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Introduction

1. The aim of this paper is to clarify some aspects of Marx's analysis of the determinants of wages and of the peculiarity of labour as a commodity, concentrating upon three related issues. The first is that of Marx's notion of the subsistence (or natural) wage rate: 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 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, Marx's analysis of the effects of technical progress on both absolute and relative wages will be considered, also relating it back to the long-standing debate on the Marxian law of the falling rate of profit, and addressing some possible scenarios of the trend of wages and distribution.

I. Labour power as a commodity and its peculiarities

2. According to Marx (1961, I: 40-41) a commodity is something that is useful, is produced by labour and is exchanged. Labour 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, 1961, I: 536). Consequently, unlike the other commodities which are first produced and then brought to market, labour is created only *the moment* it is brought to market (Marx, 1961, I: 537n). Second, in order for labour 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, 1961, I: 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 use-value, and therefore also the use of it, can increase its exchange-value or the exchange-value resulting from it" (Marx, 1978, I: 45)¹.

Now, if labour power is a(n albeit special) commodity, 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, 1978, II:

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¹ It may be added (see also Foley, 1986: 43) that, unlike the other commodities, even the conditions of use of this special commodity (that is the intensity and conditions of work) are a terrain of conflict between workers and capitalists. Moreover, the existence on the market of the labour commodity depends upon very different relations of production than those of the other commodities – for instance, normally, there is no appropriation of surplus value in the process of production which prepares the presence on the market of the labourers.

417). As in the case of every other commodity, the value of labour power is thus determined, according to Marx, by “the labour-time necessary for the production, and consequently also the reproduction, of this special article”.² Indeed

“(l)abour-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 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, 1961, I: 171, our emphasis. See also Marx, 1978, I: 45, and Marx&Engels, 1986: 248-249).

The means of subsistence to be given to the labourers must therefore be sufficient to maintain them *in their normal state* as a labouring individual. In this sense, subsistence is like the oil and fuel for an engine. Hence, Marx stated, 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.³ The value of labour power might in fact remain the same if the natural price of labour increases to compensate a longer working day⁴, while it will be reduced if the working day is lengthened and wages remain the same (Marx, 1978: II, 404-405).

But as the expected returns from the use of a 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 (Marx, 1961, I: 172)⁵. Here, however, a difference with machinery emerges, *i.e.* in calculating the price of labour, a moral and historical element must be considered. Not only do the *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

² In modern terms, it is given by the price of the bundle of wage commodities (goods and services) of which the subsistence of the worker is formed.

³ It should be noted that no moral judgment is implied in considering the worker as a machine. As Marx pointed out “(i)t is not a base action when Ricardo puts the proletariat on the same level as machinery or beasts of burden or commodities, because (from his point of view) their being purely machinery or beasts of burden is conducive to “production” or because they really are mere commodities in bourgeois production. This is stoic, objective, scientific” (Marx, 1978, I: 119).

⁴ Following Marx (see e.g. 1961, I: 525-527), an operational definition of subsistence should thus 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. Likewise, that operational definition should incorporate the rent to be paid for an apartment of a working family, even where the greater part of the labouring class are homeowners. Otherwise, the labourers would lose their share in the surplus value as a rentier.

⁵ Marx (1961, I: 313) in this regard quoted with approbation Petty, Turgot and Malthus, according to whom the value of the average daily wages of the labourer is what is required by him “so as to live, labour, and generate” (W. Petty, *Political Anatomy of Ireland*, 1672: 64).

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 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, 1961, I: 171-172, our emphasis)⁶

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.⁷ Thus Marx wrote:

“(t)he 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” (Marx, 1961, I: 173).

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 ‘On Wages’ of his *Principles*, 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, 1961, I: 538). In fact, like Smith, Marx does not refer to any “unchanged population” as Ricardo (1951-1973, I, V: 93) to define the natural wage. Like Torrens, he 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, the natural price of labour consists in

“such a quantity of necessities 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: 62, our emphasis).

4. When looking at Marx’s definition of the subsistence wage, it is thus apparent that, contrary to Rowthorn (1982: 208), no contrast is posed by Marx between a historically determined subsistence wage and the reference to the reproduction of the labourers.

⁶ We refer here to the price of unskilled labour. If we consider labour power “of a special kind”, 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, 1961, I: 172).

⁷ See Baumol (1983). Ramirez (2007: 30) correctly stated that in Marx (1865: 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. Indeed, their notion of subsistence wage can be said to be similar to that of Sen (1992) when positing a relation between commodities and capabilities and observing that in a richer country collection of commodities needed to satisfy the same capabilities in order to avoid people being ashamed by their inability to meet the demand of conventions, will increase or change, just as the needs to be satisfied can change.

The sense of this reference 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, 1978: II, 222 and 400).⁸ 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, 1978, II: 223), and that this might bring about a rise in *the natural or subsistence wage itself* (Marx, 1978, II: 224). Then, in considering Ricardo’s mechanism of 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 principle*, Marx 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 (Marx, 1978, II: 378). Instead the problem resides (cf. also de Vivo, 1982) in Ricardo’s emphasis on the action of such a mechanical element in determining the wage rate, as well as in the need of a more efficient mechanism able to keep the wage rate at the subsistence level.⁹

For Marx there is, however, an historical reason why Ricardo, as well as “in between” sometimes Smith (Marx, 1978: I, 223-224, our italics), refers to the population principle. It is that, on many occasions, the accumulation of capital is identified by them with growing demand for labour, continual rise of wages, and consequently with a fall of profits (see Marx, 1978, III: 335 and 1961, I: 633)¹⁰. If this is so, Marx comments, “(a)n 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” (Marx, 1978, II: 478) in order to assure an increasing stock of “living machineries”. In fact, if a constant rate of capital accumulation greater than the increase in population absorbed all the labour unemployment and underemployment, 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.¹¹ It is also clear that, if population

⁸ That according to Marx, and unlike some recent interpretations of Smith’s theory of wages (see e.g. Stirati, 1994), Smith’s *natural* price of wages is the *subsistence wage* emerges also in Marx (1978, I: 69).

