

3. Labour Subsumption and Exploitation

A scientific theory of capitalist exploitation aims to causally explain the production of surplus value. Marx develops this theory in volume 1 of *Capital*, especially parts 3–5, which are devoted to elucidating the effects of capitalist control of the labour process, and parts 6–7, devoted to explaining the dynamics of wage determination. In fact, most of the volume deals with the social, technological and organizational conditions of exploitation.

The theory of labour subordination and subsumption is not yet an explanation of exploitation. It is a theory of the capitalists' power. It becomes the essential part of a proper explanation of exploitation through reconstruction: firstly, of the way in which that power is used in managing a factory¹ and, secondly, of the way wages are fixed.

Marx's reasoning in parts 3–5 reveals that concrete commodities are the products that workers actually *create* in the *labour process*. A

1 Yoshihara (1998), Veneziani (2013) and Vrousalis (2013) clarify that a theory of power is necessary to account for exploitation. Following publication of the seminal and controversial book by Braverman (1974), an important line of research known as "labour process theory" has developed in contemporary sociology, with the goal of investigating the capitalist organization of labour activity. See, for instance, Knights and Willmott (1990), Shalla and Clement (2007), and Thompson and Smith (2010). In my reconstruction, it is not necessary to enter the infinite debate provoked by Braverman's thesis on the tendency of capitalism to deskill labour activity. Suffice it to recall that an alternative view has been put forward, which holds that a skill-upgrading tendency exists. See Adler (1990) as one of the most persuasive proponents of this thesis.

commodity is a thing, an object produced by a subject using concrete labour. Value, contrarily, is not a thing, and cannot be supposed to be created by a subject. It is an economic relationship among commodities, and a result of the social relations prevailing in productive activity. This analysis can be interpreted as an instantiation of the idea that the labour process pertains to the productive forces (e.g. labour skills and technical knowledge), while the valorisation process pertains to the social relations of production (e.g. property rights, contract institutions and power systems). A capitalist's power (a social relation) is used in the factories to compel workers to produce commodities (a productive force). Exploitation occurs when the value added of commodities is higher than wages.

This seems a reasonable interpretation of the analysis developed in parts 3–5 of *Capital*, volume 1. Marx justifies it in the *Results of the Direct Production Process* when he declares that, by virtue of the workers' subordination, the *labour process* is subsumed under capital. This means that it becomes an *instrument* of the valorisation process, the place where surplus-value is "manufactured". Actually, it is in the labour process that the capitalist intervenes as a director; and it is in the labour process that he carries out the "direct exploitation" of labour:

The labour process becomes an instrument of the valorisation process, of the process of capital's self-valorisation, the process of the manufacture² of surplus value. The labour process is subsumed under capital (it is capital's *own* process) and the capitalist enters the process as its conductor, its director; for him it is at the same time directly a process of exploitation of alien labour (Marx 1994, 424).

True, in parts 3–5 Marx persists in uttering that value is created as a "materialization" of abstract labour or a "transposition" of labour power. Yet, such notions do not play any role in accounting for the production of surplus value. In the analysis developed in these parts, surplus value is explained as the result of the capitalist's ability to compel workers to attain a labour productivity higher than the wage. In point of fact, the labour unit only serves as an instrument of measurement. Thus, one of the implications of the analysis reconstructed in the present chapter is

2 The word "manufacture", to translate *Fabrikation*, appears in the Penguin edition. The International Publishers' edition uses "creation".

that the labour theory of value is not necessary to explain exploitation. To say it with Gordon (2017, 2), “Marx’s thesis of labour exploitation does not follow from the labour theory of value”. In this reconstruction, exploitation is explained with an analysis of the way capitalists control the labour process and the way in which the bargaining powers of conflicting classes determine wages, labour intensity and the working day.

In section 1 of the present chapter, I expound Marx’s investigation of the production of “absolute surplus value” under conditions of merely formal subsumption. The capitalist uses his power to lengthen the working day or intensify labour activity. The production of absolute surplus value is carried out without technical change and, indeed, without any need to modify the technical structure of production. The only way in which command is used in the labour process is to ensure that the workers do their jobs efficiently.

