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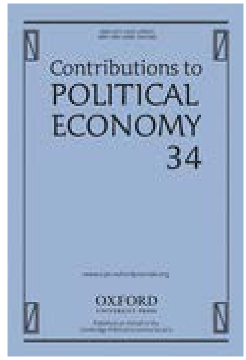

ON SOME MODERN REFORMULATIONS OF THE LABOUR THEORY OF VALUE

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This paper, which develops an unfinished joint work with P. Garegnani, discusses three reinterpretations of the labour theory of value: the New Interpretation of Duménil and Foley, the approach of Wolff–Callari–Roberts, and the Temporal Single System approach. In all three, the labour theory of value loses the role of instrument for the determination of the rate of profit and relative prices, and is redefined as the reinterpretation of independently determined prices as 'representing' quantities of labour, on the basis of the *postulate* that only labour produces exchange value. The paper argues that these approaches reduce the labour theory of value to something with no implication on how the economy works, in particular, unable to defend the thesis that profits result from labour exploitation, because this thesis must rest on what causes wages to remain below their potential maximum, an issue that these reinterpretations leave unexplained and potentially open to neoclassical explanations. There emerges an imperfect grasp of the role of the labour theory of value in Marx, and of the foundations in Marx of the thesis that labour is exploited, foundations better grasped by P. Garegnani and clarified here with an example. A formal analysis of the 'reduction' of heterogeneous labour to homogeneity confirms the arbitrariness of these approaches.

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I.

This paper develops an unfinished joint work with the late Pierangelo Garegnani;[1] its aim is to illustrate the implications of his reappraisal of the role of the labour theory of

[1] I was asked by him in August 2010 to co-author an additional section to a paper of his, 'The labour theory of value in Marx and in the Marxist tradition', originally read at a Conference in Bielefeld in 1980, which he now intended to re-write and publish, with this additional Section IX commenting on subsequent developments in Marxist value theory. I had worked on the 'New Interpretation' of Duménil and Foley and on the other two approaches the present paper discusses, and he had heard me criticize them. Garegnani proposed a co-authored appraisal of these strands in Marxist value theory as the content of the new Section IX. Beginning in September 2010 with a (too long) tentative version of that section drafted by me, we discussed and redrafted, and Garegnani's comments resulted in considerable improvements; but the difficulty with sufficiently shortening the first version, and Garegnani's other engagements and then illness, slowed down our progress, and when he died on 15 October 2011, we were far from having reached an agreed final draft. But on my central point (cf. here Section IV), there was agreement, and some important points had been added by Garegnani that it would have been a waste not to submit to discussion: I have tried to present them as best I could in Sections V and VI; to him I also owe the spur to the reflections now in

value in Marx for three modern reinterpretations, or, better, reformulations of that theory, that enjoy some support among economists pursuing the resumption and development of Marx's approach, but that in fact—the paper will argue—do not help such a pursuit.

Section II synthesizes Garegnani's interpretation of the role of the labour theory of value in Marx; Section III tries to clarify Garegnani's view of the connection between the labour theory of value and exploitation—the issue that raises the strongest reactions—through a new example; Sections from IV to VII discuss the New Interpretation of Duménil and Foley and argue that it does not support the claim that labour is exploited, and betrays an imperfect grasp of the difference of Marx's approach from the neoclassical one, with proof in particular from Foley's writings; Sections VIII and IX discuss, respectively, the approach of Wolff *et al.* (1982), and the Temporal Single System (TSS) approach, arguing that they suffer from similar deficiencies. An Appendix provides a simple formalization, useful to perceive the arbitrariness of the 'reduction' of heterogeneous labour to homogeneity in these approaches.

II.

I start by briefly summarizing Garegnani's convincing clarification of the strictly analytical role of the labour theory of value in Marx.[2] Garegnani's central claim is that replacing Marx's imperfect determination of the rate of profit with Sraffa-type equations (or with Garegnani's integrated wage-sector approach, cf. Garegnani,1984) means only a *strengthening* of Marx's overall approach, because in Marx, the labour theory of value was only the tool—inherited from Ricardo—that allowed him to determine the rate of profit, overcoming the danger of circular reasoning that Ricardo confronted because of the need to know relative prices in order to determine the rate of profit, when relative prices in turn depend on the rate of profit.[3] This danger is overcome by Marx through the idea of a redistribution of surplus labour value among commodities so as to establish a uniform rate of profit. The idea of an invariance of total exchange value, proportional to labour time and only redistributing itself in the formation of prices of production, is not an apriori dogma in Marx, but the result of the persuasion widespread at the time (see Petri,1998, pp. 16–19), for example, very important in Ricardo as noted by Sraffa, of a *reciprocal compensation*, in the aggregate, of the deviations of relative prices from relative labour values required for a uniform

Section VII. First drafts of the arguments now in Sections III, VIII, and IX and Appendix were submitted by me to Garegnani but remained undiscussed for lack of time.

[2] Garegnani's 1980 paper mentioned in footnote 1, partially re-written by him at the same time as he was working with me on the additional Section IX, is a complete and autonomous paper which will be published soon. In the meanwhile, the readers unable to read Garegnani's earlier exposition of his views on Marx in Italian (Garegnani, 1981) may integrate my very brief summary with Garegnani (1984), and with Garegnani (1991), an article conceived as complementary to the 1980 paper.

[3] V. K. Dmitriev saw Ricardo's problem very clearly: 'Thus, we are apparently trapped in a logical circle: profit must be known in order to determine value, but profit itself is dependent on value' [Dmitriev (1898) 1974, p. 58].

rate of profit, deviations that according to Marx must mean a rise in price for the commodities with a greater-than-average organic composition of capital, and a decrease in price for the other ones, while no deviation will be necessary for a commodity of average organic composition: for the latter therefore—Marx concludes—, *and hence for the social product* (whose organic composition is average by definition), the rate of profit can be determined while leaving its price relative to its means of production as the labour theory of value would determine it.

Thus, according to Marx, the labour theory of value is wrong as a *direct* theory of normal relative prices, but when applied to the social product, it allows the determination of the average rate of profit, which once determined also allows, Marx argues, the determination of the prices of production of individual commodities by applying that rate to the capital advanced in the production of the several commodities. Garegnani argues that it is because Marx believed in this ultimate validity of the labour theory of value as the correct basis for the determination of prices, that he spoke of exchange value as congealed labour time, of people exchanging amounts of labour when they exchange commodities, of prices of production as indeterminable empty notions unless explained by recourse to labours embodied, etcetera. This means that the importance of labour values for Marx is only as the tool that allows him to prove that the magnitudes he implicitly takes as already determined in another part of the overall theory when the problem is to determine the rate of profit, namely quantities produced, methods of production, and real wage, do allow the determination of the rate of profit and of prices of production, and therefore, the surplus approach *is* solid, and the 'vulgar economists' who argue the need for an independent contribution of capitalists to value in order to explain relative prices are wrong. The proof that *starting from those same data* a correct determination of relative prices and of the rate of profit can indeed be achieved, although with other tools, *confirms* the solidity of the surplus approach.

The subsequent Marxist tradition, however, suffered from lack of competences in economic theory, did not understand this strictly 'quantitative' role of the labour theory of value in Marx, and, unable to defend Marx on his true ground (a defence that would have been impossible anyway for many decades, given the defects of Marx's theory and the absence of the correct solution), starting with Hilferding it accepted the tendency of the critics of Marx to explain Marx's attachment to the labour theory of value with other, sociological and ethical, tasks, and tried to reverse the critics' accusation of arbitrariness by arguing the importance of those tasks—tasks that in fact the labour theory of value did not have in Marx, or had only indirectly insofar as it was the tool explaining prices and the rate of profit. The analysis of 'fetishism', for example, denounces the tendency to mistakenly view certain prices, or the role of gold, or the revenue-producing capacity of land or capital, as natural qualities rather than the result of historically specific institutions, an argument (perfectly reformulable in 'Sraffian' terms) that takes in Marx the form of retracing labours embodied behind these prices and revenues only because this is how Marx thinks prices are ultimately determined. And in ch. 1 of vol. I of *Capital*, Marx (1976) takes for granted that exchange value is the manifestation of labour embodied only because, given his (already reached) determination of the rate of profit, he was persuaded that labour embodied was indeed the *ultimate* determinant of exchange values, and the provisional direct identification of labour embodied and exchange value as if the organic composition of capital were uniform (with, however, indication in footnote that things were more complicated and would be clarified in a subsequent volume) caused no mistake for the analysis of the issues discussed in that first volume (the conflict between capital and wage labour, how surplus value emerges from surplus labour, accumulation), and was easier to follow for his readers, being still the largely accepted theory of the period as testified, for example, by John Stuart Mill.

