1/W^* = w_1/(1/L) = w_1L/Y$$

$$\tan \beta = (W^* - w_1)/Or_1 = (\Pi/L)/(\Pi/K) = K/L$$

which are respectively the wage share (with Y the net product) and the capital-labour ratio (with K the value of capital). If we now define the rate of exploitation s as the ratio of profit Π to wages wL (of surplus-value to variable capital, both evaluated at the production prices), we have

$$s = \Pi/W = (\Pi/L)/w_1 = (W^*-w_1)/w_1 = W^*/w_1 - 1 = (1/\tan \alpha) - 1$$

It is thus evident that, if the wage share remains unchanged, the rate of exploitation is unchanged too.

Let us now consider the organic composition of capital C/V, always expressed in prices, that is

$$\omega = K/w_1L = (K/L)/w_1 = \tan \beta/r_1Z = 1/r_1T$$

where β is the angle formed by the segments w_1Z and ZW^*, while T is the point on the r axis determined by its intersection with the line γ. Remembering that wages are paid *post factum*, by definition $s/\omega = \Pi/K = r$.

Let us now assume that a new method of production is discovered which allows the same physical net product to be obtained by less labour and a proportional increase in

all the inputs, so that the capital/output ratio at zero wages increases.[24] If the wage rate in terms of the net product remains the same, the new technique will bring about an increase in the rate of profit (from r_1 to r_2) and a fall in the wage share (a reduction of the tangent of angle α, now shaped by the segments OW** and Ow_1); see once again Figure 2. But if the wage rate increased so that the wage share and thus the rate of exploitation remained the same, the rate of profit will fall (to r_3).[25]

There is however no reason why technical progress should lead to a fall in the maximum rate of profit, as happens in Figure 2. Thus in the case where technical progress is entirely in the form of an increased division of labour you will have an increase in labour productivity for a given R, while in the case of pure capital-saving technical progress, R increases for a given labour productivity. Moreover, in many cases of innovation the whole wage-profit curve will shift to the right (see Figure 3), and even taking the wage share, and thus the rate of exploitation, as given the rate of profit increases (in this case to $r_3 > r_1$).

Summing up, since technical change creates openings for an increase in real wages, we are no longer forced to suppose that the only scenario compatible with the

[24] This case resembles the mechanisation of production as defined by Schefold (1976), which in turn is similar to technical progress as considered by Marx when he argues that the maximum rate of profit tends to fall.

[25] We are assuming here that, as in Marx, both 1/R and ω increase with the introduction of the new technique. The same result could be illustrated by adopting the basket of consumption goods as the numeraire of the price system, and introducing hypotheses regarding the use of the net product and the consumption-steady growth rate relationship (see Kurz & Salvadori, 1995, pp. 114–116 for a graphic treatment of the wage share in this case). Also to be noted is that, unlike what was advanced by Marx, the new *dominant* technique might be characterised by both a lower labour productivity and a lower maximum rate of profit. Paradoxically, in this case, since with the new technique both the rate of profit and the wage share increase, an unlikely fall in the wage rate (and a further increase in r) would have to occur to keep the wage share unchanged.