Then, in section 2, I consider the production of “relative surplus value”, which is extracted by making subsumption real, i.e. by restructuring the labour process via the introduction of new techniques, the activation of increasing returns to scale, the organization of cooperation and team production, and the development of automation in large-scale industry. To simplify analysis, Marx initially assumes that socially necessary labour is determined just by the technology. Surplus value is defined as “relative” in that it is compared to a given working day. It may rise because the amount of necessary labour shrinks in relation to the number of hours worked, due to improvements in labour productivity. However, after the notion of “relative surplus value” has been elucidated, Marx removes that simplifying hypothesis. He then makes clear that the exercise of the capitalist’s power within a factory is always a contested terrain, since the workers continually practice some forms of defiance and shirking behaviour, and the capitalists are compelled to enact structures of hierarchical control to quell the workers’ resistance. This means that socially necessary labour, labour intensity, labour productivity and the actual working day, and therefore the degree of exploitation, are not simply determined outside the production process, i.e. by law, customs, collective agreements, and the available technology. Class struggle within the factory plays a decisive role in determining the degree of exploitation.

Finally, in section 3, I illustrate Marx's theory of wages, which is one of the most topical of his doctrines. It deals with how class struggle in the so-called "labour market" contributes to wage determination. The "labour market" is not a market proper. It is a battlefield of class struggle (by the way, this is the reason why I use inverted commas when dealing with the "labour market"). In abstract theory, Marx follows the classical economists in maintaining the "value of labour power" is fixed at a subsistence level in a competitive market. However, in most of *Capital* and in other works, he tries to explain how wages are actually affected by the dynamics of capital accumulation, the industrial reserve army and trade union activities—in short, by the bargaining powers of opposing classes. He investigates the determination of both the "market wages" in various phases of the business cycle, and the long-run trend of normal wages. The most effective weapon of the capitalists in this struggle consists of their investment decisions and the ensuing changes in the industrial reserve army, whilst the main workers' weapon consists of the industrial action they can engage in.

3.1. The Production of Absolute Surplus Value

Marx (1996, 187) begins his analysis of exploitation mechanisms by using a simple model which, like the concept of "production in general", is abstract in nature: "The fact that the production of use values, or goods, is carried out under the control of a capitalist and on its behalf, does not alter the general character of that production". This is a very abstract model indeed, as it is difficult to envisage a capitalist system in which capitalists do not really determine the technical structure of production. Yet such an abstraction might be of use to isolate some aspects of the control of labour.

Marx reasons as if there had been a historical transformation from an economy of simple commodity production to an economy in which capitalists establish formal subsumption by employing some previously independent worker. In this economy, capitalists have become owners of the means of production but have not yet modified the labour process. Imagine a situation in which a number of self-employed artisans become wageworkers but continue to produce using the techniques they used in their workshops and with no improvement in the division

of labour. Now their employers have become the owners not only of the commodities they produce, but also of the use of their labour power, in other words, of the workers' competencies, because they have acquired "a title and a right to the labour and the surplus labour" (315).

Since the labour process has not changed and no new technique has been introduced, the capitalists' control is exerted only to take "good care that the work is done in a proper manner, and that the means of production are used with intelligence" (195), in other words, "that the labourer does his work regularly and with the proper degree of intensity" (314). Subsumption is merely formal, not yet real, because "capital subordinates labour on the basis of the technical conditions in which it historically finds it" (314).

In any case, an important principle is established: that, in modern industrial capitalism, formal subsumption is a necessary condition for exploitation in the production process. The capitalist pays the workers their normal wage, but then he manages them in the production process to make them produce a higher value (Murray 2004, 246).

Theoretically, the difference between an artisan workshop and a capitalist factory implies a fundamental social and economic transformation. Simple *value creation* takes place in "commodity production in general", whilst capital *valorisation*, i.e. the production of surplus value, arises in the capitalist mode of production. The question is: where does surplus value come from, if labour productivity has not changed? The answer is threefold. A capitalist can succeed in extracting surplus value by: lengthening the working day, intensifying labour activity, or lowering the wage.