III.

The proof that labour is exploited, in particular, does not lie in the validity of a quantitative correspondence of surplus exchange value with surplus labour time; this is a misconception that derives from a mistaken acceptance of the argument that the inability to prove such a correspondence might mean that the capitalists contribute to production, that profits reflect their contribution, and that *this* is the reason why commodities do not exchange in proportion to labours embodied—the argument of the 'vulgar' economists and then of the marginalist critics of Marx, still accepted in some form by some, for example, by the late Claudio Napoleoni.

It seems worthwhile to pause on this author because he has been among the most explicit supporters of the above argument and he stated his views most clearly in a 1991 article not discussed by Garegnani;[4] the refutation of his views will be relevant for the arguments in subsequent sections of this paper. In the 1991 article, Napoleoni wrote:

> ... surplus labour alone cannot in any way be taken to indicate the existence of exploitation. It becomes such an indicator, however, within a theory according to which the value of wage-goods is made up of the labour contained in them and of nothing else ... let us suppose that the working day is eight hours long and that the wage-goods contain five hours work. Only within a labour theory of value can we say that the worker reconstitutes the value of his wages during the first five hours of his working day, leaving the other three hours at the disposal of the capitalist. Within a value theory of another kind, according to which the value of wage-goods is constituted both by the contribution of labour as well as by the deferment of consumption, we cannot say that the first five hours [re]constitute the value of the daily wage; nor, therefore, can we say that three hours are given free to the capitalist. If, then, exploitation is taken to coincide (as for Marx it implicitly does) with the division of the working day into two parts—labour 'necessary' to reconstitute the value of wages, and labour in excess of this 'necessary' amount—we must conclude that this idea of exploitation is not even conceivable without the labour theory of value. (Napoleoni, 1991, pp. 227–228)

[4] Garegnani's illness and death prevented him from completing the re-writing of the 1980 paper; he did not reach Section VIII, which discusses exploitation and criticizes an earlier and somewhat less clear expression (in Italian) of Napoleoni's views.

Napoleoni concludes that 'this construction . . . collapses with the inevitable breakdown of the labour theory of value. The fact that the labour theory of value does not explain exchange value means that the concept of exploitation as "work done for others" is not tenable' (*ibid.*, p. 229).

The reference to a deferment of consumption makes it clear that the 'value theory of another kind' considered by Napoleoni is the marginalist/neoclassical one, where if value is not proportional to embodied wages it is because there are other *scarce* factors contributing to production and *for this reason* earning a positive rental and therefore contributing to cost and hence to relative exchange values. So what in fact Napoleoni's argument states is that a validity of the labour theory of value would allow one to exclude contributions to production coming from sources other than labour and *deserving* a positive reward, while its non-validity denies the right to exclude them. To show the mistake in this argument, that confuses theory of value (i.e. of normal exchange ratios between produced commodities) and theory of distribution (i.e. of the reasons for a surplus product not appropriated by labour),[5] let us consider an example that illustrates that the proportionality or non-proportionality of prices and labours embodied, or the correctness or not of Marx's idea of a compensation of deviations and hence of his $r = S/(C + V)$ formula, by themselves tell us nothing on what determines the existence of a surplus product not appropriated by workers and therefore on the existence or not of exploitation.

Imagine an isolated competitive market economy where production is carried out by self-employed artisans and cooperatives, and the rate of profit is zero: prices of production are proportional to labours embodied. One day, Gengis Khan's army invades this community, but instead of killing everybody, Gengis Khan announces that he will be content with collecting a yearly monetary tax at a rate $r = 20\%$ on the value of the capital employed in each productive activity, a tax he will then use to buy goods on the market. The community is obliged to accept, and prices of production come to include a 20% tax on the value of capital which has the same effect on relative prices, and on real wages, as a 20% rate of profit. Relative prices are no longer proportional to labours embodied; the resulting real wage (assuming it is the same everywhere) would not determine $r = 20\%$ if one derived r from the real wage and labours embodied using Marx's $r = S/(C + V)$; but production is still performed by the same labourers, and the goods appropriated each year by Gengis Khan with the income deriving from the tax do not reflect any productive contribution of the oppressors. One would have little hesitation, it would seem, to say that Gengis Khan is exploiting this community. But if Gengis Khan had imposed the tax as a given percentage of *wages*, with the rate of profit remaining zero, then relative prices would have remained proportional to labours embodied, and yet exploitation would be still there. On the other hand, imagine that the 20% tax rate on the value of capital is imposed not by Gengis Khan but by unanimous popular vote

[5] In modern neoclassical theory, e.g. Debreu, the term 'theory of value' encompasses both the theory of value in the traditional sense indicated in the text, and the theory of distribution, but this only obscures a fundamental distinction whose usefulness will become clear presently, and will be further evidenced in §VI.

because it is decided that the government should use the tax to help for some years another community struck by an earthquake: in this case, the product not appropriated by labourers would again be associated with an impossibility to explain prices with the labour theory of value, but few would call this surplus product the fruit of labour exploitation. This shows that the proportionality or non-proportionality between exchange values and labours embodied reflects, not the absence or presence of other productive contributions besides that of labour, but only the specific way the mode of appropriation of the surplus product affects relative prices; the 'origin' (i.e. the cause of the existence) of a surplus remains to be ascertained.

It seems clear that, in this example, the possibility of characterizing the incomes other than the workers' incomes as the fruit of exploitation depends on the answer to the question, what prevents the workers from appropriating the entire net product. Now, according to the surplus approach, as evidenced already by Adam Smith before Marx, the positivity of the rate of profit in capitalist economies has the same basic cause as the positivity of the tax in my Gengis Khan example: it reflects the capacity of the social group that appropriates the profits to compress real wages below their potential maximum[6] uniquely by virtue of the social power given to them by the social institutions of capitalism. If one finds it reasonable to describe the income of the invaders in my example as the fruit of the exploitation of the labour of the local inhabitants, and if one finds the Smith–Marx theory of wages convincing, then one must also describe profits in capitalist society as the fruit of the exploitation of wage labour.[7] This conclusion does not depend on the validity of Marx's equation $r = S/(C + V)$, it depends rather on the solidity of that explanation of wages and therefore of the surplus approach of which it is a part, and this requires that the approach be able to arrive at a satisfactory determination of the rate of profit and normal relative prices on the basis of its characterization of the forces affecting wages, quantities produced, and production methods. This satisfactory determination appears possible, and it has come out that it does not need an exchange value of capital relative to profits known before the rate of profit is determined—the purpose for which labour values were used by Marx.

IV.

But the prevalence of the interpretative tradition Garegnani criticizes has caused the modern advances in the determination of rate of profit and relative prices—which do without the labour theory of value and confirm defects in Marx's determination of the rate of profit—to be perceived as causing a 'crisis' of Marx's entire approach instead of

[6] Or to oblige workers to work more hours (or more intensely) for the same real daily wage, thus again reducing the real wage per unit of effective amount of labour performed.

[7] The main reason why the institutions of capitalism obfuscate this fact is that the capitalists are the owners of capital, differently from the case in the Gengis Khan example. But it suffices to think of slavery to realize that the fact, that the slave owner supplies slaves with food and tools, is no proof of a contribution of his to production: his property of food and tools is only the result of his capacity to appropriate the surplus *in previous periods*. The same holds for the owners of capital.

the strengthening they actually entail. In recent decades, the need to surmount this presumed 'crisis' has stimulated proposals to reformulate or reinterpret the labour theory of value, that represent a further removal from a correct understanding of Marx and actually a fall into sterile nominalism and vulnerability to neoclassical arguments.