Figure 2

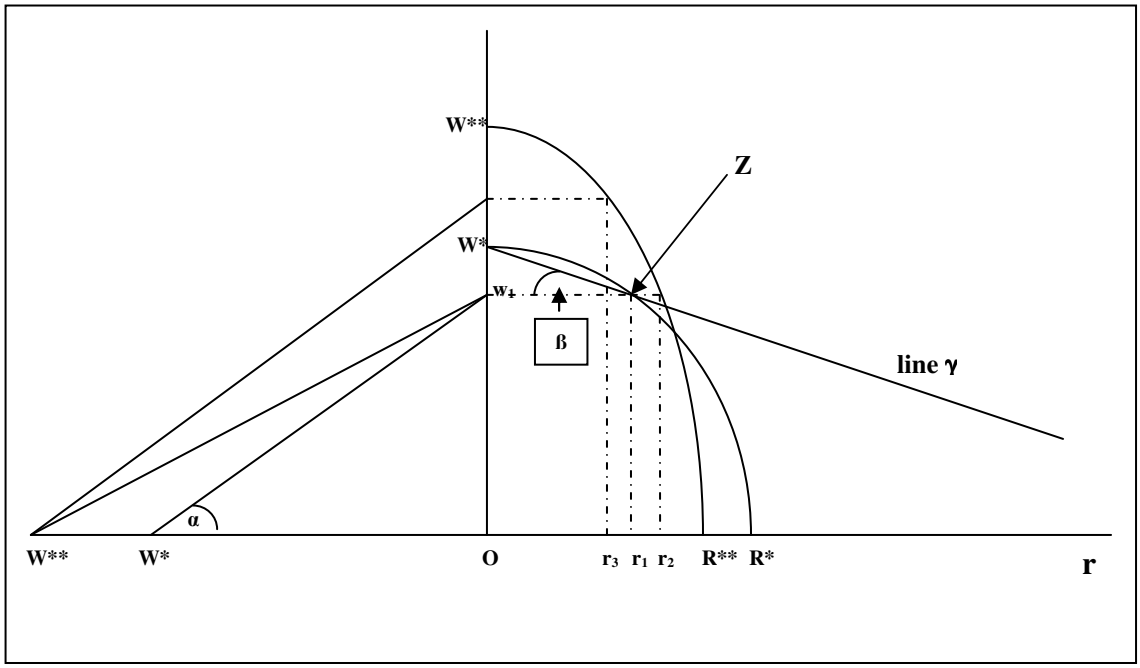
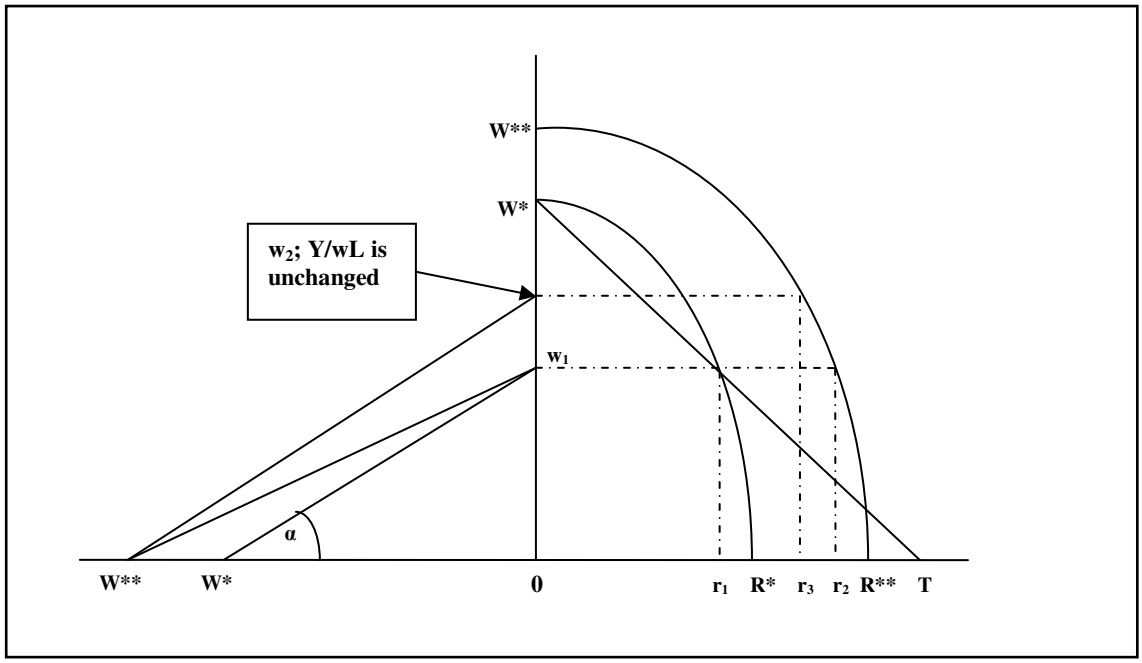


Figure 3



reproduction of the capitalist economy over time is that of a decreasing trend in the wage share. Indeed the number of possible 'regimes of accumulation' is (and always was) greater than Marx supposed.[26] There may be, as Marx suggested, an *extensive* regime of accumulation characterised by a tendency for *absolute* surplus-value to increase, and thus by a combination of low wages, low productivity and long working-days. It is particularly likely to be found in countries that have to compete with far more developed countries and in which wages (in terms of industrial products) can be low, partly since the requirements of the worker are less sophisticated, partly because agricultural products are cheaper.