Assume an artisan produces a subsistence income by working 6 hours a day, from hour a to hour b , let's say, from 6 o'clock to 12 o'clock. This is his "necessary labour", the quantity of labour necessary to reproduce his labour power. A capitalist may be willing to employ a worker in his factory if she is ready to work for more than $b-a=6$ hours. Marx provides three examples of working day, in which its length is $c-a=7$, or $d-a=9$, or $e-a=12$ hours.

Working day I: $a-----b-c$

Working day II: $a-----b---d$

Working day III: $a-----b-----e$

If wagedworkers are paid for their necessary labour, $b-a$, they provide the amounts of surplus labour $c-b$ or $d-b$ or $e-b$. The quantities of commodities produced increase and all surplus labour becomes surplus value.

One could also raise the question of why a wagedworker should accept to work more hours than a self-employed worker could for the same daily income. Marx's answer is that in a capitalist system there is always a certain number of unemployed people who have no capital to invest in an independent business and are therefore compelled to accept a contract of subordinate employment in order to earn a living. And a capitalist would not employ a worker who is not prepared to work for producing a profit.

Another interesting question is about how the length of the working day is established. Marx spends many pages arguing that there is no natural limit to that length, apart from 24 hours, and that "the inherent tendency" of the "vampire" capitalist is "to appropriate labour during all 24 hours of the day" (263). Fortunately, this does not happen because the workers' tendency is to work as little as possible. Therefore, the working day is determined by class struggle: "In the history of capitalist production the determination of what is a working day presents itself as the result of a struggle, a struggle between collective capital, i.e., the class of capitalists, and collective labour, i.e., the working class" (243).

Moreover, the State intervenes in social conflict by regulating the length and the arrangement of the normal working day. In doing so, it contributes to preserving the workers' wellbeing and their economic efficiency in the interests of the bourgeoisie as a class, against those of the individual vampire capitalists. In any case, it is forced to do so by the final balance of bargaining powers:

These minutiae, which, with military uniformity, regulate by stroke of the clock the times, limits, pauses of the work, were not at all the products of Parliamentary fancy. They developed gradually out of circumstances as natural laws³ of the modern mode of production. Their formulation, official recognition, and proclamation by the State, were the result of a long struggle of classes (1996, 287–8).

3 Marx often uses the expressions "natural laws" and "laws of nature", mostly with the meaning of objective laws of functioning of a historically determined social system—for instance, "the natural laws of capitalist production", or "the natural laws of a particular form of production".

Another method for increasing the production of absolute surplus value is to intensify labour activity. The most effective modes of labour intensification occur in the production of relative surplus value, i.e. through changes in techniques and organization. But there is a way that seems manageable even under merely formal subsumption. That is, if the length of the working *day* cannot be increased, the length of the actually worked *hour* can, e.g., by cutting the customary or legally sanctioned pauses for eating, rest etc. This practice is equivalent to a lengthening of the working day.

In the *Results of the Direct Production Process* Marx observes that the capitalist compels the worker

to ensure that his labour possesses at least the socially normal average degree of intensity [and] will try to raise it as much as possible above this minimum and extract from him over a given period as much labour as possible, for every [increase in the] intensity of labour over the average degree creates [a bigger] surplus value for him (Marx 1994, 396).

In other words, capitalists can force the workers to work *harder*. It is dubious whether this practice may take place with merely formal subsumption (Skillman 2013, 495). After all, an increase in labour productivity implies a drop in the labour coefficients of production, i.e. a technical change, and yields an increase of surplus value, given the working day. Hence the production of surplus value through work intensification shall be dealt with in next section.

As already observed, the theory of absolute surplus value is rather abstract, as it is based on the postulation that subsumption is only formal. Yet it is remarkable how, even at this level of analysis, Marx succeeds in laying down the building blocks of a scientific explanation of exploitation. He clarifies that exploitation is perpetrated in the production process by virtue of the workers' subordination to capitalists, but also that the production process itself is a field of class struggle and that this struggle is what ultimately determines the degree of exploitation.⁴

Besides this, Marx considers some "hybrid forms"⁵ of exploitation in which "surplus labour is not extorted by direct compulsion [and] the

