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Value and Exploitation: a counterfactual approach

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A deconstruction of the Marxian theories of value and exploitation is attempted by arguing, first, that the labour theory of value is logically and methodologically inconsistent as a basis for a theory of capitalist exploitation and, second, that it is founded on an ontology of the social being which is not plausibly justified. A counterfactual model economy is then built, called Utopia, in which the workers receive the whole net output while commodities exchange at labour values. This model is used as a benchmark to evaluate a capitalist economy where commodities exchange at production prices and workers are exploited. It is shown that the factor of exploitation can be expressed as a ratio between the labour commanded by, and the labour contained in, the net output, or between the value added produced in a capitalist economy and that produced in Utopia. The resulting theory of exploitation entails a weak ontology of the social being, expressing a worker's point of view.

1. Introduction

Two questions motivate this essay. Is it true that, to save the vital parts of Marx's analysis of capitalism, we must throw the labour theory of value to the wind? And, together with this, must the theory of exploitation be thrown out too, at the risk of being left with very few vital parts? My answer to the second question is: no. To the first: yes and no.

To justify these answers, I intend to propose a deconstruction of the Marxian theories of exploitation and value. I will recall some results of research that are now common knowledge, but with the intention of bringing to light some of their deconstructive implications on the ontological and methodological foundations of Marx's theory. I will then show that the metaphysics of labour values makes them inadequate to account for class relations in a capitalist economy, whilst it exposes them to criticism of logical inconsistency and the even more serious criticism of methodological weakness. I will further argue that it is impossible to explain exploitation effectively if one uses the labour theory of value. All this I will do in the first part of the essay.

If it is not the theory of exploitation that generates problems but its link with the labour theory of value, then abandonment of the latter does not imply

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renouncing the former. In the second part of the essay I first bring out the gist of Marx's analysis of exploitation. Then I attempt a reconstruction by resorting to a counterfactual approach. I will shun any *universal* theory of justice and any truths that assert ontological certainties. The analysis I am going to put forward instead hinges on the assumption of a working-class point of view, on the basis of which I will build a model of a hypothetical world that can be used as a benchmark to study capitalism.

By using a theory of value based on production prices, I will show that it is, in any case, possible to measure the rate of exploitation in terms of quantities of embodied *and* commanded labour. Finally, I will bring to light some fundamental characteristics of capitalism, i.e. some institutional conditions that make it possible to extract a surplus value from the production process.

Escaping the limitations of the labour theory of value does not imply that the latter should be discarded. What it does call for is a change in its methodological use. Accordingly, in the second part of this paper, I also show that embodied labour could turn out to be the right measure of value in the hypothetical world used as a counterfactual.

2. Exploitation and Labour Values

2.1. The Orthodox Theory of Exploitation

I interpret Marx's labour theory of value as being founded on two axioms. The first might be called 'the value substance axiom': 'A useful value, or useful article … has value only because abstract human labour is objectified or materialized in it.' The second could be called 'the value magnitude axiom': 'How, then is the magnitude of this value to be measured? By means of the quantity of the "value-forming substance", the labour contained in the article' (Marx, 1867–94, Vol. I, p. 129).

This second axiom establishes that

$$\lambda = \lambda A + l \tag{1}$$

where λ is a vector of labour values of gross outputs, i.e. of the labour quantities contained in them, l is a vector of direct labour coefficients, A is a technical coefficient matrix and λA is a vector of labour values of the means of production. The labour values of net products coincide with the quantities of labour contained in them; that is, $\lambda(I\text{-}A) = l$. The solution to the equation is

$$\lambda = l(I - A)^{-1} \tag{2}$$

Let $y = (I–A)x$ and $L = lx$, where y is the vector of net outputs, x the vector of gross outputs and L the employment level. In addition, let v be the 'value of labour power', i.e. wage measured in labour values. Then the rate of exploitation, ρ, is defined as

$$\rho = \frac{\lambda y - vL}{vL} = \frac{L}{vL} - 1 = \frac{1}{v} - 1 \tag{3}$$

Note that, since the labour value of net output equals the quantity of living labour used to produce it, $\lambda y = \lambda(I–A)x = lx = L$, the labour productivity in labour values, $\lambda y/L$, is equal to 1. Equation (3) can be interpreted as follows: 1 is the duration of a working day and v is the labour time required to produce the consumer goods that are bought with a daily wage. Thus, the rate of exploitation is interpreted as a rate of *surplus labour*. It seems that one can say there is exploitation because the value of labour power is lower than the value produced by it. Since everything is measured in embodied labour, the theory seems to make clear that there is capitalist exploitation because the workers work longer than is necessary to produce their income.