But the *intensive* regime of accumulation rooted in the search for *relative* surplus-value will be able to assume different configurations according to the prevailing forms of technical progress and the historically changing relative bargaining position of the workers. Thus, for instance, according to the greater or lesser ability of the working class to keep the rate of exploitation unchanged, there will be a lesser or greater tendency towards 'overproduction'. And in order to cope with this, there may be a greater or lesser tendency of State intervention to sustain aggregate demand, or greater or lesser flows of exports of capital seeking higher profits and external markets for the realization of surplus-value. Of course, a classification of these different regimes requires applied analysis, such as the studies which have identified different social structures of accumulation or different regimes of regulation (see, for instance, Boyer, 1979; Bowles, Gordon & Weisskopf, 1986).

Though the variety of possible regimes of accumulation is greater than what is traceable in Marx, the greater part of his analysis of the determinants of absolute and

[26] It is worth noting here that Sraffa viewed Marx's arguments on the law of the falling rate of profit as referring to cases in which no proper technical progress (i.e., inventions) is taking place (see Gehrke & Kurz, 2006).

relative wages remains valid, and can give us a consistent wage theory. Its relevance to an analysis of the determinants of distribution in modern capitalism rests, however, on two points which need further investigation. The first refers to the fact that in a fiat money economy a change in money wages does not necessarily bring about a change in real wages as in the gold money economy considered by Marx (see, e.g., Hein, 2006). The second point concerns the mechanism Marx introduced in order for the process of capitalist reproduction to remove 'the very obstacles that it temporarily creates', especially with respect to the determinants of capital accumulation, since no definite relation can be advanced between the normal profit rate and investment spending, which seems to be influenced mainly by the level and changes of aggregate demand, technological innovations and political factors.[27]

7. Money Wages, Real Wages and the Trend of Capital Accumulation

In conclusion I shall briefly offer some remarks on the latter two points in order to evaluate more fully the relevance of Marx's wage theory to modern-day capitalist societies.

As far as the second point is concerned, the idea that the rate of accumulation will fall as a consequence of a decrease in the rate of profit is the central feature of the modern Marxian profit squeeze theory (see e.g. Dumenill & Levy, 1993; Shaikh, 1989; Goodwin, 1967). Marx, however, did not posit any necessary mechanical link between

[27] On the influence of political factors, see Kalecki (1943). With respect to the effect of technical progress, Marx himself argued that the pressure of competition will compel capitalists to invest and innovate, and that technological waves (see e.g. Marx, 1867–94, III, pp. 70–71) and radical innovations exist which (directly or indirectly) fuel the rate of accumulation.

those two variables. Although he stressed that profit is the 'motive power of capitalist production' (Marx, 1867–94, III, p. 254), he observed:

> [Richard] Jones emphasizes correctly that in spite of the falling rate of profit the inducements and faculties to accumulate are augmented; first, on account of the growing relative over-population; second, because the growing productivity of labour is accompanied by an increase in the mass of use-values represented by the same exchange-value, hence in the material elements of capital; third, because the branches of production become more varied; fourth, due to the development of the credit system, the stock companies etc., and the resulting case of converting money into capital without becoming an industrial capitalist; fifth, because the wants and the greed for wealth increases; and sixth, because the mass of investments in fixed capital grows, etc…. (Marx, 1867–94, III, p. 260)

Furthermore, Marx maintained that overproduction could be solved by shrinking productive capacity (see e.g. Marx, 1867–94, III, pp. 247–248; and Marx, 1862–63, II, pp. 495–496), and hence that the actual trend of capital accumulation would probably be adversely affected by a fall in real wages:

> Since the aim of capital is not to minister to certain wants, but to produce profit, and since it accomplish this purpose by methods which adapt the mass of production to the scale of production, not viceversa, a rift must continually ensue between the limited dimension of consumption under capitalism and a production which forever tends to exceed this immanent barrier. (Marx, 1867–94, III, p. 251)