⁹ Indeed Ricardo’s use of the Malthusian principle of population is mainly directed toward discussing Malthus’ denial that with capital accumulation the rate of profit will fall due to decreasing returns in agriculture. It 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. In discussing both the secular trend of wages and the effects of taxation on wages, Ricardo instead recognises that the adjustment of population to capital is slow since labour supply “cannot be altered at pleasure”, and he introduces a different mechanism of adjustment of the market price of labour to the natural one. It is the mechanism which Malthus (1995: 181) denied when criticising Smith’s “common humanity”, arguing that it was not it, but the principle of supply and demand, that would prevent wages from falling below the subsistence wage as it would occasion a diminution of people. Marx’s sharing of Say’s opinion that Ricardo “determines” the value of labour “by demand and supply” (Marx, 1978, II: 400) thus seems somewhat misdirected (see also Steedman, 1982).

¹⁰ Of course it refers mainly to Smith by Marx, since Ricardo introduced the chapter on machinery in the third edition of his *Principles*.

¹¹ On the other hand, if at certain point in time the need for an increasing population ceases, all the greater amount of employees which has been the result of the accumulation of capital would be able to reproduce itself at a wage equal to the subsistence level.

achieved the same growth rate as capital, labour unemployment 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 enlarging their life enjoyments. As stated by Barton, Marx pointed out (1978, II: 581) that there is indeed no univocal relation between wages and population, or even an inverse relation between them, and what regulates population is more the “facility of finding employment” than the wage level¹². It is thus necessary for the capitalist mode of production to create “a peculiar law of population” in order to assure that capital accumulation is continuous, and it is based on the transformation of circulating into fixed capital. Thanks to it capitalist production provides

“for unexpected contingencies by overworking one section of the labouring population and keeping the other as a ready reserve army consisting of partially or entirely pauperised people” (Marx, 1978, II: 479).

5. The above reconstruction is useful since it helps us to clarify what wage rate notions are traceable in Marx.

As 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, 1978: III, 312).¹³ 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 rate¹⁴ from a long run market wage rate - which indeed, we may say, is, like the subsistence wage, an average or ‘normal’ wage, to be included in the *normal* price of commodities. Thus, in dealing with changes in the *average* market wage, Marx tells us he will abstract from “the great periodically recurring forms that the changing phases of the industrial cycle impress on [the surplus-population]” (Marx, 1961, I: 642). In this latter case, the changes in the wage rate (relative to the average one) will be due to the effects that *oscillations* of the labour demand around the *average or usual* level of employment (see also Smith, 1776: 85) can have on the relative force of the parties involved in wage bargaining, and those effects probably vanish when the actual level of employment comes back to its normal level. In the other case, a higher average demand for labour will be satisfied by drawing on, or increasing, the “*customary supply of labour*” (Marx, 1961, I: 613), respectively through a reduction in permanent labour unemployment or in labour underemployment, so that the wage rate could remain (at least to a certain extent) at its natural or necessary level, with no need for any change in population. However, the workers’ improved bargaining position, that is, the “advantageous position in which the labourer found

¹² Indeed it is admitted also by Smith and Ricardo. See Stirati (1994).

¹³ This does not exclude the possibility that temporary variations may be transformed into permanent changes. In this regard Marx (1978, III: 313) thus approved Ricardo’s statement 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”.

¹⁴ So “(i)n 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 cycles. At the same time, the revenues of the capitalists grow considerably. Consumption increases generally. Commodity prices also rise regularly, at least in the various vital branches of business (...)” (Marx, 1961, III: 437).

himself placed” (Ricardo, 1951-1973, IV: 366) thanks to the permanent change in the labour reserve army, will possibly lead to an increase in wages above the subsistence level, and thus also to a change in the value of labour power, as it is implicit in a historically determined notion of subsistence.

It may be noted that this rules out any basis for an interpretation of Marx’s theory of wages along the *Canonical Classical Model*¹⁵ as in Hollander (1984 and 2008), according to whom, in Marx, we have a *physiological* subsistence wage compatible with zero growth rate of population, and different subsistence wages each for any required increase in population equal to that of capital. That model, on the other hand, has been criticised even with respect to its ability to interpret Smith’s and Ricardo’s wage theories (cf. e.g. Caravale, 1985; Garegnani, 1990), particularly by noting 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 capital and population growth rates can be traced in those economists.