2.2. Two Paradoxes

The theory is logically inconsistent if applied to a capitalist mode of production. In competitive equilibrium, commodities are exchanged at production prices, p, that ensure a uniform profit rate, r. If w is the wage, production prices are calculated in the following way:

$$p = (1 + r)pA + wl \tag{4}$$

The solution to this equation is

$$p/w = l(I - (1 + r)A)^{-1} \tag{5}$$

The rate of exploitation in price terms is the profit–wage ratio, σ, and is defined as

$$\sigma = \frac{py - wL}{wL} \tag{6}$$

which equals the rate of exploitation in value terms if $p/w = \lambda/v$. By comparing Equations (2) and (5) one immediately realises that this condition holds if $r = 0$ and $w = v = 1$, i.e. if profit is nil and the workers get the whole net product.

Marx was convinced that prices redistribute surplus values among the industries in such a way that overall exploitation does not change in the transformation from the value system into the price system, so that the aggregate rate of exploitation remains quantitatively equal to the profit–wage ratio anyway. Accordingly, he could go on treating profits as evidence of surplus labour, i.e. exploitation. However, the result shown above is paradoxical: in an economy in which many commodities are produced,[1] the rate of exploitation remains unchanged in the transformation from values into prices if and only if there is no exploitation.

Nor is it possible to fall back on the thesis that the rate of exploitation in value terms does not have to equal the profit–wage ratio. In fact, suppose the latter is higher than the former. With appropriate normalisation, the wage bill can be made to coincide with the overall value of labour power. The surplus value measured in price terms would then be higher than that measured in labour values, which would imply that a part of the profits has not been

[1] I ignore the irrelevant case of uniform organic compositions of capital. After all, different commodities produced with an identical technology are, in reality, the same commodity.

produced by surplus labour. One could then conclude that there can be profit without exploitation! Whichever way you look at it, the labour theory of value does a bad service to the theory of exploitation, so much so that many have argued that the breakdown of the former leads to collapse of the latter.[2]

The reason for this difficulty is that labour values express sheer technical relationships and abstract from class relations. Equation (2) unequivocally shows that knowledge of the technical coefficients is sufficient to determine labour values. There is no need to know anything about the institutional setting that regulates production, about the social classes that confront each other in the production process, about the way classes partition income and the working day. It is not even necessary to know it is a capitalist economy, in which one class earns profits and another wages. Unlike production prices, labour values do not change when class relations change, for instance, when income distribution changes. Value is a social relation, according to Marx (1867–94, Vol. I, p. 167n), 'a relation between persons … concealed beneath a material shell.' Thus, it should express social relations and change with them. Instead, labour values are insensitive to social relations. Marx seems aware of this property of labour values, of the fact that their definition presupposes an abstraction from the social and institutional setting of capitalism. In fact, in the very chapter where he builds the labour theory of value, he explicitly declares, albeit in a footnote, that he abstracts from wages: 'At this stage of our presentation the category of wages does not exist at all' (Marx, 1867–94, Vol. I, p. 135n). And in a letter to Engels of 13 January 1859 he even declares that in *Contribution to the Critique of Political Economy*, in which he presents the first version of Chapter I of *Capital*, he abstracts from capital.

A methodological paradox emerges here which is even more serious than the analytical one shown above, of which, however, it represents the cause: in order to lay the foundations of a theory of exploitation which *is* meant as a theory of social relations, a notion of value is used that does away with social relations altogether (Screpanti, 1993).

2.3. How to Justify Marx's Axioms

Equation (3) shows there is exploitation because labour productivity is higher than the wage. Productivity measured in labour-values is equal to 1—say 1 labour day. Therefore there is exploitation if the value of labour power, i.e. the labour embodied in the daily wage, is lower than 1 day. This, in a few words, is what Marx's theory of exploitation asserts: that the wage is lower than labour productivity. Yet, from a philosophical point of view, Marx's axiom on the substance of value says much more. It says that labour's contribution to production coincides with the *average* productivity of labour, in other words, that only labour produces value. An axiom is true by assumption: one maintains that the truth it asserts is self-evident and need not be demonstrated. An axiom is a metaphysical presupposition on the ground of which other propositions can

[2] So widespread is this opinion that it has been taken seriously into consideration by such different authors as Napoleoni (1972, 1985) and Nozick (1974).

be proved true. But is Marx's axiom on the substance of value really so self-evident?

Why should labour's contribution coincide with *average* productivity? Some might postulate it coincides with *marginal* productivity, in which case it would be easy to prove that there is no exploitation of workers when the wage is equal to the marginal product of labour (even if this is lower than the average). If an axiom has no need to be demonstrated, it must however be 'justified'. The Marxian axiom should be corroborated with some convincing arguments. Postulating that labour's contribution coincides with *average* productivity is tantamount to assuming that there is no contribution other than labour's. How can this thesis be justified?