> How is this conflict settled and the conditions restored which correspond to the 'sound' operation of capitalist production? The mode of settlement … implies the withdrawal and even the partial destruction of capital amounting to the full value of additional capital ΔC, or at least a part of it. (Marx, 1867–94, III, p. 248)

Following this suggestion by Marx, as with the Keynesian premise of investment as an independent variable, the pace of accumulation would not appear to be determined

by the saving rate and the rate of profit as argued in many Marxian or classical-Harrodian models on the grounds of the specific assumption that growth is balanced and (consequently) that the capital/output ratio is continuously at its normal or desired level.[28] In actual fact, a redistribution of income to wages would increase consumption and have an uncertain effect on other components of effective demand (for instance, on exports, according to the effects on prices of the workers' claims for higher real wages). Moreover, the amount of nonresidential investment seems to be influenced not so much by the rate of interest moving in the same direction as normal profit, but by the level and rate of growth of effective demand.[29] So, if demand increases thanks to a redistribution of income to wages, firms will be induced to expand their productive capacity, which will tend to establish (or re-establish) *normal* profitability, irrespective of whether the latter happens to be high or low.[30] Hence, on average, not a fall, but an increase, in the *actual* rate of accumulation would occur.

---

[28] In these models, assuming, for the sake of simplicity, $s_w = 0$, since $g^* = s_p r^* = s/C^*$ (where g^* is the warranted rate of growth, C^* is the desired capital-output ratio, r^* is the normal rate of profit, s is the overall propensity to save, and s_w and s_p are respectively the propensities to save of the workers and of the capitalists), it is argued that, if r^* increases, g^* increases. But the rate of growth g^* actually only reflects income distribution (cf. Vianello, 1985; Garegnani, 1992), and has no relation to the *actual* pace of accumulation, which may differ from g^*, as the actual capital/output ratio C, though tending to C^*, may differ from it.

[29] This argument does not rule out the possibility that a decrease in the rate of profit in a particular country relative to the profit rates in other countries may have a negative effect on investment in that former country as an aspect of international competition.

[30] Here we can see why the *normal* rate of profit is not satisfactorily explained by the rate of accumulation as suggested in some Post-Keynesian models: an increase in the *actual* pace of accumulation is, in effect, 'financed' by an increase in output per unit of capital and in the amount of productive capacity, given the wage rate and the methods of production (see Garegnani, 1992).

As far as the theory of distribution is concerned, the dependence of the rate of growth on the trends of the autonomous components of effective demand that affect income and productive capacity (Trezzini, 1995) only strengthens Marx's rejection of any mechanical or natural or iron law of wages. In fact, the weight of keeping changes in wages 'within limits' capable of leaving 'intact the foundations of the capitalistic system' (Marx, 1867–94, I, p. 620) will no longer rest entirely on labour-saving technical progress, but will also be heavily borne by State intervention, either directly, by legislation that aims to influence the process of wage bargaining, or indirectly, by increasing the reserve army of labour through restrictive monetary and fiscal policies.

On the other hand, the dependence of the rate of growth on effective demand does not imply the rejection of Marx's crucial notion of an inverse relationship between wages and profits. It is of course possible that changes in the realised rate of profit brought about by changes in the degree of capacity utilisation create a space for cooperation between capital and labour (see Amadeo, 1986; Dutt, 1990; Lavoie, Rodriguez & Seccareccia, 2004).[31] But this argument, if applied to the long run, does not take into account that a permanent change in effective demand is not necessarily unexpected, and that gross investment is guided by the rate of profit expected to be earned on the *new* installed productive capacity, and thus by the *normal* rate of profit corresponding to a normal degree of capacity utilisation, since the firms would

[31] Since the rate of profit is equal to $r = (\Pi/Y)(Y/Y_f)(Y_f/K) = (1- w/\pi)(u/k)$, where π is labour productivity, Y_f the real full capacity output, u the degree of capacity utilisation, and k the ratio of the stock of capital to Y_f, then given w and π and k, r increases if u increases. In particular, assuming $s_p = 1$, it is argued that the rate of accumulation h will be positively related to the discrepancies between the actual (u) and desired (u^*) degree of capacity utilisation, while the savings per unit of capital will be equal to r. Thus if $du/dw > 0$, then $dh^m/dw = dr/dw > 0$, with $h^m = r = (1- w/\pi)u^m$, where h^m and u^m are respectively the average rate of accumulation and the average degree of capital utilisation, which may differ from the normal utilisation rate u^* corresponding to the desired or normal capital/output ratio.