4 See also Fine (1975, 60), Lebowitz (2003, 74, 102, 143), Dooley (2005, 178), Okada (2014, 417–20).

5 The word *Zwitterformen* appears in *Capital*. Ben Fawkes translates it as "hybrid forms" (Marx 1976, 645), the International Publishers edition, as "intermediate

producer has not yet become formally subordinate to capital. In these forms, capital has not yet acquired a direct control over the labour process" (1976a, 645). He observes that these cases prevail in traditional handicraft and agricultural sectors, but also that, "as in the case of modern 'domestic industry', certain hybrid forms are reproduced here and there against the background of large-scale industry". Skillman (2019, 10–2) clarifies that, in Marx's theory, these forms do not imply subsumption proper. However, some scholars⁶ interpret them as a kind of *hybrid subsumption*. Skillman is right, yet this notion might turn out to be useful in investigating certain modern labour relations in which capitalist exploitation takes place through homeworking or subcontracting to formally self-employed workers. In many of these cases, the main contractor or the contracting administrator maintains a certain power in determining the labour process and controlling the contractors. Benetton, a company that makes wide use of a modern form of the putting-out system, provides a typical example. In other cases, as in the capitalist exploitation of cooperatives, the workers maintain some freedom of choice in the labour process. In yet other cases, the workers are exploited by means of contracts for services in which the service buyer uses market power to appropriate surplus value. In some such cases, exploitation takes place through a mix of labour subsumption and capitalist market power.⁷

It must be observed that the capitalist control of the labour process is not a necessary condition for the *appropriation* of surplus value (Skillman 2007, 225; 2013, 490–1). In fact, it is possible that the market power resulting from ownership of financial or mercantile capital enables a business to appropriate a part of value added without having organised its production. In any case, subordination, as established by an employment contract, is a necessary condition for the *production* of surplus value in a capitalist system (Skillman 2019, 20–1). And the subsumption of labour capacities is a sufficient condition for the industrial capitalist's *appropriation* of this surplus value, as it implies that the capitalist himself is the owner of the commodities produced with the firm's competences.

forms" (Marx 1996, 511). *Uebergangsformen* (transitional forms) appears in the *Economic Manuscript of 1861–63*, while *Nebensformen* (accompanying forms) appears in the *Results*.

6 For instance, Murray (2000; 2004), Tomba (2009), Das (2012), Vrousalis (2018).

7 See Screpanti (2001) for an investigation of several of these forms.

3.2. The Production of Relative Surplus Value

Subsumption becomes real when the capitalist uses his control of the labour process to modify its structure, organization and technical characteristics. The capitalist's goal is always to increase the production of surplus value, and he normally tries to achieve this by raising labour productivity. Marx proposes the following example:

Working day IV: $a-----b'-b-----e$

Now the length of the working day, $e-a=12$, is the same as that in example III above, but necessary labour is reduced by the interval $b-b'=1$, and surplus labour has increased by the same amount. Necessary labour is reduced because improvements in labour productivity have cut the labour content of any single commodity and therefore have enabled the capitalists to pay a given real wage with a lower value of labour power. The ensuing increase in surplus value is called "relative surplus value".

The production of relative surplus value revolutionizes out and out the technical process of labour, and the composition of society. It therefore presupposes a specific mode of production, a mode which, along with its methods, means, and conditions, arises and develops itself spontaneously on the foundation afforded by the formal subjection of labour to capital. In the course of this development, the formal subjection is replaced by the real subjection of labour to capital (1996, 511).

When a capitalist employs many artisans in a factory, he does not just ask them to do the same jobs they did in their workshops, but reorganises the labour process to make them produce more than the summation of their preceding individual activities. Capitalism sets in motion *cooperation*: "When numerous labourers work together side by side, whether in one and the same process, or in different but connected processes, they are said to cooperate, or to work in cooperation" (330). Labour activity becomes social labour and, as such, yields a specific productive force: "the special productive power of the combined working day is, under all circumstances, the social productive power of labour, or the productive power of social labour" (334). The capitalist takes advantage of this new force. He pays the single workers but, having subsumed their labour capacities, he is the owner of the outcome of their productive organization.