A strategy followed, for instance, by Elster (1978a, pp. 10–11; 1978b, p. 105), answers this question by observing that capital itself is produced by labour, so that its productive contribution is reduced to a labour contribution anyway. I shall ignore the fact that this view, at any rate, does not settle problems of land's contribution. It seems to me, however, that it can only serve to argue that capital's contribution, if it exists, must be paid to the workers, not to prove that it does not actually exist. Yet it is evident that this pay must accrue to those workers who legitimately own capital, for instance, because they accumulated it through savings, not to those who produced it (Van Parijs, 1995). Workers who own some capital are capitalists and are remunerated with a surplus value corresponding to its productive contribution, in which case the wage cannot coincide with the average productivity of labour.

Another strategy resorts to the argument that a capital contribution should not be paid to the capitalists, even if its ownership has been acquired only through labour and saving. A capital contribution in terms of *real* productivity is admitted. The fact that capital is not remunerated implies that only labour gives a productive contribution in *value* terms. But why should a real capital contribution not be remunerated? The reason seems to be that capital goods are produced by means of natural resources which, presumably by virtue of some natural law, belong to humankind and cannot be privately appropriated (Cohen, 1983a, pp. 316–317; 1983b, pp. 443–445; 1985, pp. 98–99; 1986, pp. 87–90). Now, natural resources should include personal talents. Are individuals allowed to appropriate their own natural endowments? If the answer is yes, then one cannot escape the conclusion that capital goods produced by means of personal talents are legitimately owned and therefore their contribution must be remunerated. If the answer is no, then one must conclude that not even living labour has the right to be paid according to its contribution, given that this consists of a flow of services that spring from an endowment of personal resources.

Marx, at any rate, made it quite clear that land and capital too contribute to the production of *commodities*[3] (Yunker, 1977; Cohen, 1979; Arneson, 1981;

[3] Given a technique that uses labour, land and capital goods according to determined technical coefficients, it is not possible to obtain any commodity without using land and capital. Thus, these requirements are necessary to labour activity and contribute to production. The problem is: how much do they contribute to the production of *net* output? The distinction between net and gross output presupposes an accounting system and hence a theory of value: the net output is the *value* the

Levine, 1984). But he also insisted on the thesis that only labour produces *new value*, only labour is the *substance* of value. His strategy to justify the value substance axiom was very simple: he posited the value magnitude axiom. Obviously, if it is the creation of labour-values that counts, and not the production of physical outputs, and if the value magnitude consists of a quantity of embodied labour, the value substance axiom seems pretty well granted: since labour productivity is equal to 1, i.e. the value produced by one hour of labour equals one hour of labour, it seems evident that only labour can have produced that value. But then the focus moves on to the value magnitude axiom: what evidence is there that this magnitude coincides with embodied labour? After all, a measure is just a convention.

Marx, in reality, believed that the embodied labour measure was more than a simple convention. He gave it an ontological, in addition to an accountancy, meaning, and was convinced it was the sole measure capable of expressing the substance of value, of expressing it in such a way as to push the analysis of exploitation beyond the surface appearances exhibited by the price system. However, it is obvious that the labour measure can be considered to be the authentic measure of value, and not just an accountancy convention, only if labour *is* the substance of value. Thus, the value magnitude axiom acquires ontological relevance precisely because it is supported by the value substance axiom.

In other words, the two axioms uphold each other. One can believe the labour measure of value magnitude reveals the substance of value if labour is assumed to be the 'value-forming substance'. On the other hand, it seems that this assumption can be taken as a simple recognition of factual evidence if the value magnitude is assumed to be naturally measured in embodied labour. What is the sense of all this? The point is that if the labour-value measure had any sense, at least at the aggregate level, as Marx believed, the surface appearances of prices should not contradict the substance of values. Yet, as has been proved in the previous section, they do contradict it. Thus, the theory is based on two axioms that uphold each other, but neither of which is justified. One can understand Sraffa's diffidence toward the 'mystics' of labour-value.

3. Exploitation without Labour Values

3.1. A Class Counterfactual

Workers are assumed to be able to conceive of *feasible* alternatives to capitalism, which they consider to be *better* than it. The alternatives are *feasible*, in the sense that they are attainable on the basis of the techniques and resource endowment of the actual capitalist economy and by changing institutions and income distribution. They are *better*, in the sense that the workers would be better off in them than in capitalism.

Footnote continued

productive process *adds* to that of advances. Marx's idea that capital contributes to the production of commodities has nothing to do with the marginalist view that it contributes to the creation of value-added and that this contribution coincides with the marginal productivity of capital.