otherwise be planning to install a productive capacity they predict will be permanently over- or underutilised. Moreover, the idea does not take into account the fact that an average degree of capacity utilisation different from the normal one will not rapidly, or necessarily, lead to a change in the desired degree of capacity utilisation (see Ciccone, 1986). Hence, given the methods of production, firms will expect a lower rate of profit as a consequence of an increase in real wages (see Ciampalini & Vianello, 2000).

But can the classical theory of wages developed by Marx be used to explain income distribution in the context of advanced capitalism, where the wage rate is probably above the subsistence level, and class conflict acting on money wages does not necessarily entail a corresponding change in the real wages as in a gold money economy (see Serrano, 1993)? In these circumstances, would not the surplus wage appear as a residuum after the firms have fixed their prices on the basis of a mark-up added to their money prime costs?

As Dobb (1973) has observed, the classical theory allows the possibility of wages sharing in the net product; that is to say, there is no contradiction between this possibility and the wage bargaining theory of Smith or Marx.[32] Nor does there seem to be any need to disregard this theory when considering a fiat money economy, since a full cost pricing rule appears to be compatible with different theories of distribution, provided that interest is included in the normal money costs of production, and firms equalise prices to those costs under the action of competition. In fact, an increase in money wages could bring about a rise in the real wages, since prices initially adjust to the historical costs of capital and the *real* rate of interest (that is, the opportunity cost of

[32] The possibility of wages sharing in the net product is implicit in a notion of subsistence as historically determined. On the fact that we need not take the rate of profit as the independent variable in the price system if the wage rate is not at the subsistence level, see Levrero (2000).

any capital invested in production) will therefore be lower than the nominal rate of interest. If then the workers obtain continuous increases in their money wages, they will be assured a permanent increase in the real wage rate, provided that the monetary authorities leave the nominal interest rate on long-term riskless financial assets unchanged (cf. Pivetti, 1991; Stirati, 1999).

The key question, then, is what actually sets the *real* mark-up on prices. Taking the mark-up as given as in the Kaleckian tradition, on the grounds of a degree of monopoly determined by barriers to entry, the elasticities of demand and so on, leaves open the question of what happens to profits in the case of free competition, and also of how the average mark-up is arrived at when taking input-output transactions among sectors into account (cf. Pivetti, 1991; Steedman, 1992). However, given the normal profits of enterprises, it is possible that the real mark-up is directly fixed by the monetary authorities when they follow a coherent policy aimed at maintaining a certain real rate of interest, so that any increase in the rate of price inflation is offset by an appropriate increase in the money rate of interest.[33] Of course, the ability of the monetary authorities to set the real rate of interest in this way would be greater if the trend of money wages remained unchanged over time, and the pursuit of a *real* target interest rate by the monetary authorities may conflict with other objectives monetary policy. For instance, the reaction of trade unions to a stagnation of real wages could well lead to a lower real mark-up on prices as central banks eventually accept it in order

[33] Given the target real interest rate r^T and the expected rate of inflation p^a, the money interest rate i^* should thus be such that $(1+i^*) = (1+r^T)(1 + p^a)$. This implies that, if the actual inflation rate p is equal to the expected one, and $i = i^*$, then the real rate of interest $r = (i^* - p)/(1+p) = r^T$. Of course, if the workers' target real wages happen to be incompatible with the target rate r^T, then a change in the inflation rate will be set up if no change occurs in the normal profits of enterprise or the technical conditions of production. Note that a different money interest rate i^* should be viewed in the light of the price index chosen by the monetary authorities to calculate the actual and expected inflation rate.

to stop a price spiral eroding the real value of financial assets and worsening the trade balance. Also, lower interest rates might be preferred since they reduce the cost of servicing the public debt and pursuing expansionary fiscal policies.