This, I will contend, is the effect of the redefinition of the labour theory of value in the 'New Interpretation' of Duménil (1980, 1983–4) and Foley (1982, 2000), in the similar approach of Wolff *et al.* (1982), and in the TSS approach exemplified by the contributions in Freeman & Carchedi (1996a). Beyond their differences, all three approaches agree in seeing prices as representing quantities of labour, on the basis of the *postulate* that only labour produces exchange value and that the process of exchange redistributes this value such that prices represent labour time, *are* labour values. In the New Interpretation, for example, this redistribution happens because in exchange, all commodities are made equivalent to amounts of money, and money represents labour time: 'the important issue for Marx was the idea that money represents social labor time, and that one can therefore use a measure of the monetary expression of labor appropriately defined at the level of the aggregate system of commodity production to translate flows of money in real-world capitalist accounts into flows of labor-time and vice versa' (Foley, 2000, pp. 20–21).

The novel thing about these proposals is that in all of them, relative prices are determined *independently* of 'labour values': the labour theory of value no longer has any role at all in *explaining* prices and profits; it is to *already determined* (or even unexplained, simply observed) prices and profits that the postulate is appended that they 'represent' or 'express' quantities of labour time, and to this end, opportune normalizations are chosen so as to obtain the desired equality between price and labour time aggregates; a change of the explanation of prices and profits would not alter this equality, which is obtained *by definition*. Foley admits it explicitly, by claiming that it is an *advantage* of the New Interpretation that it 'is completely general, in that it is consistent with *any* theory of price formation' (2000, p. 23).[8]

In the New Interpretation, this is obtained by postulating that the net value added (the exchange value of the net product) of a given period is produced by the direct or 'live' labour L employed in the economy in that period; this amount of labour[9] is

[8] The same could be claimed for the TSS approach.

[9] However, the approach requires a 'reduction' of heterogeneous labour to homogeneity, so L does *not* measure total employment or labour time as usually defined, it measures the 'amount of labour' obtained by 'reducing' the several kinds of employed labour to homogeneity on the basis of some criterion; but on how this is to be effected, the approach remains silent; differently from Marx it is *not* stipulated that the 'reduction' *must* be effected on the basis of the given relative wages; the 'reduction' criterion is left open. Thus, in a recent paper Duménil *et al.* (2009), after stating in open contradiction to Marx that 'Wages are not necessarily proportional to the value productivity of workers', limit themselves to proposing how in the New Interpretation one should derive the rates of exploitation of different workers from *given* relative 'value' productivities of heterogeneous labour, but on what determines these differences in 'value' productivities, they remain silent, saying only that in order to determine them 'some additional assumption about relative rates of exploitation (which Marx often explicitly assumes to be equal) is required' (p. 560). Where the 'often' should not have appeared, and why Marx assumed equal rates of exploitation remains mysterious. With this paper, an aspect of the New Interpretation so far little discussed becomes evident: the New

divided by the total monetary value X of the net product of that period, and the result is called the amount of labour 'represented by' or 'that expresses itself in' a unit of money; the monetary price of each good or aggregate of goods, however determined, is then argued to represent an amount of labour time, the same fraction of L as that money value is a fraction of X. The labour time 'represented' by the exchange value of a good is then by definition its relative price (however determined) when the net product per unit of labour is chosen as numéraire. Then the thesis that

> The basic insight of the labor theory of value is its claim that value forms, money, commodities, and so on, are expressions of abstract social labor. Thus in any transaction involving value, what is changing hands is control over some part of total abstract social labor time. (Foley, 1982, p. 42)

allows one to conclude that the amount of labour 'expressed' by profits is unpaid labour time, because the 'part of total abstract social labor time' over which the money wage allows the worker to have 'control' is naturally conceived (or rather, defined) as the paid part of her labour time; then profits, the part of the value of the net product not going to wages, must 'express' unpaid labour time. Thus, it is purely as a result of these definitions that it is claimed that 'profit arises from unpaid labor time' (*ibid.*). And since prices are now in fact amounts of labour time, the normal rate of profit correctly determined, i.e. the one determined by 'Sraffian' price equations, satisfies Marx's $r = S/(C + V)$ formula.[10] But these purely definitional results add nothing to our understanding of what determines the existence or the magnitude of profits.

V.

As a consequence, against the aims of the supporters of the New Interpretation (or of the other two approaches to be discussed below), this redefined labour theory of value does *not* give one the right to characterize profits as resulting from the exploitation of labour in any meaningful sense of this term, a right that—as made clear in Section III—can only result from the explanation of *why* wages are below their potential maximum. Since surplus labour time is *defined* so as to equal profits whatever the forces determining the latter, this equality is no proof that surplus labour reflects exploitation: no reason is given to reject the neoclassical thesis, that surplus labour time is only a way to describe the fact that not all net product goes to wages: this fact is

Interpretation gives no reason to prefer one 'reduction' criterion, e.g. Marx's own, to other ones; different criteria would result in a different L, but this would only change the amount of labour 'expressed' by the net product and therefore by a unit of money. This indeterminacy (admitted by Foley, 2000, pp. 21 and 23; also present in Foley, 2011; and holding also for the other two approaches to be discussed in this paper) reveals an arbitrariness and hence emptiness of the labour values the approach determines. The issue is further discussed in paragraph A4 of the Appendix at the end of this paper.

[10] As shown in the Appendix, the same result can be shown to hold for the other two approaches to be discussed in this paper, independently of how heterogeneous labour is 'reduced' to homogeneity, and it allows all three approaches to claim that the 'mistake' in Marx's formula $r = S/(C + V)$ disappears, and that the 'crisis' is surmounted.

sufficient to infer that a shortening of the length of the working day would be possible if, with the same technical coefficients (and therefore by reducing means of production in the same proportion as labour), the net product were reduced to include only the workers' consumption; but—the neoclassical economist would argue—this correct inference is no proof that labour is exploited, because what labour is able to produce would be much less without the capitalists' cumulated abstinence from consumption, whose marginal contribution to production is repaid by the rate of profit in the same way as labour's marginal contribution to production is repaid by the wage. Indeed, the symmetry of the factors labour and capital, in the process that determines income distribution according to the neoclassical approach, entails that *if* the simple existence of surplus labour time implied exploitation of the labourers, *then* one would have an analogous right to speak of exploitation of the capitalists-savers, because one might analogously determine an 'unpaid' surplus amount of capital services, the excess over the amount necessary (with the same technical coefficients) to produce a net product consisting only of the goods appropriated as profits. The absurdity of considering both labour and capital as exploited would confirm that the existence of surplus labour, or rather of profits (since surplus labour is defined so as to be identical with profits), is no proof of exploitation, and that the adjective 'unpaid' attached by the New Interpretation to what it defines to be 'surplus labour' is only an unjustified name tag.

It might be objected that this neoclassical argument applies with equal force to the determination of 'unpaid labour' on the basis of Marx's definition of labours embodied, so there is no superior capacity of Marx's labour values to prove labour exploitation relative to the redefinition of labour values in the New Interpretation. What such an objection would miss—and with this, we come to the central misunderstanding this paper wants to dispel—is that Marx's labour values were not intended to prove exploitation by themselves, but rather insofar as they allowed a *determination* of the rate of profit and of relative prices on the basis of a specific theory of the forces determining income distribution, and therefore insofar as they allowed a confirmation of the consistency of that specific theory—a consistency requiring that that theory be capable of explaining the processes determining the rate of profit and normal prices. The real 'basic insight of the labour theory of value' was that *once the real wage is determined, the rate of profit is determined as well*; labour values were the tool that allowed Marx to reach this result (in the imperfect way concretely possible at the time). To prove the surplus approach correct on this issue—against the tendency, in Marx's time, increasingly to distance economic analysis from the surplus approach and to find an independent cause for the magnitude of profits—was the real 'important issue for Marx' because fundamental for the argument that a class-struggle explanation of wage determination was a sufficient basis for an explanation of *all* incomes, and thus—leaving no room for abstinence or the other vulgar-economy mystifications—for the conclusion that profits have an origin analogous to that of the revenue of feudal lords or of slave owners. It is the overall surplus approach adopted and developed by Marx, with its explanation of why wages are below their potential maximum, that allows one to view profits as the fruit of the exploitation of labour.