The same point is also useful in clarifying that, unlike what Cottrell and Darity (1988) argued, there is no call in Marx for the mechanism of capitalist competition to operate in the sphere of the labour market through changes in the *overall* total supply, as happens for the other commodities. It would require a fall in wages until there was an excess labour supply, which contrasts with Marx’s emphasis on the existence of permanent labour unemployment, since it would lead to the absurd conclusion of a wage rate tending to zero if a mechanism drawing the economy to full employment is absent as it is in Marx.¹⁶ Indeed, as in the classical economists, who similarly admitted permanent labour unemployment (see e.g. Ricardo, 1951-1973, I: 389-390; II, 241; IV: 346 and 368; Smith, 1776, I, VIII: 80), Marx viewed competition in the labour market as operating within a context of norms, laws and habits which are respected, whether consciously or not, in intentional competitive behaviour. It only 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, 2010).¹⁷

II. Some first determinants of the wage rate trend

6. But what factors according to Marx will in actual fact shape the wage rate trend¹⁸? 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 one element shaping the level of the average wage rate is the labour reserve army, that is, the amount of labour unemployment and

¹⁵ See e.g. Samuelson (1978), Casarosa (1978) and Hollander (1973 and 1979).

¹⁶ Thus, according to Blaug (1978: 251) and Samuelson (1951), Marx ought to admit that if there are unemployed people, there might not be a tendency to preserve wages at the value of the labour power.

¹⁷ In order to explain why wages do not fall below the necessary wages you do not thus need to appeal (see Cottrell and Darity, 1988: 179) to non-competing groups or unemployed people avoiding regular competition with currently employed workers by means of their transformation in a stratum of “broken and degraded workers” – though such a phenomenon can in part happen. Actually, as noted by Green (1991: 206), labour supply is viewed by Marx as particularly elastic “in the region of the value of labour power”, and common humanity, tacit combinations among workers and capitalists, the intervention of the State and so on can be seen as the factors assuring a (at least relative) wage rigidity.

¹⁸ We refer to real wages. On the other hand, in Marx any change in money wages will be a change in the real wages, given the technical conditions of the production of gold (the money-commodity), and we are not dealing here with the possibility that a rise in the price of commodities due to a change in the price of gold might not be followed by an increase in money wages.

underemployment, and its changes over time. As known, Marx (1961, I: 642) made a distinction between a) the floating labour reserve army of partially employed or wholly unemployed labourers in the centres of modern industry; b) the latent forms of the reserve army, for instance the over-abundant agricultural labouring population paid a minimum of 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', of which a part is able to work, now or in the future.

A change in the labour reserve army 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. According to 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 labour 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 (Marx, 1961, I: 619)

“(t)he 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”.¹⁹

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 “(t)he 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, 1961, I: 620)²⁰.

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, 1961, I: 632. See also 1961, I: 637-638).²¹ Due to the uncertain effects of changes in wages both on capital accumulation and population growth rate, in this respect Marx emphasised especially the tendency of introducing machinery as a reaction to a rise in wages. Over time it would bring about an increase in employment that is progressively less than the increase in total capital²², thus assuring,

¹⁹ As argued above, Marx in this respect was referring to both the short and the long run.

²⁰ It does not imply, as sometimes suggested for instance by Robinson (1982) and Steindl (1966), taking for granted that in the price system, the rate of profit is determined by the rate of accumulation on the grounds of the Cambridge equation $I/K = s_c P/K$, where I/K is the rate of accumulation, s_c the share of net profits that is saved, and P/K the rate of profit. On a certain ambiguity in this respect see Kurz and Salvadori (1995: 474).

²¹ On the fact that for Marx (1961, I: 632) “(a) abstract law of population exists for plants and animals only in so far as man has not interfered with them” see Cottrell and Darity (1988: 186-187).

²² According to Marx in this way only $\frac{1}{2}$; $\frac{1}{3}$, $\frac{1}{4}$... $\frac{1}{8}$... of total capital will be transformed into labour power, and the other 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 to the neoclassical substitution mechanism, which cannot be found in Marx, as in the classical economists.

for a given population growth rate, a stable or even increasing labour reserve army, and hence an increasing competition among the labourers, which will allow “the capitalist to beat down the price of labour” and “to screw up (...) the working-time” (Marx, 1961, I: 549. See also idem, 635-636).

7. However, the introduction of machinery has further effects on the workers’ bargaining position. It increases the degree of substitutability of the labour force (Marx, 1961, I: 420-421) and in this way, throws on to the market all the members of the labourer’s family, spreading “the value of the man’s labour-power over his whole family” (Marx, 1961, I: 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 manufacture 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, 1961, I: 420). Also this change in the composition of the labour force may affect the workers bargaining position by affecting their cohesiveness in wage bargaining²³.

But according to Marx the *degree of organisation* of the workers depends also on the co-operation 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 in both competing parties (see e.g. Marx, 1961, I: 640). Moreover, worker bargaining position is also related to the general structure of society. When analysing the effects of machinery Marx thus noted that

“[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, 1978: II, 573. See also Marx, 1961, I: 571).