I will call 'Utopia' the best of all feasible alternatives.[4] The workers, by definition, appropriate the entire net output in Utopia, so that their average income coincides with their average productivity. Thus, they might reason that if they can increase their income by moving to Utopia and continue producing what they produced before, and in the same way as before, then it is not for technical reasons that they earn less than their productivity in capitalism, but only by virtue of the institutional setting. They might convince themselves that if they can appropriate the whole net output just by changing institutions and abolishing the capitalist class, this means they do not need the capitalists to produce and therefore that the whole product is produced by them anyway. In other words, they might realise that their productive contribution coincides with what they can earn and produce in Utopia, given that what they produce there they can produce anywhere without changing the techniques. Then, by comparing the capitalist world with Utopia they recognise that they are worse off in the former just because their wage is lower than their productivity, and they feel exploited in capitalism *for this reason*.

The counterfactual reference to Utopia[5] evokes a scholastic and fanciful pastime; it might seem to break away from that sound concern with the objective world to which Chapter 1 of *Capital* has accustomed us. But counterfactual reasoning is a routine human practice. We resort to counterfactuals every time we ask whether the price of a good is too high or a wage is too low. In raising these questions we, in fact, compare the real price or wage with an ideal lower price or an ideal higher wage. The same is true of a worker who evaluates the measure of exploitation and social welfare in terms of the kind of car driven by the factory owner and the uselessness of the owner's life: I would be less exploited if the value of that Ferrari were transformed into wages, and we would all be better off if that layabout worked at something useful instead of playing on the stock exchange.

The theory I am presenting is a formalisation of this kind of argument. The idea of exploitation implies a judgement on the disposition of the product. Counterfactual reasoning sustains the conviction that it is feasible to achieve a

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4 It is not the best of all *possible* alternatives. Feasibility, as defined here, implies the techniques are those used in the capitalist economy. It goes without saying that an alternative world ruled by the workers would entail a radical change in the way of producing goods and in the kinds of goods produced. However, the definition of an alternative world of this type is not necessary to uphold the counterfactual reasoning by which I intend to justify the exploitation thesis. Also note that the validity of my argument does not require me to assume the workers *prefer* to live in Utopia.

5 A counterfactual approach has been developed, among others, by Roemer (1982a, 1982b, 1982c, 1982d), but not in the direction I have followed here. Roemer, for instance, focuses his analysis on the distribution of property rights, which I have ignored altogether. For some critical evaluations of Roemer's theory see Petri (1989) and Reiman (1989). To my knowledge, the first writer to put forward a counterfactual interpretation of Marx's theories of value and exploitation was Croce (1927), who however claimed (wrongly, in my opinion) that Marx reasoned in counterfactual terms. Bellofiore (2000) also proposed a counterfactual interpretation of the labour-theory of value. Another counterfactual approach has been proposed by Petri (1989, p. 233) using the subsystems of a Sraffian model. Finally, Reati (2000) put forward a counterfactual theory of value and exploitation using Pasinetti's (1981) model.

different disposition from what would obtain in capitalism. The belief that it is possible to improve the workers' living conditions without having to change the techniques is equivalent to believing that profit does not remunerate the productive contribution of anything. I hold that, in spite of any ideological hegemony of capital, these ideas, convictions and beliefs can be part and parcel of the common sense of the contemporary worker's condition.

The assumption of a class viewpoint rather than a universal metaphysics orientates Marxist philosophy towards a non-essentialist re-foundation of the theory of exploitation. This approach is 'weak,' but not because it is not logically robust. It is weak in the sense that most contemporary 'post-philosophical' thought is weak: by denying the absoluteness of *any* truth and any metaphysics, it recognises the partiality of its own too. Yet not even a relativist theory can avoid justifying its own axioms. Such a theory does not shun metaphysics, it merely limits itself to saying that its own truth is not the absolute truth established by God or Nature or History or Reason or Capital or C*apital*.

In the case of value theory, a class point of view enables us to start from axioms that do not pretend to be propositions on the *essence* of a thing. The problem of what is the substance of value, or who 'creates' it, is not even posed. In fact, one should take seriously Marx's view that value is a 'social relation'—seriously, that is, by interpreting it in the sense that value is *only* a social relation: it simply emerges from the social relations of production. No ontological essence exists behind social intercourse. There are only relations of production, transaction, struggle, power, cooperation, through which the social actors produce and allocate the social product. An analysis based on Marxian production prices is more than sufficient to found a theory of value as a social relation; indeed it is perhaps still too abstract, for instance, in that it assumes perfect competition (Screpanti, 2000, 2001).