Recognizing this as the true role of the labour theory of value in Marx of course implies, first, that a progress and nothing else is achieved when better instruments are found to perform the same task and to confirm Marx's 'basic insight' correctly understood; and second, that if these better instruments imply an abandonment of the labour theory of value, this does not in the least entail a rejection of the forces that according to Marx determine the functioning of the economy—and it is these forces that constitute the specificity of Marx's analysis.

VI.

What does this specificity consist of? We can leave aside here the 'vulgar economy' theories of Marx's time, nowadays what is above all important is to grasp this specificity in contrast with the marginal or neoclassical approach. One must then distinguish the *traditional* versions of this approach—which considered as much as Smith, Ricardo, or Marx the task of the theory of value to be to determine the normal prices resulting from the gravitation towards a uniform rate of return on supply price—, from the *contemporary* versions of general equilibrium theory, which have abandoned the traditional method of normal positions (although in fact only on the surface). Relative to the latter, Marx differs already because of his clear adherence to the method of normal positions, a method that a resumption of Marx's general approach requires fully to recuperate as the only method that appears capable of distinguishing accidental temporary influences, whose effects are indeterminable and finally secondary because transitory, from the dominant tendencies that allow explanation and prediction of averages and trends.

As particularly evident in the case of the TSS approach (to be discussed later), there seems to be much confusion on this issue; and certainly, it is no help towards the surmounting of the confusions that the function of the labour theory of value to help determine *normal* relative prices, evident already in Adam Smith's example of deer and beavers, should totally disappear in its reinterpretation as something that 'can be maintained in the face of all the anomalies that arise from particular pressures on particular prices in concrete exchanges' (Foley, 1982, p. 38). But if one then restricts the search for Marx's specificity to a comparison with the marginalist/neoclassical attempts to determine *normal* prices, one will not find the distinguishing element of Marx's approach in the theory of value (in the sense in which classical authors used this term), that is, in the theory of how *normal relative product prices* are determined once real wages are given, rather than in the analytical reasons for an explanation of real wages radically different from the neoclassical one. The subset of the equations of general equilibrium of Walras or of Wicksell, that imposes the equality of product prices and minimum average costs, and adds a condition of uniform rate of return on the supply prices of capital goods, generates prices of production once the real wage is taken as given: it is not here that Marx differs. No, *the difference lies in the forces considered to determine the size and distribution of the social surplus*: in short, it can be summarized in the fact that the factor substitution mechanisms, that in the neoclassical approach permit the derivation of decreasing demand curves for factors and hence the tendency towards a full-employment equilibrium reflecting the tastes of consumers, are totally absent in Marx (which is all to Marx's advantage, since those curves are based on an indefensible treatment of capital);[11] therefore, the causes of the level of wages,[12] and the consequences of its variation, are necessarily totally different from the ones in the neoclassical approach; in Marx, the advantage given to capitalists by the institutions of capitalist society, as well as the collective behaviours constituting a countervailing power of labour in the class struggle, are *indispensable* to the explanation of the wage level (rather than being, under the misleading name of imperfections of competition, *impediments* to the free working of competitive markets that would be able autonomously to reach a definite income distribution, as in the neoclassical approach); and the effects of variations of wages depend on their complex and historically variable influence on aggregate demand.

This difference has implications for all other parts of economic theory; in particular, it explains, on the one hand, the neoclassical belief in Say's Law, in a spontaneous tendency of competitive markets towards the full employment of resources, and in a need for a lower real wage if labour employment is to rise; and on the other hand, Marx's radically different view of persistent unemployment and periodic crises as the normal and indeed inevitable condition of capitalist economies, and the absence of a necessary inverse relation between real wage and employment. But it does not mean that the theory of normal relative product prices (the theory of value in the sense in which classical authors used this term) can yield different results in the two approaches, once the real wage and the production methods are given;[13] the conditions of prices equal to minimum average cost, and of uniform rate of profit, determine relative prices univocally, once those determinants are given; the difference is in the *causes* of these determining elements. There *does* result a different *interpretation of the social significance* of the resulting prices: in Marx, normal prices are not interpretable as indices of scarcity and therefore of the relative capacity of the productive factors to yield utility to consumers, they are only the exchange ratios needed so that all units of capital may share equally in the appropriation of the surplus. But this difference results from the previous understanding of the difference in the forces considered to determine the size and distribution of the physical surplus.

[11] One implication is that the absence of decreasing factor demand curves in Smith, Ricardo, or Marx, far from being a deficiency of their analyses, *prevented* them from 'shunting the car of economic science on to a wrong line', a reversal of Jevons's evaluation of Ricardo, which must be applied to the marginal or neoclassical approach instead.

[12] And of the length of the working day, another very important object of class struggle, that affects the size of the surplus once the number of employed labourers and the subsistence are given; for the sake of brevity, its determination will be subsumed in the determination of the real wage, to be then intended as real wage per hour.

[13] For the sake of brevity, I am taking the given productive methods to result also from the extent of use of scarce natural resources.

VII.

I have not found a clear reference to this difference in the writings that advocate the New Interpretation; in particular, in the writings of the author who has written more in its support, Duncan Foley, it is not easy to find a clear indication of analytical differences that imply that Marx's approach and neoclassical economic theory are incompatible, that is, are such that if one approach is correct then the other one must be wrong.

In *Understanding Capital* (1986), Foley presents the neoclassical explanation of profits (i.e. of interest) as consisting of the claim that 'Because people prefer to consume earlier rather than later, the price of a commodity today is higher than the price [today] of the same commodity [for delivery] tomorrow' (p. 47). The second part of the sentence is true whenever there is a positive rate of interest, so the important part of the sentence is the first one, which *explains* the positive profit (positive rate of interest) as due to the need for a premium on savings to compensate for the disutility of 'waiting', to use the Marshallian term. The issue is, whether this explanation is acceptable: Foley does not say that it is not. On the contrary, he seems to say that it is not contradictory with the Marxian explanation. Indeed, he continues:

> Thus, if one unit of labor exchanges for one unit of output today and one unit of output today exchanges for two units of output tomorrow because of time preference, the capitalist who buys one unit of labor, uses it in production, and as a result has two units of output (worth two units of labor) tomorrow will be no better off than the worker who simply consumes a unit of output today. Because the two units of output (which include the Marxian surplus value) exist in a different time period, they are viewed as the equivalent of one unit of output in the present.
>
> It is not clear that these two analyses are contradictory, although they give different interpretations of the same situation. The question is why there should be a discount of future goods and services against present ones. Neoclassical economic theory attributes this to the psychology of the agents, especially of the capitalists, in a context of full employment of all resources. Marxist theory argues that, on the contrary, there is no tendency for capitalist systems to employ all available resources and that the psychology of capitalists is determined by the possibility of appropriating surplus value, not the other way around. The root of this disagreement lies in the different theories of value adopted by the two schools and in the consequent different interpretations of equivalence among commodities. Neoclassical theory sees goods and services as equivalents from the subjective point of view of the consumer; Marx sees them as equivalents in the objective sense that they carry a certain part of the social labor time of the society. The same phenomenon (appropriation of surplus value) can be seen as the exchange of subjective equivalents and as objective exploitation. (1986, pp. 47–48)

Since some 'disagreement' between the two approaches is admitted, it is rather surprising that Foley should state that it does *not* imply 'that these two analyses are contradictory'. Could the reason be that the two 'theories of value', although 'different', are not seen as necessarily incompatible? A suspicion in this direction is not refuted by the only indication of analytical difference between the two approaches: the neoclassical assumption of full employment of resources, denied by Marxist theory. Why is this difference singled out? Even in a situation of full labour employment (certainly difficult to reach under capitalism, and even more difficult to sustain for long periods, but not logically impossible, and closely approached in some historical periods and nations), if profits are positive (as they would almost certainly be), Marx would explain them with the capitalist control of production and the state support for the capitalist class, not as reflecting an equilibrium between supply and demand for resources. Foley's way of expressing himself leaves the door open to the possibility that, in a situation of full employment of resources, prices and income distribution would be well explained by the neoclassical approach.[14]

The absence of a clear contrast with the neoclassical approach is also evident in the argument that profits result from exploitation.