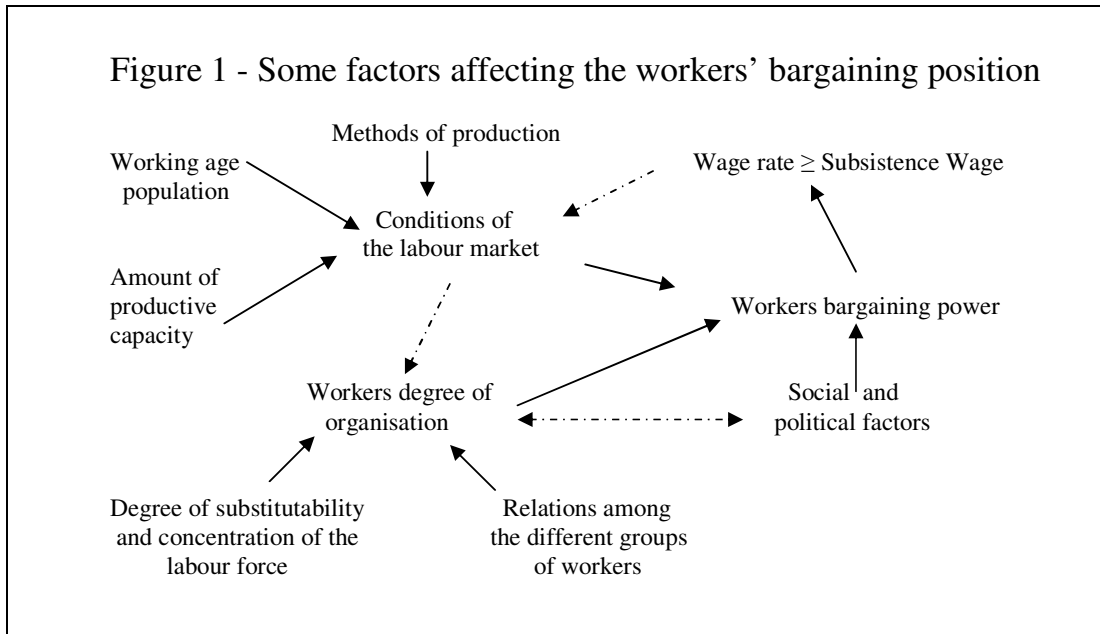
Indeed Marx thinks that a revenue constantly growing in value and quantity will not result in a proportionately larger part of the total product being laid out in wages also because “(t)hose classes and sub-classes who do not live directly on their labour become more numerous and live better than before, and the number of unproductive workers increases as well” (Marx, 1978, II: 563).²⁴

Though it can acquire concreteness only with respect to a specific country and period of time, *Figure 1* sets out to schematise some of the above factors affecting wages. As stated above, together with the unemployment and underemployment of

²³ 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, 1961, II: 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. To preserve a given scale of differential wage rates thus becomes in this case a way of obtaining a general increase in wages. For a Marxian analysis of the relationships among workers see Bowles and Gintis (1977), Braverman (1974), Elbaum and others (1979).

²⁴ The fact that some works outside the sphere of capitalistic relations provide a social wage or enter directly into the cost of production of the labourers or determine the ‘general conditions of production’ does not mean, according to Marx, that they are productive. In fact the particular utility of these services “*alters nothing in the economic relation*; it is not a relation in which I transform money into capital, or by which the supplier of this service, the teacher, transforms me into *his capitalist*, his master (...)” (Marx, 1978, I: 405). Nonetheless, the level of social wage and the ways of financing it can help to define, according to Marx, the frontier between socialism and capitalism (see Marx, 1974: 344-5).

labour, 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 or equal to, the subsistence wage – the wage inherited from the past, and forming a *minimum floor* in wage bargaining²⁵.



III. Ricardo's scientific merit of considering relative or "real wages"

8. It should now be noted that according to Marx, to evaluate the effects on the standard of living of the labourers of an increase in wages, it must also be considered 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, 1961, I: 172). To Marx it is indeed 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", that is according to the "relative share of the total product, or rather of the total value of this product, which the worker receives". 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, 1978, II: 419). To consider the "relative or real wages" 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 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, 1978: II, 419. See also Marx, 1978, II: 404).

²⁵ This does not mean that some circumstances may exist that can reduce subsistence itself, as can happen when there is a large-scale immigration of workers accustomed to a lower standard of living, or the economy falls into a retrograde state.

On the other hand, with respect to these social relationships, Marx noted 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, 1978, II: 572, italics ours).

9. In this respect Marx further observes that, according to “political economists”, the working class should not receive any surplus wage. According to them, of the individual consumption of the labourer that part alone is productive “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, 1978: II, 573). In this case, if “the same necessaries of life” come to be produced by a shorter labour time, the social position of the workers worsens.²⁶

Yet Marx does not neglect the possibility that the workers participate in 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, 1978, II: 523). However, the usual situation for Marx is that *the price of labour-power* (or relative wage) 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, 1978, II: 16-17).²⁷

But although satisfying more needs, in this situation the relative social position of the workers is worsened, since “the extremes of wealth have increased” (Marx, 1961, I: 660. See also Marx, 1978, II: 523). In fact, if you have a little house 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: 33).

IV. Relative wages and the law of the falling rate of profit

10. Of course, 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, 1961, I: 523).

As seen above, Marx seems to believe that it is *inherent* in the capitalist mode of production to bring about a fall in the wage share. At least in part such a prediction is linked to his belief of a tendency of the rate of profit to fall due to an ever-increasing

²⁶ Actually there are three possibilities according to Marx affecting the wage share for a given amount of wages: working day variable; productiveness of labour variable; intensity of labour variable.

²⁷ 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. On this point see Sowell (1960).

organic composition of capital, that is, to his view regarding technical progress in the capitalist economy (cf. Meek, 1967). For Marx, this law is actually “just an expression peculiar to the capitalist mode of production of the progressive development of social productivity of labour” (Marx, 1961, III: 209), and “(t)he economists perceived the phenomenon and cudgelled their brains in tortuous attempts to interpret it”. It is admitted by Marx that “(t)he rate of profit could even rise if a rise in the rate of surplus-value were accompanied by a substantial reduction in the value of the elements of constant, and particularly of fixed, capital. But *in reality* (...) the rate of profit will fall in the long run” (Marx, 1961, III: 225)²⁸, that is Marx thinks the *specific* 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.