In the case of exploitation theory, the assumption of a class point of view enables us to find a sensible justification for the productivity axiom I will postulate in the next section. It is not an essentialist justification of the kind entailed by Marx's value substance axiom. Nor can it be an empirical justification of the kind that pretends the thing is self-evident in the light of a simple observation of reality, for no empirical datum can be gathered and interpreted without referring to a theory and a viewpoint. Finally, it cannot be an ethical justification of the kind that presupposes a universal philosophy of justice, for no honest philosophy of justice can be formulated by avoiding any party spirit or by hiding behind a 'veil of ignorance'.

Note that, in this approach, the problem of whether 'capital' contributes to production or to value 'creation' is not even posed. The real issue of capitalist exploitation is weather *capitalists* contribute. In my opinion, the workers who feel exploited do not question the usefulness of the machines they use in the labour process, or the positive effects of machines on their productivity. They question the usefulness of the capitalists and their role in rising labour productivity. They feel exploited, not only by absentee ownership, but also by the capitalist controllers in the labour process. If they observe that capitalist control helps raise productivity through urging a certain degree of work effort, they judge themselves able to provide that degree of effort without needing any hierarchical control when working in their own interest.[6]

3.2. An Axiom and a Theorem

As already noted, once stripped of any essentialist metaphysics, Marx's conception of exploitation reduces to the proposition that the wage is lower than the average productivity of labour. Is it possible to ground a robust theory of exploitation on this proposition? I believe that not only is it possible, but that a more enlightening analysis than the orthodox one will result from this operation.

I will start with a 'definition of capitalist exploitation': there is capitalist exploitation of labour in production when the workers' productive contribution is higher than their wage. The definition does not say anything about the distribution of property rights. It can thus be applied to capitalism in general. In Screpanti (2001) I argue that to characterise a mode of production as a capitalist, it is sufficient to point out that the workers' income takes the form of a wage and that capital valorises itself through the production and investment of a surplus value. A capitalist extracts from the workers a contribution to production. If this enables him to earn a surplus value, and therefore to valorise capital, I say there is capitalist exploitation. The definition implies there is an actor, besides the workers, who controls their productive contribution, and that that actor is a capitalist, i.e. one who operates for the valorisation and accumulation of capital.

The problem immediately arises of defining the productive contribution of labour. On the basis of the arguments expounded in the preceding section, it is possible to postulate the following 'productivity axiom': the productive contribution of labour coincides with its average productivity.

Let me recapitulate how this axiom can be justified through counterfactual thinking, that is, through a reasoning of the form 'if *A* were true, then *B* would be true.' In the case at hand the sentence will be rephrased as follows: 'if Utopia is feasible (A), *then* the entire output is produced only by the workers (B).' This cannot be a logical demonstration of the productivity axiom. Obviously one is not looking for such a demonstration if that has to be an axiom. Nor can it be a justification in terms of realism of the hypotheses, for Utopia is not real, nor is it self-evident that it is a real possibility. Nevertheless the axiom asserts something about the actual world; that is, about capitalism, not about a virtual world. How is it possible? The point is that the counterfactual reasoning may serve to uphold a pre-analytical justification. But it can do that only to the extent that it is accompanied by the *conviction* that Utopia *is* technically feasible or, what is the same thing, that a positive profit *is not* a necessary condition for the feasibility of an economy. Such a conviction is neither an absolute nor an

[6] If this is a correct expression of a worker's point of view, I think that the very question of whether 'capital' contributes to value production reveals subservience to a capitalist ideology. In fact a capitalist who knows he provides no real contribution as a person can only try to justify his income by appealing to the contribution of a thing. Therefore a Marxist who knows that 'capital' is a social relation and not a factor of production, should not only shun that question, but should also try to elicit its ideological content.

empirical truth. It can however be derived from a particular point of view, which I hold to be a worker's point of view.

Now consider a farm in which corn is produced by means of corn and labour. There are three employees. One of them produces 20 tons of corn a year, another 15 tons and another 10. The average productivity of labour is $15 = (20 + 15 + 10)/3$. Suppose each worker is paid a *wage* consisting of 10 tons of corn a year. Then the productivity axiom and the definition of exploitation enable me to say the workers are capitalistically exploited,[7] to be precise, they are exploited at a rate of 50%, the rate of exploitation being $(45–30)/30 = (15–10)/10 = 1/2$.

More generally, the reasoning applies to an economy in which *n* commodities are produced by means of themselves and labour. In this case, labour productivity, wages and the rate of exploitation would be defined in price terms. Exploitation can be *proved* whatever the commodity chosen as a numeraire, since the existence of non-negative prices and a positive profit presupposes that some physical product is obtained over and above input requirements, including the workers' consumption (Gintis & Bowles, 1981; Wolff, 1981; Roemer, 1982a). Moreover the rate of exploitation can be accurately measured in price terms independently of the commodity chosen as a numeraire.