> A situation in which one person gives another something for which the giver receives no equivalent is commonly called exploitation. Because this is exactly the situation in capitalist production, Marx argues that, *from the point of view of the labor theory of value*, the source of surplus value lies in the exploitation of the laborer. If you do not accept the *postulate* that labor produces the whole value added, you will not see much basis for the claim that wage-labor is exploitative. (Foley, 1986, p. 39; italics added).

These sentences are interesting for several reasons. First, the claim that the source of surplus value lies in labour exploitation is presented as deriving from a certain *point of view* rather than simply as *the truth*: the reader, when meeting a few pages later the lines quoted earlier, will be naturally inclined to interpret the optical analogy (neoclassical theory and Marx 'seeing' equivalence differently) as suggesting different points of view, rather than incompatibility.[15]

Second, the claim, that the proof that workers are exploited lies in the fact that the exchange between labour and wage is not an exchange of equivalents because workers perform more labour than they receive with the wage, suffers from an evident weakness (that the reader may have already perceived on the basis of the Gengis Khan example). Let us suppose that Marx was right with his $r = S/(C + V)$. What would that prove on exploitation? It would only prove that Marx's procedure allows the correct determination of the rate of profit, whatever the determinants of the magnitudes he takes as given in that determination, in particular, whatever the determinants of real wages. To say that this would suffice to prove that labour is exploited would be an unjustified logical jump, unless one nominalistically *defined* exploitation as the worker not receiving with the wage as much labour time as she/he has contributed *whatever the causes of this fact*. Now that we have surmounted the ambiguities Marx

[14] It may be opportune here to remember that the flexibility of capitalist production and its tendency to adjust to aggregate demand imply that there is no need for a specific income distribution in order to reach the full employment of labour, what is needed is a sufficient stimulus to aggregate demand, cf. Petri (2011, p. 411).

[15] In his more recent *Adam's Fallacy* (2006), although advancing several criticisms against the neoclassical approach, Foley nevertheless concludes that 'perhaps we had better keep both classical and neoclassical analyses in mind, with the idea of choosing the appropriate perspective for whatever particular problem we face' (p. 174), a statement where the term 'perspective' echoes the 'point of view' of 1986. In the previous page, one also finds: 'The marginalist notion that prices are always reflections of scarcity appears in some lights to give a more coherent and general theory of price than classical cost-of-production theories' (2006, p. 173). (What 'in some lights' refers to is not explained.)

had to surmount on the 'value of labour' by distinguishing labour power from labour, we know that this definition would be equivalent to saying that there is exploitation if there is a physical surplus product not going to the workers, *whatever the causes of this fact*. But the cause is essential for the question whether one can talk of exploitation, as Foley himself admits (1986, p. 40). Clearly, exploitation requires more than a surplus appropriated by a class: it requires that the exploiting class appropriates the surplus product only because of the power it receives from the social structure, not because of a contribution to production (or to social welfare more generally). In Marx's time, the proof that exchange values are ultimately determined by labour embodied would have sufficed to refute the 'vulgar economists' who based the claim, that the explanation of prices required a contribution of capital to value, on the incorrectness of the labour theory of value as a direct theory of relative prices; nowadays, even if that proof were possible, it would not be enough: the explanation of exchange value as proportional to labour time, if it were possible, would be valid whatever determined income distribution, that is, *even if the neoclassicals were right*. But Foley makes no attempt to refute the counterargument (presented in §V in the form it would take in the hands of a neoclassical economist, but in fact more general) that surplus labour is only another way of looking at the production of a surplus, and that the appropriation of a surplus by a class is no proof that that class has not contributed in some way.

Third, 'that labour produces the whole value added' was not a *postulate* for Marx: it was part of the thesis that all exchange value is produced by (= is proportional to) labour embodied, which again was not a postulate but rather the conclusion of intense reflections on the reason why commodities do not exchange in proportion to labours embodied, that brought him to the conclusion that commodities of average composition sell at their labour value (the opening pages of chapter 10, and Section II of chapter 12, of vol. III of *Capital* show this very clearly). In modern language, it was a *theorem*, as valid as its proof, and therefore to be given up if the proof was mistaken (as it is). Foley turns it into a *postulate*, and in (1982, p. 41) asks the question, 'If we want to hold to the idea that labor produces value', how can we do it. But if this 'idea' were correct, it would be *demonstrable* rather than in need of a decision as to how to maintain it. And anyway *why* should we hold to this 'idea', if Marx's reasons are not valid? It does not allow a determination of the rate of profit nor of prices. And it is not required for the conclusion that labour is exploited, which does not require a numerical equality between value added and live labour performed, it only requires explaining that the capitalists *oblige* the workers to work more than necessary for their subsistence, just like the feudal lords vis-à-vis the serfs, or the slave owners vis-à-vis the slaves, and that the neoclassical counterarguments are unacceptable. Has Foley found reasons for holding to this 'idea' in some important insight obtainable from it? It would seem not, from how he defends a usefulness of the New Interpretation:

> [the New Interpretation] opens the way to an interpretation of the substantive parts of Marx's theory (his discussion of relative surplus value, induced technical change in capitalism, and the long-term tendencies of capital accumulation, or his theory of the circuit of capital, for example) as testable empirical hypotheses that can be confronted with widely available statistical data ...

while the New Interpretation does not itself propose any operational hypotheses about the evolution of the monetary expression of labor time or the rate of exploitation, its definitional framework allows us to measure the evolution of the monetary expression of labor time or the rate of exploitation in real capitalist economies, and to link these magnitudes to other aspects of capital accumulation, such as the bias of technical change, or the class relations of particular societies. (2000, pp. 23 and 28).

What Foley actually proposes here is to examine the evolution of the monetary value of the net product per unit of labour, and of the wage share: magnitudes defined without recourse to labour values, amply utilized already, and relative to which the contribution of the New Interpretation is purely terminological, as in fact Foley admits by writing that no specific suggestion emerges from the new labelling; so one cannot expect to gain new insights that could not have been reached without the new labels.[16] And whether these monetary magnitudes can really be used for empirical checks of Marx's predictions is something that cannot be decided simply by relabelling them, because they cannot be seen as *interpretations* of Marx's magnitudes, the two sets of definitions do not correspond.

At least in the influential case of Foley, then, the New Interpretation offers no defence against neoclassical arguments denying that surplus labour is proof that labour is exploited; furthermore, that live labour time produces value added is no longer a theorem, it results only from an apriori decision to view exchange values as 'representing' labour time, from which Foley is unable to draw any new consequence for the explanation of the functioning of capitalism: which is not surprising, since the claim, quoted earlier, that it is an advantage of the New Interpretation that 'it is consistent with *any* theory of price formation', implies that the New Interpretation is irrefutable, but this must mean that it has no testable implication, no explanatory power. And since Foley proposes the New Interpretation as a way to *maintain* what he sees to