11. However, Marx’s analysis of technical progress is not always consistent with the manifestation of that law. True, according to Marx, the law arises not only if the rate of surplus value is taken as given when the organic capital composition increases²⁹, and, on the other hand, the increase in the rate of surplus value is not seen by Marx as simply an antagonistic cause (see Meek, 1967). But even if we admitted the rate of profit to be determined by the theory of labour value, the law can be proved only by introducing specific hypotheses regarding the prevailing technical progress and the trend of the rate of surplus value, such that an increasing organic composition of capital will ensue and not be compensated by an increase in the rate of surplus value.

Marx (1978, I: 311) indeed thinks that some limits exist to increasing the rate of surplus value. First, he thinks 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, will not permit them to be reduced to the absolute minimum; on the contrary, they achieve a certain quantitative participation in the general growth of wealth” (Marx, 1978, I: 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, 1978, I: 305). Furthermore, there are limits on compensating the decrease in the number of labourers employed due to the mechanization of production, to the 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, 1961, III: 242, our emphasis).

Even the shift of attention from duration³⁰ to “density” (or intensity) of labour as soon as the revolt of the working-class made it necessary to shorten the hours of labour (Marx, 1961, I: 409), cannot guarantee an ever-increasing rate of surplus value

²⁸ According to Gillman (1961) and Dobb (1945) Marx had doubts on the empirical validity of that law and picked it up from Smith and Ricardo. But the fact that Marx (1970, III: 290) spoke of the difficulty of explaining why the rate of profit rate does not fall even more seems to indicate that he believed in the law.

²⁹ For a different position see Bortkiewicz (1907), Robinson (1982), and Sweezy (1942).

³⁰ It never disappears, however, since “(a) prolongation of the working-day does not entail any fresh expenditures in [the volume of the fixed portion of constant capital]”, nor a rise in some current expenses such as the cost of supervision, fire insurance and so on, while it allows fixed capital to be reproduced in a smaller number of turnover periods, thus raising the rate of profit “even if overtime is paid, or even if, up to a certain point, it is better paid than the normal hours of labour” (Marx, 1961, III: 77-78).

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, 1961, I: 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, 1961, I: 530), that is, some compensation in terms of an increase in wages or a decrease in the 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 admitted by Marx himself, 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 raise, since the rate of surplus value has risen (Marx, 1978, II: 380-381). 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 production³¹ (see Gillman, 1961; and Rosenberg, 1989), so that even the organic composition of capital might fall.

Marx is thus 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 *mass* of constant capital. Second, as emphasised by Schefold (1976), he ultimately appealed to the Ricardian increasing avarice of nature (cf. Marx, 1978, II: 388-391. See also idem, 1961, I: 506) to be sure that also the *value* of the organic composition of capital will rise, that is, that the fall in the price of capital goods will never be of such an extent as to avoid that increase³².

12. In this way Marx can argue that at a certain 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 (cf. Steedman, 1977; and Meek, 1967)³³. As noted by Dickinson (1957) and Petith (2005), it implies some specific functional relation between the rate of surplus value S/V and the organic composition of capital C/V according to which labour productivity will increase at a lower rate over time and the value of labour power will not fall to the same degree as the productivity of labour rises (cf. also Hodgson, 1979).³⁴ Marx thinks that it will be assured by the fact that capital accumulation will be associated with capital concentration, which will generate a concentrated and organised labour force (Marx, 1961, I: XXIV, 825-6) able to claim a

³¹ Marx analysed capital saving technical progress in depth. He thus 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, 1961, III: 79. See also idem, 82, 96 and 103).

³² 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, being $C/V = (I+s)/R$, 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 .

³³ 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 (see Marx, 1961, III: 291 and 314), the rate of profit would necessarily fall at a certain point in time.

³⁴ When these hypotheses are removed, so that the rate of surplus value could rise at an increasing rate, you can have, as in Harris (1983), a constant rate of profit such that the rate of capital accumulation equalises an exogenously given rate of growth of population. However, it is a scenario which contradicts Marx’s idea that, even if productive capacity is always continuously fully utilized, and given the savings ratio, you will have a slackening of capital accumulation over time.

share of progress and to limit the increase in the rate of exploitation (see also Rosdolski, 1977: 337-340). 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.

Yet the peculiar nature of the hypotheses at the base of Marx's arguments on the trend of wage share and the rate of profits is now clear. 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 and not only substitutes for available techniques) and innovations are generated, according to Marx, by supply factors (general knowledge and costs) as well as by demand factors.³⁵ And precisely taking into account the forms of technical progress which Marx considered - that is the division of labour, capital saving, the mechanization of production and innovations - a fall in the maximum rate of profit can happen only in very particular cases, and no need arises to keep wages at a minimum in order to avoid a fall in the rate of profit.³⁶

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

$$\begin{aligned} \mathbf{Ap}(1+r) + \mathbf{wl} &= \mathbf{p} \\ \mathbf{yp} &= \mathbf{l} \end{aligned}$$

and derive by substitution the wage-profit curve

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

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, \mathbf{l} the vector of labour inputs.³⁷ The total employment L will be given by the sum of the dated quantities of labour employed in the production of the net output:

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

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*), we see that with respect to the wage rate w ,

³⁵ The usual example is Smith's analysis of the relation between the extension of the market and the division of labour. On the other hand, the resources themselves financing inventions seem to be related to the expected demand (Schmookler, 1966), and both the introduction and success of innovations seem to be linked to it - particularly for product innovations. But the stimulus to innovate also arises from the struggle to survive, which explains why during the crises there seems to be a strong tendency to introduce process innovation.