While in this framework inflation will be the result of incompatible claims on distribution which would manifest themselves through changes in money wages and in the nominal rates of interest, the actual real mark-up might be seen as the final result of the whole process that determines the distribution of income, including the mechanisms and feedbacks that reconcile those claims. Income distribution will thus ultimately depend on the relative bargaining strength of the parties involved, and Marx's analysis of the elements shaping money wage trends will play a crucial role in this respect.[34]

Acknowledgment

I wish to thank Roberto Ciccone, Duncan Foley, Fabio Petri and Franklin Serrano for their comments and suggestions.

References

Amadeo, E. J. (1986) Notes on capital utilization, distribution and accumulation, *Contributions to Political Economy*, 5, pp. 83–94.

Baumol, W. J. (1983) Marx and the iron law of wages, *American Economic Review (Paper and Proocedings)*, 73, pp. 303–308.

Blaug, M. (1978) *Economic Theory in Retrospect*, 4th edn (Cambridge: Cambridge University Press).

Boyer, R. (1979) Wage formation in historical perspectives: the French experience, *Cambridge Journal of Economics*, 3, pp. 99–118.

[34] For an analysis in this direction see Levrero (1999) and Levrero & Stirati (2004).

Bowles S. & Gintis, H. (1975) The problem with human capital theory—a Marxian critique, *American Economic Review (Papers and Proceedings)*, 65, pp. 74–82.

Bowles S., Gordon D. M & Weisskopf, T. E. (1986) Power and profits: the social structure of accumulation and the profitability of the postwar US economy, *Review of Radical Political Economics*, 18(1–2), pp. 132–167.

Braverman, R. (1974) *Labor and Monopoly Capital* (New York: Monthly Review Press).

Casarosa, R. (1985) A new formulation of the Ricardian theory of distribution and economic growth, in: G.A. Caravale (Ed.), *The Legacy of Ricardo* (Oxford: Basil Blackwell).

Ciampalini A. & Vianello, F. (2000) Concorrenza, accumulazione del capitale e saggio del profitto. Critica del moderno sottoconsumismo, in: M. Pivetti (Ed.) *Piero Sraffa: Contributi per una Biografia Intellettuale* (Roma: Carocci).

Ciccone, R. (1986) Accumulation and capital utilization: some critical considerations on Joan Robinson's theory of distribution, *Political Economy: Studies in the Surplus Approach*, 2(1), pp. 17–36.

Cottrell A. & Darity, W. A. Jr (1988) Marx, Malthus and wages, *History of Political Economy*, 20, pp. 173–190.

de Vivo, G. (1982) Notes on Marx's critique of Ricardo, *Contributions to Political Economy*, 1, pp. 87–99.

Dobb, M. (1945) *Political Economy and Capitalism* (New York: International Publishers).

Dobb, M. (1973) *Theories of Value and Distribution since Adam Smith* (Cambridge: Cambridge University Press).

Dickinson, H. D. (1957) The falling rate of profit in Marxian economics, *Review of Economic Studies*, 24, pp. 120–130.

Duménil G. & Lévy, D. (1993) *The Economics of the Profit Rate* (Aldershot: Edward Elgar).

Dutt, A. K. (1990) *Growth, Distribution and Uneven Development* (Cambridge: Cambridge University Press).

Edwards R. C., Gordon, D. & Reich, M. (1982) *Segmented Workers, Divided Workers: The Historical Transformation of Labor in the United States* (Cambridge: Cambridge University Press).

Elbaum M., Lazonick W., Wilkinson F. & Zeitlin, T. (1979) Symposium on 'The Labour Process, Market Structure and Marxist Theory', *Cambridge Journal of Economics*, 3, pp. 227–303.

Foley, D. K. (1986) *Understanding Capital. Marx's Economic Theory* (Cambridge, MA: Harvard University Press).

Garegnani, P. (1990) Sraffa: classical versus marginalist analysis, in: K. Bharadwaj & B. Schefold (Eds) *Essays on Piero Sraffa* (London: Unwin & Allen).

Garegnani, P. (1992) Some notes for an analysis of accumulation, in: J. Halevi, D. Laibman & E. Nell (Eds) *Beyond the Steady-State* (Basingstoke: Macmillan).