[16] Nor does any explanatory contribution of the New Interpretation emerge from the way Duménil argues its usefulness. Duménil justifies the adoption of the New Interpretation with the claim that the postulate that value is produced by labour reflects an objective reality; but the proof rests on two hardly acceptable statements. First, Duménil claims that when the product vector is given (with $\mathbf{Q}$ the vector of quantities produced and $\mathbf{P}$ the price vector), 'If prices change, the wealth of society is distributed in a different pattern, but the aggregate quantity expresses a type of invariance. ... If the system of prices is allowed to vary, bearing in mind that only the distribution of the product is being modified: $\mathbf{P}_1\mathbf{Q} = \mathbf{P}_2\mathbf{Q} = \ldots = \mathbf{P}_m\mathbf{Q}$. To proceed in this manner is to implicitly refer to a social substance that is conserved through variations of prices' (Duménil, 1983–84, p. 430): he seems not to realize that he has simply chosen as numéraire a vector proportional to $\mathbf{Q}$, which proves nothing as to whether this vector represents a scalar amount of a 'social substance'. Second, he claims that since this 'social substance' is increased by production, it must consist of labour, because 'only human labour is productive ... a machine does not produce. ... Land does not produce by itself either. ... To maintain that land itself is productive is to reject the labor theory of value' (*ibid.*, pp. 432–433): which means *assuming* what should be proved, and also neglecting that Marx insisted that land *is* productive of use value and criticized the confusion between production of use value and production of exchange value. Having then proposed the New Interpretation as the way to maintain that exchange value is produced by labour, when Duménil comes to illustrating 'the explanatory power of the labor theory of value' thus reformulated he finds it in the fact that 'It allows us to interpret the price system as a reallocation of social labor according to strictly defined rules consistent with the capitalist character of society. The act of pricing does not create the social substance, but merely distributes it' (*ibid.*, p. 436). But this is no 'explanatory power', it is simply a reassertion of the initial postulates.

have been the 'basic insight of the labor theory of value' in Marx, the same aprioristic decision to view exchange value as representing labour independently of supporting proofs is implicitly attributed to Marx too; one is then induced to look for hazy reasons for this aprioristic certainty in Marx, along the interpretative path started by Hilferding.[17] On the contrary, one needs assume no apriorism if one starts from the analytical difficulties of Ricardo: then Marx's theory of value will appear to have been a strictly scientific attempt to confirm the correctness of the surplus approach against the tendencies to abandon it, by improving upon Ricardo on what determines the rate of profit and exchange values.

It seems inevitable to conclude that, against the intentions of its proponents, the New Interpretation does not help the resumption and development of Marx's approach. It obscures the real role of the labour theory of value in Marx and hence it obscures what is really important and distinctive in Marx's approach; it risks inducing people to believe that saying that prices 'represent' amounts of labour can by itself make a difference to the understanding of capitalism; it does not clarify the difference of Marx's approach from, and superiority to, the rival neoclassical approach. The danger is evident that one may feel faithful to Marx because of the acceptance of the New Interpretation terminology, while in fact being anti-Marx because of the acceptance of neoclassical theses on the forces present in a capitalist economy. A scientific attitude requires of course that one be open to the possibility that the neoclassical approach be correct, but one should at least be clear on where this approach differs from Marx's, the more so since both the debates in capital theory (Petri, 2004) and empirical evidence strongly suggest that the neoclassical approach is *not* correct.

VIII.

I pass to the approach of Wolff *et al*. (1982), which argues that Marx's thesis in volume III of *Capital* that prices of production are *redistributed* labour values means that the price of production of the inputs in an industry is actually a quantity of labour value; if we accept this, then the labour value of a product must be determined as the *price of production* of inputs plus the living labour added in the production process. Then, the value of labour-power is, analogously, the price of production of the wage basket, not the labour embodied in it according to the usual definition of labours embodied. By then choosing the same invariance postulate in the passage from labour quantities to prices as in the New Interpretation, namely that the exchange value of the net product equals labour employment, the three authors are able to show[18] that total value and total profits are the same in prices and in these redefined labour values, and therefore, Marx's formula $r = S/(C + V)$ is correct. Differently from Foley or Duménil, they claim that their argument reflects Marx's own 'project' and therefore is a more correct

[17] The influence of this interpretative tradition upon Foley is admitted in his reference to Colletti (1982, p. 46, fn. 5).

[18] For a simple exposition, cf. the Appendix.

interpretation of Marx's formula. However, they must use Sraffa-type equations to determine the prices of production, and these equations were not available to Marx: in order to determine the rate of profit, he needed to determine the numerator and denominator of the ratio $S/(C+V)$ *before* the rate of profit and prices of production. Therefore, the traditional interpretation of Marx's procedure and of S and $C+V$ in Marx's equation, remembered in §II, is clearly the only one to make sense.

The three authors come very close to recognizing it, by arguing at one point that 'Nowhere in his works did Marx carry this project, like some of his others, through to completion' (p. 568), thus admitting that their proposal is not exegetically faithful but rather reconstructs what, according to them, Marx *would have* arrived at if he had been able to 'carry his project through to completion'. Which would have required Marx to reach the equations of Sraffa or at least of Bortkiewicz, realizing therefore that the labour theory of value was unnecessary for the determination of the rate of profit and prices of production! Then would he still have wanted to see prices as redistributed quantities of labour value? In order to answer yes, the authors must postulate reasons, for viewing prices of production as redistributed labour values, *additional to* the determination of the rate of profit; these reasons are indicated later in the article as follows: 'A Sraffian approach uses the concept of "surplus" only in the restricted sense of a physical surplus product. . . . In contrast, Marx's focus on class relations as his object of discourse requires him constantly to link the existence within capitalism of a physical surplus to the parallel necessity for there to be surplus *labor* which creates surplus *value*' (1982, p. 580). But that the existence of a physical surplus product implies the existence of surplus labour is obvious (at least if one leaves very special cases of joint production aside), what is not clear is why, in order to make class relations clear, one should maintain the view of surplus exchange value as congealed surplus labour-time, after realizing that exchange values and surplus exchange value can be explained the moment quantities produced, physical methods of production, and physical wage costs per unit of output are given,[19] without recourse to labour values. We find again the attribution, to a proportionality of surplus exchange value and surplus labour obtained through definitions and choice of units, of explanatory capacities it cannot have. But at least it is recognized that Marx was using labour values to try and determine the rate of profit and normal prices (prices of production).

[19] Indeed, a basic observation that appears to be eschewed by all the theorists I criticize in this paper is that, as noticed already by Dmitriev [(1898) 1974, p. 63], prices and profits can be logically conceived to exist even in a science-fiction completely automated economy where machines reproduce themselves, and human labour is totally absent from production processes. This shows that the notion of normal relative price does not logically presuppose the appearance of quantities of human labour among its determinants, only outputs and physical inputs. And even for the study of *changes* of distribution, the irrelevance of quantities of labour as anything but a determinant of wage costs per unit of output is clear in the 'Sraffian' equations; whether some categories of workers do absolutely nothing is irrelevant, as long as some social convention obliges firms to employ and pay them; which also dissolves the need to 'reduce' heterogeneous labour to homogeneity, because it suffices that some social convention has fixed both how to measure the 'amount of work' each type of labour performs, and the different real wages per amount of work. Which is lucky, given the difficulties of the idea of a comparability of the 'quantities of labour' performed by different labourers in different kinds of work in any more technological sense.

This point, obfuscated in the New Interpretation, is vehemently denied in the TSS approach.

IX.

The TSS approach argues not only that *observed* prices too, however determined, should be seen as redistributed labour values (this is already in the New Interpretation), but also that labour values depend on the *historically performed* labour, and that *this* is how Marx defined them in vol. III of *Capital*. It is as if commodities were containers of amounts of a fluid produced by living labour; through valuation of the commodities against money (again viewed as representing labour time), this fluid gets redistributed among commodities so as to render the value (amount of labour) 'attached' to each commodity proportional to its market price; if the commodity is then used as a means of production, the fluid 'human labour' thus attached to it is then transferred to the product. Hence, supposing production to happen in separate one-period cycles, it suffices that for period $t-1$ relative market prices be given and the price level be fixed so as to render the total price of the social product equal to the total labour embodied in it, and then the labour embodied (before the redistribution operated by market prices) in a commodity produced in period t can be determined as the sum of the living labour expended in its direct production, plus the *historical normalized market price* of the non-wage capital inputs. The sum of the pre-redistribution labour values of the commodities produced in period t is then redistributed among these commodities in proportion to their market prices, which come again to represent quantities of labour once they are normalized so that the total market price of the social product equals the total labour embodied in it.