Cooperation raises profits because labour activity has become social, quite independently of any form of technological innovation proper. Marx singles out several sources of improvement. Let me list them briefly:

1. The capitalist control over the labour process compels the workers to work efficiently, thus levelling out the natural differences in performance of the various artisans. *Socially necessary labour is imposed* in the capitalist factory.
2. When the means of production are used in common by many workers, the average capital-labour ratio may shrink, and the costs of constant capital per unit of output may lower. In other words, there may be an *economy in using the means of production*. Reductions in the organic composition of capital enable a capitalist to invest a given amount of capital in a bigger quantity of labour.
3. It is possible to benefit from *increasing returns to scale*: labour productivity rises because the scale of production expands (329). Thus, the greater the number of workers employed by a firm, the higher their average productivity is.
4. Due to cooperation, “mere social contact begets in most industries an *emulation* and a *stimulation of the animal spirits* that heightens the efficiency of each individual workman” (331), so that their productivity rises.⁸

8 The modern psychology of labour has ascertained that recognition, self-realization and creativity are part of the fundamental psychological needs of workers. Marx had more than an intuition about that. What is remarkable is that he thinks a worker might strive to enjoy his working activity “as something which gives play to his bodily and mental powers”, not only in a self-managed firm, but also in a capitalist company, where he is less “attracted by the nature of the work and the mode in which it is carried out” (Marx 1996, 188). On the other hand, we know that modern organizational psychology has led to the establishment of departments of human relations management in many big companies precisely with the goal of motivating workers to give their best. Empirical research based on Job Characteristics Theory has ascertained that labour activity can be moulded and organised in a capitalist firm to improve both labour productivity and the workers’ “happiness” on the job (see Oerlemans and Bakker 2018).

5. A *saving in production time* may be achieved when different phases of the labour process are assigned to different workers, as when many bricklayers form a chain to move bricks from a place to another.
6. In addition, a *shortening of production time* is brought about when different operations in a labour process are assigned to different workers. In this way, different parts of a commodity may be produced at the same time.
7. In certain production processes there are *critical moments* that require the use of a consistent mass of workers, as in the fishing of herrings. The collaboration of many workers can tackle this problem.
8. Cooperation is also required when the *space dilation* of work is relevant, such as in canal building.
9. In other cases, cooperation may be used to achieve a saving of *faux frais* by means of a *space contraction* regarding work activity, such as in the transformation of extensive agriculture into intensive.

A more advanced form of cooperation, which Marx calls *manufacture*, develops with the introduction of a systematic division of labour. The labour process is reorganised by reducing it down to many simple functions, and these are assigned to different workers who are specialised in them. Even the instruments of labour are redesigned to serve the specialised labour functions. In manufacture, no commodity is produced by single workers. The organised group, the “social collective labourer”, produces the commodity. Within the factory organization, “each workman becomes exclusively assigned to a partial function [...] his labour power is turned into the organ of this detail function” (343). Thus, the individual workers become “partial workers” and lose the ability to understand the overall labour process. This, however, is clearly understood by the capitalist who established the production plan: “intelligence in production expands in one direction, because it vanishes in many others” (366).

Here, Marx shows that he has a clear idea of what is known today as “team production”. It is impossible to measure individual productivities

in a “group of labourers”, as this constitutes an indivisible organism, an “organised body of labour”. Only the group productivity counts. The capitalist pays the *individual* workers; therefore, all the value produced by the “social worker” over and above the summation of individual wages is relative surplus value. This, of course, belongs to the capitalist, whose “undisputed authority” is used to organise and manage the organs of the overall mechanism. And “the productive power resulting from a combination of labourers appears to be the productive power of capital” (365).

The capitalist’s authority is also used to cope with the workers’ resistance. Obviously, Marx is not acquainted with the modern notion of “information asymmetries”. Yet he repeatedly observes that, given the conflicting and exploitative relationships prevailing in a capitalist factory, workers continually practice some form of defiance and insubordination in order to preserve their dignity and reduce fatigue. Thence the capitalist’s necessity to set up a hierarchy of controllers. This inflates costs, but is profitable so long as the productivity gains outweigh control costs.

Besides “simple cooperation” and “manufacture”, an even more advanced form of the division of labour is set in motion by the use of machinery in modern *large-scale industry*, where the assembling of many complex means of production gives rise to an *automatic system of machines*. In this way capital incorporates science in technology, and labour productivity rises “to an extraordinary degree” (390).