³⁶ On the other hand, as noted by Okishio (1961) a new method of production, if it is adopted, increases the wage rate for a given rate of profit even if the organic composition of capital increases. Otherwise it is not introduced since there would not be a reduction in the costs of production. Moreover, it is possible that technical change causes both labour productivity and the maximum rate of profit to increase, or that the technique with a lower labour productivity will be that associated with lower costs of production at a given rate of profit (cf. Sraffa, 1960). 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.

³⁷ Here we assume that wages are paid post factum, but no conclusion reached will be different in the case wages are paid ex ante.

$$\operatorname{tg}\alpha = w_1/W^* = w_1/(1/L) = w_1L/Y \quad \operatorname{tg}\beta = (W^*-w_1)/Or_1 = (P/L)/(P/K) = K/L$$

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

$$s = P/W = (P/L)/w_1 = (W^*-w_1)/w_1 = W^*/w_1 - 1 = (1/\operatorname{tg}\alpha) - 1$$

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

$$\omega = K/w_1L = (K/L)/w_1 = \operatorname{tg}\beta/r_1Z = 1/r_1T$$

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 . By definition $s/\omega = P/K = r$.

Now, let us assume that a new method of production is discovered thanks to which the same net product is obtained by less labour and a proportional increase in all the inputs, so that the capital-output ratio at zero wages increases³⁸. If the wage rate in terms of the net product of technique $[W^*R^*]$ remains the same, the new technique (see again *Figure 2*) 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 $W^{**}w_1$). 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).³⁹

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 of pure 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 as given the wage share, and thus the rate of exploitation, the rate of profit increases (in this case to $r_3 > r_1$).

13. Summing up, since technical change opens up margins to an increase in real wages, we are no longer forced to suppose as the only possible scenario compatible with the reproduction over time of the capitalist economy that of a decreasing trend in the wage share. Indeed the possible “regimes of accumulation” become (and had been) greater in number than those considered by Marx. There may always be, as suggested by Marx, an *extensive* regime of accumulation characterised by tendency for *absolute* surplus

³⁸ This case closely resembles the mechanisation of production as defined by Schefold (1976), that is, the introduction of a technique characterised by the use of a machine with constant efficiency and no savings in the circulating capital used, so that the new technique will have a matrix A^{**} of the circulating capital equal to that of the original technique, and an amount of labour employed L^{**} lower than the original amount L^* . It is similar to technical progress as considered by Marx when arguing a fall in the maximum rate of profit. See also Baldone (1982).

³⁹ We are assuming here that, as in Marx, both $1/R$ and ω increase with the introduction of the new technique. The same result can be obtained by adopting the basket of consumption goods as the numeraire of the price system, and introducing hypotheses on the use of the net product and the consumption-growth rate relationship. See Kurz & Salvadori (1995: 114-16) for a graphic treatment of the wage share in this case.

Figure 2

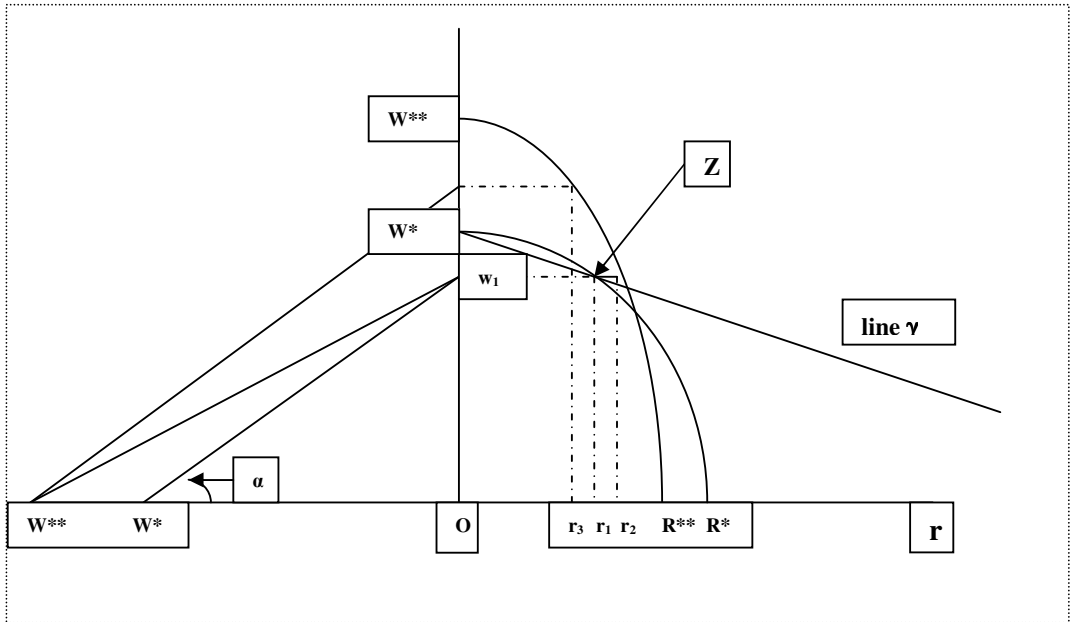
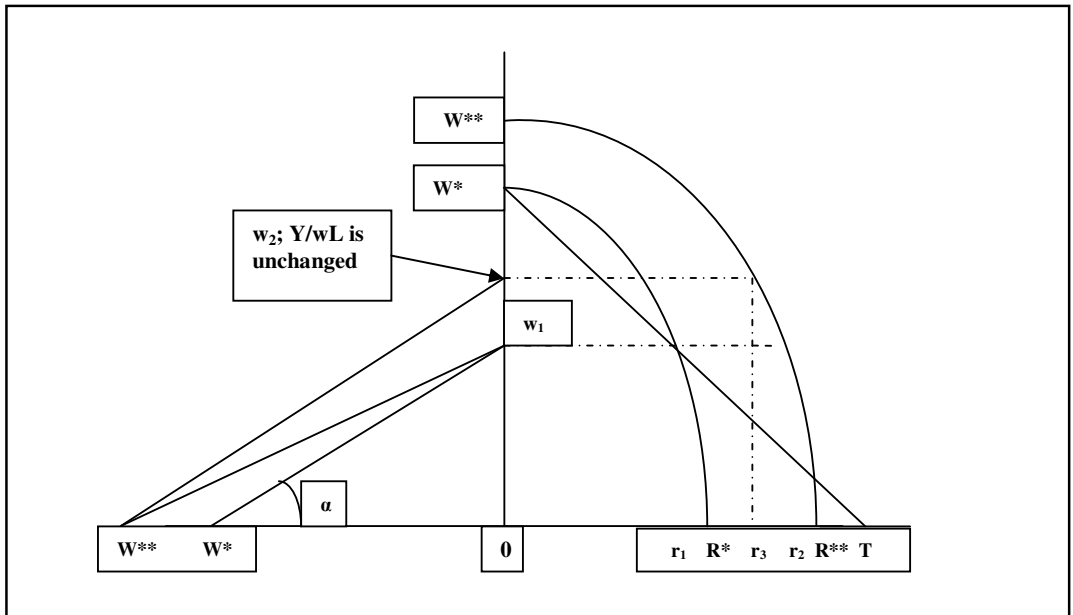