Gehrke C. & Kurz, H. D. (2006) Sraffa on von Bortkiewicz. Reconstructing the classical theory of value and distribution, *History of Political Economy*, 38, pp. 91–149.

Gillman, J. M.(1957) *The Falling Rate of Profit* (London: Dennis Dobson).

Goodwin, R. M. (1967), A growth cycle, in: *Essays in Economic Dynamics* (London: Macmillan).

Gottheil, F. M. (1962) Increasing misery of the proletariat: an analysis of Marx's wage and employment theory, *Canadian Journal of Economics and Political Science*, 28, pp. 103–113.

Green, F. (1991) The relationship of wages to the value of labour-power in Marx's labour market, *Cambridge Journal of Economics*, 15, pp. 199–214.

Hein, E. (2006) Money, interest and capital accumulation in Karl Marx's economics: a monetary interpretation and some similarities to Post-Keynesian approaches, *European Journal of the History of Economic Thought*, 13, pp. 113–140.

Hicks, J. & Hollander, S. (1977) Mr. Ricardo and the moderns, *Quarterly Journal of Economics*, 91, pp. 351–369.

Hollander, S. (1979) *The Economics of David Ricardo* (Toronto: Heinemann).

Hollander, S. (1984) Marx and Malthusianism: Marx's secular path of wages, *American Economic Review*, 74, pp. 139–151.

Hollander, S. (2008) *The Economics of Karl Marx: Analysis and Application* (New York: Cambridge University Press).

Kalecki, M. (1943) Political aspect of full employment, in: *Selected Essays in the Dynamics of the Capitalist Economy* (Cambridge: Cambridge University Press).

Kurz H. D. & Salvadori, N. (1995) *Theory of Production: A Long-period Analysis* (Cambridge: Cambridge University Press).

Lapides, K. (1998) *Marx's Wage Theory in Historical Perspectives: Its Origin, Developments and Interpretation* (Westport: Praeger).

Lavoie M., Rodriguez G. & Seccareccia, M. (2004) Similarities and discrepancies in Post-Keynesian and Marxist theories of investment: a theoretical and empirical investigation, *International Review of Applied Economics*, 18, pp. 127–149.

Lebowitz, M. (2003) *Beyond Capital: Marx's Political Economy of the Working Class* (Basingstoke: Palgrave Macmillan).

Levrero, E. S. (1999) Worker bargaining power and real wages from 1870 to 1913: Phelps Brown reconsidered, *Review of Political Economy*, 11, pp. 183–203.

Levrero, E. S. (2000) Crescita e distribuzione in Von Neumann e l'analisi di Sraffa, in: M. Pivetti (Ed.) *Piero Sraffa: Contributi per una biografia intellettuale* (Roma: Carocci).

Levrero, E. S. (2011) Some notes on wages and competition in the labour market, in: R. Ciccone, C. Gehrke & G. Mongiovi (Eds) *Sraffa and Modern Economics* (London: Routledge).

Levrero E. S. & Stirati, A. (2004) Real wages in Italy 1970–2000: elements for an interpretation, *Economia & Lavoro*, 1, pp. 65–89.

Malthus, T. R. (1836) *Principles of Political Economy*, 2nd edn, *The Works of Thomas Malthus*, Volumes 2 & 3 (E. A. Wrigley & D. Sonden, Eds), (London: W. Pickering, 1986).

Marx, K. (1867–94) *Capital: A Critique of Political Economy*, Volumes I–III (Moscow: Foreign Languages Publishing House, 1961–63).

Marx, K. (1862–63) *Theories of Surplus Value*, Volumes I–III (Moscow: Progress Publisher, 1978).

Marx, K. (1865) *Wages, Price and Profit* (Peking: Foreign Languages Press, 1975).

Marx, K. (1884) *Wage, Labour and Capital* (Peking: Foreign Language Press, 1978).

Marx K. & Engels, F. (1986) *Collected Works*, Vol. 28 (London: Lawrence & Wishart).

Meek, R. L. (1956) *Studies in the Labour Theory of Value* (New York: Monthly Review Press).

Meek, R. L. (1967) *Economics and Ideology and Other Essays* (London: Chapman & Hall).