The development of automation is not the result of an objective and neutral evolution of science and technology; rather, it is one of the most important consequences of real subsumption. Capital moulds science and technology in its effort to run the labour process with a view to increasing surplus value:

The development of machinery takes this course only when large-scale industry attained a high level of development and all the sciences have been forced into the service of capital, and when, on the other hand, the machinery already in existence itself affords great resources. At this point, invention becomes a business, and the application of science to immediate production itself becomes a factor determining and soliciting science (Marx 1987, 89–90).

Marx's theory of the capitalist use of science has been developed, among others,⁹ by Fallot (1966), who clarified some fundamental ideas: that the evolution of science is not neutral but intrinsically determined by capital; that technical progress brings about an ongoing separation of intellectual from manual work; and that it does not liberate the producers from work, but increasingly subjugates them to capital.

With large-scale industry, the role workers play in the labour process is transformed. In "simple cooperation" and in "manufacture" the individual workers and the organised "social worker" are still the subjects of labour activity, while the means of production are the objects. In large-scale industry, instead, "the automaton itself is the subject, and the workmen are merely conscious organs, coordinated with the unconscious organs of the automaton and, together with them, subordinated to the central moving power" (Marx 1996, 422). The partial worker undergoes another transformation: she becomes part of a machine system and is incorporated, like a human appendix, into a dead mechanism. Since scientific knowledge is now embodied in capital, the worker loses not only the ability to understand the whole production process, but also the very meaning of her labour activity and the control of her body.

Moreover, in this way, the machine becomes a weapon used by the "autocracy of capital" to smash the insubordination of workers, and is hence another means of raising relative surplus value. On the one hand, reducing workers to the condition of "organs of the automaton" abates their ability to resist the capitalist's control. On the other, the increase in the capital-labour ratio provokes a redundancy of labour, which contributes to lower wages.

3.3. Wage Dynamics

One way to raise the magnitude of surplus value is to cut wages, the part of output corresponding to necessary labour. Marx considers three different forms of wage payment: overtime pay, piece-wages and time-wages.

9 For example, El Kilombo (2010) and Nayeri (2018). Panzieri (1961) contributed to found "workerism" (a revolutionary section of the workers' movement in the 60's and the 70's) with his analysis of the way modern capitalism uses machines and technical progress in class struggle.

A pay scheme often used to increase surplus value consists in offering the workers extra pay for overtime work. Marx observes that competition between unemployed workers enables capitalists to cut the normal wages of the employed, thus compelling them to accept overtime work. Consequently, the actual working day lengthens beyond the normal one. As long as the ensuing increase in production outweighs the pay increase, there is a rise in surplus value.

Piecework pay is another device used by capitalists to raise relative surplus value. It may be applied to both individuals and groups. With this form of pay, workers are motivated to intensify their labour activity. At the same time, they are induced to exert self-discipline. Thus “the discipline enforced by the capitalist [...] become[s] practically superfluous in piece-work” (Marx 1998, 87), and companies can save on control costs. Therefore, productivity improves and costs shrink. Marx insists in observing that piecework pay modifies the form of wage, but does not alter the social substance of the employment contract. The worker’s subordination and the subsumption of his labour capacities are maintained. Control of the labour process remains in the capitalist’s hands.

The typical form of pay in a capitalist system is time-wages. Workers’ compensation is not commensurate to any productive contribution. Since the employment contract establishes the workers’ subordination to the capitalist for a certain number of hours a day, the capitalist pays for this time.

In his most abstract arguments, Marx, following Ricardo, assumes that normal wages are fixed at a (physically and historically determined) subsistence level. The “value of labour power” is determined by the reproduction costs of labour power. However, when he follows Adam Smith, and especially when he reflects on Union activity in Great Britain, Marx repeatedly makes it clear that, in practice, wages are determined institutionally and politically by class struggle and that they continually change in both the short and the long run:

The periodical resistance on the part of the working men against a reduction of wages, and their periodical attempts at getting a rise of wages, are inseparable from the wage system [...]. The value of the labouring power is formed by two elements—the one merely physical, the other historical or social [...]. This historical or social element, entering into the value of labour, may be expanded, or contracted, or altogether

extinguished [...]. By comparing the standard wages or values of labour in different countries, and by comparing them in different historical epochs of the same country, you will find that the *value of labour* itself is not a fixed but a variable magnitude [...]. The fixation [of the rate of profit] is only settled by the continuous struggle between capital and labour, the capitalist constantly tending to reduce wages to their physical minimum, and to extend the working day to its physical maximum, while the working man constantly presses in the opposite direction (1985b, 144–6).