Figure 3



value to increase, and thus by (a combination of) low wages, low productivity and long working-time. It can be present particularly in countries that have to compete with far more developed countries and in which wages 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 stemmed by the search of *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 maintain unchanged the rate of exploitation, you will have a lesser or greater tendency towards “overproduction”. And in order to cope with this, you can have a greater or lesser tendency of State intervention to sustain aggregate demand, or a greater or lesser flows of exports of capital seeking higher profits and external markets for the realization of the surplus value. Of course, a classification of these different regimes rests on a more applied level of analysis, as is done, for instance, in those studies which identified different social structures of accumulation or different regimes of regulation.

Though the variety of possible regimes of accumulation is greater than that traceable in Marx, the greater part of his analysis on the determinants of absolute and relative wages seems, however, still valid, and can give us a consistent wage theory. Indeed, his theory of wages is a deepening of that of the classical economists, and leaves us, as seen in paragraphs I and II, many suggestions about the factors determining subsistence wage and the relative bargaining position of the workers.

Its importance in an analysis of the determinants of distribution in modern capitalism rests, however, on two points which need further investigation. The first is that in a *fiat economy* a change in money wage does not necessarily bring about a change in real wages.⁴⁰ The second concerns the mechanism Marx introduced in order for the process of capitalist reproduction to remove “the very obstacles that it temporarily creates” (see page 7), especially with respect to the determinants of capital accumulation.

References

- Baldone S. (1982), “Analisi inteindustriale e mutamento tecnico”, in Zamagni S. (ed.), *Le teorie economiche della produzione*, Il Mulino, Bologna.
- Baumol W.J. (1983), “Marx and the Iron Law of Wages”, *American Economic Review Proceedings*, 73, 303-08.
- Blaug M. (1978), *Economic Theory in Retrospect*, 4th edn., Cambridge University Press, Cambridge.
- Bortkiewicz von, L. (1907), “Wertrechnung und Preisrechnung im Marxschen System”, *Archiv für Sozialwissenschaft und Sozialpolitik*, XXV, in idem, *La teoria economica di Marx*, Einaudi, Torino, 1971.
- Bowles S. and Gintis H. (1977), “The Marxian Theory of Value and Heterogeneous Labour: A Critique and Reformulation”, in *Cambridge Journal of Economics*, 1, 173-192.
- Braverman R. (1974), *Labor and Monopoly Capital*, New York, Monthly Review.
- Caravale G.A.(1985) (ed.), *The Legacy of Ricardo*, Oxford, Basil Blackwell.
- Casarosa R. (1985), “A New Formulation of the Ricardian Theory of Distribution and Economic Growth”, in Caravale G.A.(ed.), *The Legacy of Ricardo*, Oxford, Basil Blackwell.
- Cottrell A. and Darity W.A. Jr (1988), “Marx, Malthus and Wages”, in *History of Political Economy*, 20, 173-90.
- de Vivo G. (1982), “Notes on Marx’s Critique of Ricardo”, *Contributions to Political Economy*, I, 87-99.
- Dickinson H.D., “The Falling Rate of Profit in Marxian Economics”, *The Review of Economic Studies*, 24,2, 120-130.
- Dobb M. (1945), *Political Economy and Capitalism*, New York.

⁴⁰ See Hein (2006). On the relation between money wages, prices and real wages see Pivetti (1991) and his treatment of Sraffa’s suggestion of a monetary determination of distribution.