It is possible to propose the following 'theorem of capitalist exploitation': there is capitalist exploitation of workers whenever the wage is lower than labour productivity. Proof is immediate and can be obtained by a simple syllogism based on the definition of exploitation and the productivity axiom.

True, it is a theorem that sounds a little tautological (Van Parijs, 1995, p. 134), but what more can you expect from logic? An axiom is true by fiat, and nothing can be done to convince those who do not want to be convinced. Theorems, at any rate, must not be contradictory, otherwise they fail to convince even those who want to be convinced. Thus, everything rests on a *particular* point of view, for that is what corroborates the conviction of the validity of an axiom. I deem that the viewpoint of the working class is sufficient to justify the productivity axiom and the ensuing theorem.

3.3. The Rate of Exploitation

According to Equation (6) the rate of exploitation is

$$\sigma = \frac{py - wL}{wL} = \frac{\pi}{w} - 1 = \frac{L_c}{L} - 1 \tag{7}$$

where $\pi = py/L$ is labour productivity and $L_c = py/w$ the labour commanded by the net output. The second ratio of the equation is obtained from the first by dividing the numerator and the denominator by L; the third, by dividing them by w.

[7] Note that exploitation refers to the group of workers as a whole and not to individuals. If it were defined on an individual basis, the marginal worker, the less productive one, would turn out not to be exploited in this example. But it is assumed that all three workers are required in order to implement production, and that none of them would produce anything if employed on his or her own.

The factor of exploitation, $1 + \sigma = L_c/L$, can be interpreted as a ratio between the labour commanded by the net output and that contained in it. Note that, notwithstanding its being derived from a ratio between money incomes, it is a ratio between two quantities of labour—two magnitudes that are dimensionally and technically comparable. It is greater than 1 if the capitalists earn a profit and the workers get a wage lower than their productivity. When this occurs, it means that the quantity of labour that can be commanded by the net output is greater than that required to produce it. This measure of exploitation has some advantage over the measure used by Marx. The Marxian rate of exploitation is the ratio between two quantities of embodied labour or, more deeply, living labour. Therefore, as shown above, it diverges from a measure in price terms.[8] The measure in terms of commanded-and-contained labour, instead, is always equal to that expressed in price terms.

However, commanded and contained labour are conceptually different. In fact, the variable appearing in the numerator of L_c/L is a quantity of labour commanded *ex post*, i.e. after the production process has ended, whilst the one appearing at the denominator is a quantity of labour 'commanded' *ex ante*, i.e. before the production process has ended and, actually, during its course. The labour contained can be interpreted both as the quantity of labour the capitalist bought before starting the production process or as the number of workers over which the capitalist exerts his power of command in the production process. In this way, the factor of exploitation can be understood as an accumulation multiplier. When it is higher than 1, it can be said that there is a potential for valorisation and accumulation of capital, in other words, a possibility of extending the capitalist command over labour. And it can be said that this occurs because the capitalists command more labour at the end of the production process than they commanded during it, more labour to start a new production process than was used in the old one. This is made possible by the fact that the workers are not allowed to keep for themselves the entire output they produce. There can be valorisation and accumulation of capital because the rate of exploitation is positive.

Note that identity$\pi/w = L_c/L$ holds. The factor of exploitation may also be interpreted as a ratio between the value of net output in capitalism, in which exchanges take place at production prices, and the value of the net output in Utopia, in which exchanges take place at labour-values. This ratio entails a counterfactual comparison. When it is higher than 1, it means that labour productivity is higher than the wage, that capitalism succeeds in extracting from the workers more income than they consume to produce the net output. For this reason, the value of net output in capitalism is greater than that which would prevail in Utopia.

When the factor of exploitation is equal to 1 there is no capital valorisation, the profit rate is nil, wages coincide with the net output, the labour commanded by incomes coincides with that contained in them and commodities are exchanged at labour-values. In this case there is no exploitation. The workers are better off in this economy than in one where commodities are exchanged at

[8] And might even assume a negative value. On this and other oddities see Steedman (1977).

production prices. It is not a matter of justice. It is just the fact that, whatever the workers' ethical beliefs and social preferences (as well as consumption preferences), in Utopia they can do and buy what they can do and buy in capitalism and something more.

3.4. Some Institutional Implications

Now, returning to Equation (7), we may reflect on what its different expressions say, as well as on a few things they do not say, in order to grasp some fundamental characteristics of capitalism.

To start with, the exploitation formula tells us something about the institutional setting of this mode of production. It makes clear that workers are exploited through the payment of a wage, that they are subordinate employees. The term $1 + \sigma$ can in fact be interpreted as a factor of exploitation on the grounds of the productivity axiom. It can be expressed as π/w, i.e. as a ratio between labour productivity and the wage rate. When the former variable is higher than the latter there is exploitation according to that axiom. Thus, one comes to know that the wage, and therefore the employment contract, is a fundamental institution of capitalism.