Thus, although on the basis of a partly different reasoning, what is proposed is again a redefinition of relative labour values as coinciding with independently determined relative prices, with no concrete consequence for the explanation of economic phenomena; and again the approach, as an interpretation of what Marx meant, encounters the difficulty that how Marx could think of having solved the problem of *determining* the rate of profit becomes mysterious. Actually, the claim of the approach to be a more correct interpretation of Marx is particularly surprising since it tries to deny Marx's acceptance of the method of normal positions, running against the difficulty that, from an author as critical of others as Marx was, one would expect very explicit and repeated statements stressing his rejection of that method: but there are no such statements in Marx, just the opposite. I do not insist on this issue as there already are several criticisms of the TSS interpretation of the textual evidence, e.g. Mongiovi (2002). I find it more useful to comment on the vigorous rejection by the TSS advocates of the treatment, in the standard prices-of-production equations, of each good as having the same price as an input and as an output, an assumption which they define 'simultaneist' and which in their opinion means to accept general equilibrium theory: 'the formalization of Marx's theory of value which descends from Bortkiewicz is a dead end which has served primarily to assimilate Marx to General Competitive

Equilibrium' (Freeman & Carchedi, 1996b, p. xiii). Behind such a view, there appear to lie misunderstandings that it may be worthwhile to point out however briefly.

The previous quotation is clarified by Freeman's interpretation of the 'Sraffian' equations as reflecting an assumption that 'All prices are constant' and by his comment: 'Swallow this and it transports you to a different place from the planet earth: a timeless wonderland in which life repeats endlessly and unchangingly; the world . . . of General Equilibrium' (Freeman, 1996, p. 19). There is a misunderstanding here, probably due to the generalized loss of familiarity in recent decades with the method of long period or normal positions that was universally accepted in the theory of value and distribution from Adam Smith to at least the 1930s. Sraffa's prices are in a tradition that *denies* that the prices economic theory determines must coincide with the prices one directly observes (which would imply that if the price equations treat the price of a good as input and as output, and therefore at two different moments, as the same price, then those equations cannot apply to an economy where prices do not remain strictly constant). From Smith onwards, the traditional argument—only abandoned by the modern versions of general equilibrium theory—has been that economic theory can say little about the moment-by-moment market price because of the indefinite multitude of possible accidental and transitory influences affecting it, what it can say a lot about is its *average* over sufficiently long periods, by looking at the corresponding normal price around which the market price gravitates because of the tendency of rates of profit towards uniformity;[20] and in determining normal prices (prices of production), one assumes the same price for a good as input and output not because normal relative prices are actually perfectly constant but because the normal conditions determining them change slowly enough for the change to be neglected. (Abrupt changes in these determinants, for example, significant technological innovations, or jumps of real wages, would have to be studied by assuming a transition to the new normal position, that is, through comparative statics.) And, as pointed out in §VI, the fact that the same conception of normal relative prices as rather persistent centres of gravitation of day-by-day relative prices can be found in traditional marginalist authors (*not*, however, in modern general equilibrium theory) does not at all mean a fundamental similarity between the theory of capitalism of those authors and the one of Marx and the classical authors more generally.

Freeman further argues that 'the simultaneous equation formalism introduced by Bortkiewicz . . . enshrines in mathematically pure form the dogmatic and false proposition of Jean-Baptiste Say that supply creates its own demand' (Freeman, 1996, p. 3)—another misunderstanding. The tendency towards a uniform rate of profit does not imply Say's Law, it is compatible with any theory of the determinants of aggregate demand. As explained in Garegnani (1978), Say's Law was accepted by Ricardo but

[20] Interestingly, another staunch advocate of the TSS approach, in the course of an attempt to criticize the so-called Okishio theorem, concedes that after a cost-reducing innovation, if sufficient time is allowed 'capital does eventually become revalued in practice at its new, lower reproduction cost. . . . Here Marx and Sraffians agree' (Kliman, 1996, p. 122). Here, it is implicitly admitted that Marx did adhere to the method of normal positions.

only because of a lack of analysis of whether savings will translate into investment; the surplus approach does not provide analytical elements supporting the validity of Say's Law. It is only in the marginal approach, with its factor substitution mechanisms that are argued to ensure the tendency towards equilibrium on all factor markets, that Say's Law acquires analytical support. But the critique of neoclassical capital theory has undermined those factor substitution mechanisms and therefore the neoclassical justification of Say's Law. A more correct theory of aggregate investment no doubt must deny Say's Law and make room for an influence of multiplier–accelerator interactions, debt deflations, class struggle, and so on, thus admitting the possibility and indeed likelihood of instabilities and crises in full accord with Marx; but there is no contradiction between admitting on the one hand instabilities of the *aggregate* level of investment, and admitting on the other hand that the, perhaps wildly fluctuating, *amount* of total investment will have a *composition* that will tend to favour the sectors offering the better prospects of profit, and that this will tend to equalize the rates of profit. Attributing a central explanatory role to normal prices in no way denies instability and crises. There is therefore no contradiction between Marx's evident belief in uniform-profit-rate prices as the averages of the fluctuations of market prices, and his rejection of any spontaneous tendency of the capitalist economy towards full employment or smooth growth.

X.

The support for the reformulations of the labour theory of value discussed in this paper cannot be explained as due only to a difficulty with grasping their lack of scientific usefulness, their nominalistic nature; at least as important, I would suggest, is the influence of the old attributions to the labour theory of value of roles it did not have in Marx (§II), that causes a fear that something essential to Marx's characterization of capitalism would be lost if the thesis that exchange value is nothing but labour time were abandoned. This paper has tried to point out that this fear is unjustified and has its cause in an insufficient clarity as to the structure of the surplus (and therefore of Marx's) approach, and of the rival marginal/neoclassical approach. Obviously, there would not be a surplus appropriated as profits, if workers were not compelled by the capitalist social structure to produce it, owing to the greater strength of the capitalist class in the conflict. But in order for this to be argued, it is unnecessary to argue that exchange value is labour time. Exchange values are the normal ratios of exchange between commodities that result from competition, that is from the tendency of profit rates towards uniformity, on the basis of the historically specific production techniques and the socially conditioned real wages; all these determinants cannot be reduced to a single scalar 'substance'; but the possibility of the correct explanation of exchange values on the basis of these determinants, the same from which Marx starts, confirms the correctness of Marx's overall approach. Of course, in a single paper, only summary hints could be given on the structure of this approach, and the differences from the rival marginal/neoclassical approach. The scholar who after Sraffa has done the most to clarify them is Pierangelo Garegnani; an attentive study of his writings is a must for anyone who considers important the issues discussed in this paper.

APPENDIX

A1.

This Appendix presents more formally the attempts to reformulate the labour theory of value discussed in the paper, and clarifies the problem with heterogeneous labour arising in them.

Until the end of the 1970s, it was universally accepted that the 'labour value' of an aggregate of commodities was quantitatively identical with the labour embodied in it, determined, in the case (to which I restrict myself) of circulating capital and no joint production (with $\mathbf{m}$ the row vector of labours embodied, $\mathbf{a_L}$ the row vector of direct labour coefficients, and $\mathbf{A}$ the matrix of the technical coefficients of produced means of production of the dominant methods, each column a different industry), by:

$$\mathbf{m} = \mathbf{a_L} + \mathbf{mA}$$

Comparison with the correct equations of prices of production had shown that it is generally impossible to establish an equality between the labour value and the exchange value in prices of production (let us call it *production-price value*), for two non-proportional vectors of goods: for example, if one normalizes prices so as to render the labour value of the social product equal to its production-price value, then the labour value of the physical profits (the subvector of non-wage goods in the net output vector) generally differs from their production-price value (and therefore the labour value of capital too differs from its production-price value). The hard-to-escape conclusion was, not only that in general, the rate of profit determined as the ratio of the labour value of profits to the labour value of capital is not the correct one, but also that, if one argues that

(a) the exchange value of the social product is produced by (in the sense that it is proportional to) the labour embodied in it then one cannot argue that
(b) the exchange value of profits is produced by (in the sense that it is proportional to) the surplus or unpaid labour.

This was feared to undermine the thesis that profits result from the exploitation of labour (cf. Section II of the main text), in all likelihood a powerful motive behind the proposals to reinterpret the labour theory of value discussed in the text.