- Elbaum M., Lazonick W., Wilkinson F., Zeitlin T. (1979), "Symposium on 'The Labour Process, Market Structure and Marxist Theory'", *Cambridge Journal of Economics*, 3.
- Foley D.K. (1986), *Understanding Capital. Marx's Economic Theory*, Harvard University Press, Cambridge (MA) and London.
- Furth D., Heertje A., Van Der Veen R.J. (1978), "On Marx's Theory of Unemployment", *Oxford Economic Papers*, 30, 2, 263-276.
- Garegnani P. (1990), "Sraffa: classical versus marginalist analysis", in Bharadwaj K. and Schefold B. (eds.), *Essays on Piero Sraffa*, London, Unwin&Allen.
- Gillman J.M., *Il saggio del profitto*, Roma, Editori Riuniti, 1961.
- Gottheil F.M. (1962), "Increasing Misery of the Proletariat: An Analysis of Marx's Wage and Employment Theory", *The Canadian Journal of Economics and Political Science*, 28, 2, 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, 199-214.
- Harris D.J. (1983), "Accumulation of Capital and the Rate of Profit in Marxian Theory", *Cambridge Journal of Economics*, 1983, 7.
- Hein E. (2006), "Money, interest and capital accumulation in Karl Marx's economics: a monetary interpretation and some similarities to post-Keynesian approaches, in *European Journal of the History of Economic Thought*, 13, 1, 113-140.
- Hodgson G. (1979), "La teoria della caduta del saggio del profitto", in E. Screpanti and M. Zenezini (Eds.), *Accumulazione di capitale e progresso tecnico*, Milano, Feltrinelli.
- Hollander S. (1973), *The Economics of Adam Smith*, London, Heinemann.
- Hollander S. (1979), *The Economics of David Ricardo*, Toronto, Heinemann.
- Hollander S. (1984), "Marx and Malthusianism: Marx's Secular Path of Wages", *The American Economic Review*, 74, 1, 139-151.
- Hollander S. (2008), *The Economics of Karl Marx: Analysis and Application*, Cambridge University Press, New York.
- Kurz D.H. and Salvadori N. (1995), *Theory of Production. A long-period analysis*, Cambridge, Cambridge University Press.
- Levero E.S. (2010), "Some Notes on Wages and Competition in the Labour Market, in Ciccone R., Gehrke C. and Mongiovi G. (Eds), *Sraffa and Modern Economics*, Routledge, London.
- Marx K. (1960-62), *Capital. A Critique of Political Economy*, vol. I-III, Moscow, Foreign Languages Publishing House.
- Marx K. (1968), *Theories of Surplus Value*, Moscow, Progress Publisher.
- 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. and Engels F. (1986), *Collected Works*, vol. 28, Lawrence and Wishart, London.
- 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 and Hall.
- Morishima M., *Marx's Economics. A Dual Theory of Value and Growth*, Cambridge, 1973.
- Okishio N. (1961), "Change and Techniques and the Rate of Profit", *Kobe University Economic Review*, 7.
- Okishio N. (1977), "Notes on Technical Progress and Capitalist Society", *Cambridge Journal of Economics*, 1977, 93-100.
- 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, 2, 269-290.
- Pivetti M. (1992), *An Essay on Money and Distribution*, Macmillan, London.
- Ramirez M.D. (2007), "Marx, Wages, and Cyclical Crises: A Critical Interpretation", in *Contributions to Political Economy*, 27-41.
- Ricardo D. (1951-1973), *Works and Correspondence of David Ricardo*, 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., *Inside the Black Box*, Cambridge, Cambridge University Press, 1989.
- Rowthorn B. (1980), "Marx's Theory of Wages", in *Capitalism, Conflict and Inflation. Essays in Political Economy*, London.
- Samuelson P.A. (1951), "Economic Theory and Wages", in McCord Wright D. (ed.), *The Impact of the Union*, Harcourt, Brace & Company, New York.
- Samuelson P.A. (1957), "Wages and Interest: a Modern Dissection of Marxian Economic Models", *The American Economic Review*, 47, 6, 884-912.
- Samuelson P.A. (1978), "The Canonical Classical Model of Political Economy", *Journal of Economic Literature*, vol. 16, 4, pp. 1415-34.
- Schefold B. (1976), "Different Forms of Technical Progress", *The Economic Journal*, 86, pp. 806-19.
- Schmookler J. (1966), *Inventions and Economic Growth*, Harvard University Press, Cambridge (MA).

- Sen A.(1992), *The Standard of Living*, University of Utah Press.
- Smith A.([1776], 1976a) *An inquiry into the Nature and Causes of the Wealth of Nations*, New York, edited by E. Cannan, Chicago, The University of Chicago Press.
- Sowell T. (1960), “Marx’s Increasing Misery Doctrine”, *American Economic Review*, 50, 1, 111-120.
- Sraffa P. (1960), *Production of Commodities by Means of Commodities*, Cambridge University Press, Cambridge.
- Steedman I. (1977), *Marx after Sraffa*, New Left Book Ltd.
- Steedman I. (1982), “Marx on Ricardo”, in Bradley I. and Howard M.C. (Eds), *Classical and Marxian Political Economy: Essays in Honour of Ronald L. Meek*, Macmillan, London.
- Steindl J. (1966), *Maturità e ristagno nel capitalismo americano*, Boringhieri, Torino.
- Stirati A.(1994), *The Theory of Wages in Classical Economics*, Cheltenham, Elgar.
- Sweezy P. (1942), *The Theory of Capitalist Development*, Monthly Review Press, New York.
- Torrens R. (1815), *An Essay on the External Corn Trade*, London.