O'Donnel, R. (1980) *Adam Smith's Theory of Value and Distribution: A Reappraisal* (New York: St Martin's Press).

Okishio, N. (1961) Technical change and the rate of profit, *Kobe University Economic Review*, 7, pp. 85–99.

Petith, H. (2005) Marx's analysis of the falling rate of profit in the first version of volume III of Capital, *Review of Political Economy*, 17, pp. 269–290.

Pivetti, M. (1991) *An Essay on Money and Distribution* (London: Macmillan).

Ramirez, M. D. (2007) Marx, wages, and cyclical crises: a critical interpretation, *Contributions to Political Economy*, 26, pp. 27–41.

Ricardo, D. (1951–73) *The Works and Correspondence of David Ricardo* (P. Sraffa, Ed.) (Cambridge: Cambridge University Press)

Robinson, J.(1982) *An Essay on Marxian Economics* (London: Macmillan).

Rosdolsky, R. (1977) *The Making of Marx's Capital* (Hampshire: Palgrave).

Rosenberg, N (1989) *Inside the Black Box* (Cambridge: Cambridge University Press).

Rowthorn, B. (1980) Marx's theory of wages, in: B. Rowthorn, *Capitalism, Conflict and Inflation. Essays in Political Economy* (London: Lawrence & Wishart).

Samuelson, P. A. (1951) Economic theory and wages, in: D. McCord Wright (Ed.) *The Impact of the Union* (New York: Harcourt, Brace & Company).

Samuelson, P.A. (1957) Wages and interest: a modern dissection of Marxian economic models, *American Economic Review*, 47, pp. 884–912.

Samuelson, P. A. (1978) The Canonical classical model of political economy, *Journal of Economic Literature*, 16, pp. 1415–1434.

Schefold, B. (1976), Different forms of technical progress, *Economic Journal*, 86, pp. 806–19.

Schmookler, J. (1966), *Inventions and Economic Growth* (Cambridge, MA: Harvard University Press).

Sen, A.(1987), *The Standard of Living* (Cambridge: Cambridge University Press).

Serrano, F. (1993) Review of M. Pivetti's *Essay on Money and Distribution*, C*ontributions to Political Economy,* 12, pp. 117–123.

Shaikh, A. (1991) Wandering around the warranted path: dynamic nonlinear solutions to the Harrodian knife-edge, in: E. J. Nell & W. Semmler (Eds) *Kaldor and Mainstream Economics: Confrontation or Convergence* (London: Macmillan).

Smith, A. (1776) *An Inquiry into the Nature and Causes of the Wealth of Nations* (E. Cannan, Ed.) (Chicago: The University of Chicago Press, 1976).

Smith, M. (1996), A monetary explanation of distribution in a 'gold money economy', *Contributions to Political Economy*, 15, pp. 33–61.

Sowell, T. (1960) Marx's Increasing Misery Doctrine, *American Economic Review*, 50, pp. 111–120.

Sraffa, P. (1960) *Production of Commodities by Means of Commodities* (Cambridge: Cambridge University Press).

Steedman, I. (1977) *Marx after Sraffa* (London: New Left Book).

Steedman, I. (1982) Marx on Ricardo, in: I. Bradley & M. C. Howard (Eds) *Classical and Marxian Political Economy: Essays in Honour of Ronald L. Meek* (London: Macmillan).

Steedman, I. (1992) Questions for Kaleckian, *Review of Political Economy*, 2, pp. 125–151.

Stirati, A.(1994) *The Theory of Wages in Classical Economics* (Chelthenam: Edward Elgar).

Stirati, A. (2001) Inflation, unemployment and hysteresis: an alternative view, *Review of Political Economy*, 14, pp. 427–451

Sweezy, P. (1942) *The Theory of Capitalist Development* (New York: Monthly Review Press)

Torrens, R. (1815) *An Essay on the External Corn Trade* (London: J. Hatchard)

Trezzini, A. (1995) Capacity utilisation in the long run and the autonomous components of aggregate demand, *Contributions to Political Economy,* 14, pp. 33–66.

Vianello, F. (1985) The pace of accumulation, *Political Economy: Studies in the Surplus Approach*, 1(1), pp. 69–87.