Marx grasped the importance of the wage system and the role it plays in creating the conditions for capital despotism in factories. The mechanism of surplus value extraction rests on a power relationship (Tucker, 1963; Wood, 1972; Hodgson, 1980; Reiman, 1989; Screpanti, 2001). The workers are paid for the exchange value of their labour, not for their productive contribution, nor for the labour embodied in Utopia's net output. Actually, the exploitation equation makes it clear that the net output (1) is not a quantity of embodied labour and (2) is not what the workers are paid for.

The equation says that there can be capitalist exploitation in production if and only if labour productivity is higher than the wage. But labour productivity is determined in the production process, not in the market. Thus, one comes to know that the labour process must be removed from the workers' control and must instead be controlled by the capitalists. Exploitation is possible not because the workers sell a commodity whose value is *ex ante* higher than that of labour power, but because the capitalists control the labour process and can therefore regulate it so as to extract a surplus value. This is made possible by a transaction institution that entitles the employers to power of command over the workers. This institution is the employment contract, whose stipulation the workers accept in exchange for a wage (Ellerman, 1992; Screpanti, 1998, 2001).

What is it that the workers actually give to the capitalists in this exchange? Well, it is *obedience*. The workers sell the renunciation of their freedom for a certain number of hours a day. What Marx calls the 'use value of labour power', which he identifies with the commodity given by the workers in the transaction, is in reality the prerogative to *use* workers in the labour process, a claim pertaining to the capitalist by virtue of the employment contract. The possibility of labour productivity being higher than the wage springs from the capitalist control of production and not from a market exchange. The price the workers accept for their pledge of obedience is fixed in the 'market' or, rather, at the negotiation table. Labour productivity, on the other hand, is determined in the labour process by virtue of the power of command acquired by the capitalists through the employment contract.

In the second place, the exploitation equation says nothing about the distribution of property rights and is, in effect, compatible with many different forms of capitalism, from private to state property, from the public company to *Mitbestimmung*. Nor does it say anything about the existence of a uniform profit rate,[9] so that it is compatible with a competitive market system, oligopoly, monopoly or central planning.

Investment and allocation decisions can even be made by a central authority. What really matters is that they are not made by the workers (Terray, 1985). Otherwise one cannot speak of labour exploitation. The net output is controlled by those who control the productive process and, if the employment contract removes the latter from the workers' reach, it also removes the former. In other words, the presence of the wage in the exploitation equation provides another piece of crucial information: whatever the property rights regime and the market form, the workers have no control over output.

In the third place, contrary to what is held by von Weizsäcker (1973) and Elster (1985), the exploitation formula indicates that the surplus value need not be consumed by the capitalists. It is sufficient for them to decide on its investment and consumption. The workers would still be exploited, given that the surplus expenditure decisions are out of their reach. The equation says something about the existence of surplus value, not about the way it is expended. The exploiters deprive workers of the freedom to choose not only how to produce surplus value, but also how to use it (Van Parijs, 1995, p. 139).

Finally, although the equation does not have much to say about how surplus value is spent, it does however say that this is a potential of capital valorisation and accumulation. The factor of exploitation, as a ratio between the labour commanded by the net output and the labour contained in it, is a measure of the maximum factor of accumulation. The higher this is, the lower is the wage share. In other words, the possibility of accumulation is intrinsic in the wage system. If the workers as a class accept the bondage of capitalist production by entering an employment relationship, then they contribute to a strengthening of that bondage whenever they accept a cut in the wage share. Thus, the exploitation equation makes it clear that capital accumulation is a fundamental characteristic of capitalism because it is one of its intrinsic possibilities. If capital is a production relation, it is not because of the private ownership of the means of production; it is because of its inner tendency to valorisation and accumulation.

4. Conclusions

The labour-value Utopia seems to be a useful model in the formulation of this theory, since it enables us to define the exploitation factor in terms of a ratio

[9] Nothing substantial changes in Equation (7) if matrix A in Equation (4) is pre-multiplied by a diagonal matrix of different profit factors.

between two quantities of labour: that commanded by net output and that contained in it. When exploitation disappears, this ratio equals 1 and, at the same time, any difference between labour commanded and embodied disappears. But what makes the Utopian model really useful is not so much the fact that, within it, exchanges take place at labour values, as the fact that the workers gauge the superiority of Utopia in terms of an absence of exploitation. Thus, it is possible to generalise the theory by renouncing labour values even in Utopia.