Wages are regulated by the bargaining powers of organised parties, the capitalists' associations and the workers' Trade Unions. The companies determine the level of employment through investment decisions and the workers react by carrying out industrial action.¹⁰ Since the labour deal does not consist in the exchange of a commodity, but is a transaction instituting a title to command over a worker, labour productivity is determined ex-post by the exercise of the title itself, and depends on both the employer's managerial ability and the worker's resistance. Wages are determined by class struggle, not by productivity.

The theory of wage determination is expounded especially in *Capital*, volume 1, chapter 25, "The General Law of Capitalist Accumulation", and in the booklet *Value, Price and Profit*. It may be summarised as follows.

A decreasing function links profits to wages (given the technique) and an increasing function links investments to profits. During a prosperity phase in the business cycle, employment rises. This slackens the pressure of the industrial reserve army on labour supply. The workers' confidence mounts, and Trade Unions are able to enact struggles to support claims for wage increases and reductions in the working day. Prosperity favours the success of industrial action.

However, when wages increase, profits begin to shrink, thus weakening the inducement to invest. Eventually, investments dwindle, production follows suite, and a crisis erupts. "Crises are always prepared by precisely a period in which wages rise generally and the working class actually gets a larger share of that part of the annual product which is intended for consumption" (1997, 409). During a crisis,

10 See Screpanti (2000) for a reformulation of this theory with a model of efficiency wages.

companies dismiss workers and the industrial reserve army begins to bloat. This paves the way for wage cuts. Moreover, many unprofitable firms go bankrupt or are swallowed up by bigger companies, while those who survive are induced to scrap obsolete machines and replace them with more efficient ones. Productivity rises and wages slow down. Therefore, profits, investments and production expand and a new phase of prosperity matures.

In this theory, subsistence consumption does not determine normal wages, but only their lower limit. The workers are able to gain higher wages with their struggles both in the business cycle upswings and in its long run trend (Desai 1974, 19–20).

Marx observes that two general tendencies may characterise the wage trend in the very long run. Firstly, due to technical progress, which tends to systematically substitute labour with capital in response to workers' struggles, the industrial reserve army has a tendency to expand, the rate of exploitation to escalate, and the wage share in the national income to shrink.

Secondly, the level of real wages may tend to rise with labour productivity, although less than proportionally: "it is possible with an increasing productiveness of labour, for the price of labour power to keep on falling, and yet this fall to be accompanied by a constant growth of the mass of the labourers means of subsistence" (1996, 523). In fact, "a noticeable increase in wages presupposes a rapid growth of productive capital. The rapid growth of productive capital brings about an equally rapid growth of wealth, luxury, social wants, and social enjoyments." Therefore the enjoyments of the worker rise (1977, 216). Class struggle, even when it does not culminate in a revolution, is not useless. It may help the workers to reap at least a part of the growth of labour productivity, albeit at the cost of an increasing relative deprivation.

The theory of wage determination is part of Marx's scientific explanation of exploitation. It is evident that this is not a normative theory. As already observed, for Marx the "just" wage in a capitalist system is that fixed in the "labour market". It is determined by a class struggle between the capitalists and the workers, and neither of the two opposing classes is moved by moral considerations any more than by their material interests.

Class struggle takes place both inside and outside the factory. In the factory, the capitalists try to use their power to organise the labour process in view of raising labour productivity and hours worked, but they continually have to face the workers' resistance. Outside the factory, the workers form their "coalitions" and use these to compel the employers to grant improvements in pay, working hours and labour conditions. Class struggle decisively contributes to determine the degree of exploitation.

The State mainly intervenes in support of the capitalist interests, although it also undergoes the consequences of the class struggle itself. When the workers are strong enough to scare the dominant groups, the State tries to assuage conflict by complying with some of the workers' claims, e.g. by legally regulating the working day, minimum wages and labour conditions.