The principal merit of this approach lies in its capacity to bring out some fundamental characteristics of capitalist exploitation, and two in particular: an economic one, namely the production of surplus value; and an institutional one, namely the employment contract. The former gives rise to the conditions for the self-valorisation of capital, the latter to those of the capitalist command in the labour process.

A society that abolishes these two characteristics is a society that overcomes capitalism and exploitation, whatever the relative values holding in it. Thus, the theory can be generalised in the following way. One can read the denominator in Equation (7) as a measure of the net output in Utopia, even if commodities were not exchanged at labour values. The workers' income may be differentiated, for instance, on the basis of personal abilities, intensity of individual efforts and professional vocations, or on the basis of an allocation that assign work and commodities 'to each according to his needs and from each according to his ability.' Moreover, if the workers would like Utopia to grow and its techniques be chosen efficiently, and provided they have read Pasinetti (1988), they should be quite happy in observing commodities being exchanged at 'natural prices' which are not Marxian labour values but are 'efficient prices' anyway.

Thus, in general, the values of commodities in Utopia would not depend on the quantities of embodied labour alone. Equation (7), however, says that if there is to be no capitalist exploitation, then (1) profit must be nil and (2) nobody is allowed to sell time portions of his life in exchange for a wage. When these conditions are met, the value of the net output will be equal to that of 'labour power' and this will therefore cease to be considered a commodity.

Appendix: The 'New Interpretation' and the Very New

The theory of exploitation I have expounded above is compatible with the analytical framework of the so-called New Interpretation of Marx's value theory—the latest (or, rather, the last but one) of Marxological fashions (Duménil, 1980, 1983–84; Foley, 1982, 1986, 2000; Lipietz, 1982; Glick & Ehrbar, 1989; Devine, 1990; Mohun, 1993; Campbell, 1997; Moseley, 2000). Thus, it might be worthwhile showing what a deep truth has been discovered in this novel approach.

By taking the Dollar as a numeraire, the surplus value in money terms is defined as $py–wL$. Now write $py/\pi = L$ and $wL/\pi = \omega L = L_n$, and interpret π as 'the rate at which current abstract labor produces new value' (Moseley, 2000, p. 295) or—Marx's words—as the 'monetary expression of labour'. In reality, it is nothing other than a measure of labour productivity. Furthermore interpret L_n

as 'the necessary labor-time or the time required for current labor to reproduce the equivalent of variable capital' (Moseley, 2000, p. 296). It sounds like the 'value of labour power', but it is just the wage share, $\omega = w/\pi$, multiplied by the level of employment. Note that the net output, measured in units of the 'monetary expression of labour,' is equal to living labour—a result that holds by a normalisation convention and not by ontological reasons, as purported by Marx's axioms. At any rate, it has nothing to do with embodied labour.

The rate of surplus value may now be defined as

$$\sigma = \frac{py/\pi - wL/\pi}{wL/\pi} = \frac{L}{\omega L} - 1 = \frac{L}{L_n} - 1 \tag{8}$$

Thus, the factor of exploitation, $1 + \sigma$, is a ratio between living labour, L, and something looking like the 'value of labour power', L_n. The device consists of having posited that this 'value of labour power' is just the wage bill measured in units of the 'monetary expression of labour'. Although I do not share their re-interpretation of Marx's value theory, I have nothing to object to the analytical apparatus proposed by the New Interpreters. After all, one should be free to read the rate of exploitation as a ratio between a surplus labour and the part of the working day spent to produce the equivalent of wages.

Yet one can only wonder at the idea that this is a 'new solution.' Duncan Foley (2000) in fact avoids this slip and recognises that no new solution is at hand, just a 'new interpretation', although he would have done better to say 'new definition'. Actually this approach does away with labour values and definitely accepts a theory of value based on production prices. It is not by chance that the rate of exploitation of Equation (8) coincides with that of Equation (7). Indeed this is so simply because any ratio of *price* magnitudes is normalisation-independent.

The main difference between the Sraffian Marxists and the New Interpreters boils down to this: the former transform labour quantities into prices through a change of coordinates, while the latter transform prices into labour quantities through a change of names. A similar observation can be made on the celebrated Temporal Single-System approach—the very latest fashion (see the essays collected in Freeman & Carchedi, 1996). This innovates on the New Interpretation mainly by assigning time subscripts to the price variables. Both interpretations concur in establishing once and for all, and against all heresies, what Marx really said: namely, that labour-value consists not of the quantity of labour directly and indirectly embodied in commodities, but of their money prices normalised with respect to labour productivity.[10]

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[10] The New Interpretation has been criticised by Shaikh & Tonak (1994) and Saad-Filho (1996); the TSS approach by Laibman (1999), Duménil & Lévy (2000) and Mongiovi (2002).

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