The New Interpretation overcomes this difficulty by postulating that (net) value added is produced by the live labour employed, each unit of labour producing the same amount of (net) value added; since the exchange value of the net product is the (net) value added produced by the live labour employed in the period, the money value of the net product *per unit of labour* indicates the exchange value that each unit of live labour creates, that, since it is created by labour, is *labour value*; then, choosing such a Money Unit that the monetary value of the net product of the given period is numerically equal to labour employment, the money price of a good measured in this Money Unit indicates the number of labour units that produced its value, hence it measures its labour value;[21] and the reciprocal of the Money Unit indicates how much labour value is represented by a unit of monetary value. For example, if labour time is measured in hours, and the Money Unit is 20 dollars, then an exchange value of a good with price 100 dollars is produced by 5 units of labour time, hence a good of money value 100 dollars has a labour value equal to 5. This amounts to a choice of numéraire for money prices equal to the net product vector per unit of employment, plus the postulate that value added is produced entirely by live labour, and the counterfactual postulate that each unit of labour time produces the same amount of monetary exchange value added, called a unit of labour value (value added is wages of live labour plus profits, and in each industry profits are not proportional to the wages of live labour). The (labour) value of labour-power is defined as its price in terms of that numéraire; so if that numéraire has money value 20 dollars when labour-power is measured in hours, and if the money value of the net product is 100 million, then employment must be 5 million, each labour hour has created a value of 20 dollars; and if the hourly money wage (the value of labour-power) is 15 dollars, that is $\frac{3}{4}$ of the Money Unit (i.e. if the value of labour power is $\frac{3}{4}$), then total wages are $\frac{3}{4}$ of the money value of the net product: this definition of the value of labour-power identifies it numerically with the share of wages in the monetary value of the net product. Assuming no land rents, since by assumption, profits represent unpaid labour time, the rate of exploitation (ratio of unpaid to paid labour time) is defined as the ratio between share of profits and share of wages. Since 'labour values' are identified by definition with observed prices normalized with the net product per unit of labour as numéraire, if one assumes relative prices to be prices of production then the uniform rate of profit determined as the ratio between profits and capital measured in labour values obviously coincides with the one determined on the basis of prices of production, thus the two equalities (a) and (b) mentioned above are satisfied; in fact, they are satisfied *whatever the prices*.

A2.

According to Wolff *et al.* (1982), Marx's thesis in volume 3 of *Capital* that prices of production are *redistributed* labour values means that the price of production of inputs is actually a quantity of labour value, hence the labour value of a product must be determined as the *price of production* of inputs plus the living labour added in the production process, and the labour value of labour-power is the price of production of the wage basket. Formally, assume circulating capital, and let $\mathbf{z}$ be the average physical

[21] From now on in this Appendix, 'value' without adjectives means labour value; 'exchange value' means relative price, 'monetary value' or 'money value' means exchange value in terms of money.

wage basket, a column vector. Wages are advanced. The price-of-production equations are, with $\mathbf{z}$ the subsistence basket (a column vector), and $\mathbf{p}$ the row vector of prices:

$$\mathbf{p} = (1 + r)(\mathbf{pA} + \mathbf{pza_L}) \tag{A1}$$

Labour values $\boldsymbol{\lambda}$ (a row vector) are now defined differently from $\mathbf{m}$, and precisely as:

$$\boldsymbol{\lambda} = \mathbf{pA} + \mathbf{a_L} \tag{A2}$$

where $\mathbf{p}$ is determined by Equation (A1). Let $\mathbf{x}$ be the (column) vector of quantities produced. Then $\mathbf{a_L x}$ is labour employment L, the labour value of total production is $\boldsymbol{\lambda}\mathbf{x} = \mathbf{pAx} + \mathbf{a_L x}$, and hence L equals total *labour value* added. Subtracting from it the labour value (=price of production) of wages, one obtains profits in labour values. Hence the rate of profit determined via these redefined labour values is:

$$\mathbf{r} = \frac{\mathbf{a_L x} - \mathbf{pza_L x}}{\mathbf{pAx} + \mathbf{pza_L x}} \tag{A3}$$

Let us compare this with the prices-of-production determination of r:

$$\mathbf{r} = \frac{\mathbf{px} - \mathbf{pAx} - \mathbf{pza_L x}}{\mathbf{pAx} + \mathbf{pza_L x}} \tag{A4}$$

Only the numerators differ. But they become identical if one stipulates:

$$\mathbf{px} - \mathbf{pAx} = \mathbf{a_L x} = \mathbf{L} \tag{A5}$$

This equation sets the production-price value of the net product $\mathbf{y} = \mathbf{x} - \mathbf{Ax}$ equal to its labour value and hence to labour employment; it amounts to choosing as numéraire for the prices of production the physical net product vector per unit of labour, like in the New Interpretation. It follows that the total price of the social product equals its total labour value:

$$\mathbf{px} = \mathbf{pAx} + \mathbf{a_L x} = (\mathbf{pA} + \mathbf{a_L})\mathbf{x} = \boldsymbol{\lambda}\mathbf{x} \tag{A6}$$

Furthermore, since the value of labour-power is defined as $\mathbf{pz}$, total profits π are:

$$\begin{aligned}\pi &= \mathbf{px} - \mathbf{pAx} - \mathbf{pza_L x} = \mathbf{a_L x} - \mathbf{pza_L x} \\ &= \mathrm{L} - \text{total labour value of necessary labour} = \text{surplus labour value.}\end{aligned} \tag{A7}$$

In this way, total value and total profits are the same in prices and in these redefined labour values. Both equalities (a) and (b) mentioned at the beginning of this Appendix are satisfied.

A3.

The TSS approach argues that *market* prices too (the day-by-day prices realized in the market) should be seen as redistributed labour values, with a historical element in their determination. Supposing production to happen in separate one-period cycles, once for the previous period $t-1$, the price level is normalized so as to render the total price of the product equal to the total labour embodied in it, the labour embodied (before the postulated redistribution operated by market prices) in a commodity produced in period t is defined as the sum of the living labour expended in its direct production, plus the *historical market price* of the capital inputs, however determined; labours embodied before the redistribution operated by market prices are determined by:

$$\boldsymbol{\lambda}_{\mathbf{t}} = \mathbf{p}_{t-1}\mathbf{A} + \mathbf{a}_{\mathbf{L}} \tag{A8}$$

where $\mathbf{p}_{t-1}$, the vector of after-redistribution labour values at t–1, is given, being proportional to the *given* relative prices at t–1, $\boldsymbol{\pi}_{t-1}$, i.e. $\mathbf{p}_{t-1} = \alpha_{t-1}\boldsymbol{\pi}_{t-1}$ with α_{t-1} a positive scalar such that

$$\mathbf{p}_{t-1}\mathbf{x}_{t-1} = \boldsymbol{\lambda}_{t-1}\mathbf{x}_{t-1} \tag{A9}$$

where $\mathbf{x}_{t-1}$ is the given vector of quantities produced at $t-1$ and $\boldsymbol{\lambda}_{t-1}$ is again given [determined by Equation (A8) moved back one period], i.e. $\mathbf{p}_{t-1}$ is the vector of market prices at $t-1$ 'normalized' so as to yield a total exchange value of the social product equal to the total labour embodied in it. The economy-wide constant capital C and variable capital V at t are accordingly defined at (normalized) historical costs:

$$C_t = \mathbf{p}_{t-1}\mathbf{A}\mathbf{x}_t, \quad V_t = \mathbf{p}_{t-1}\mathbf{z}\mathbf{a}_{\mathbf{L}}\mathbf{x}_t \tag{A10}$$

At time t, the vector $\boldsymbol{\pi}_t$ of market prices is again among the *data*, and labour values $\mathbf{p}_{\mathrm{t}}$ are proportional to market prices and again normalized so as to make the total labour value of the social product equal to its market price:

$$\mathbf{p}_t\mathbf{x}_t = \alpha_t\boldsymbol{\pi}_t\mathbf{x}_t = \boldsymbol{\lambda}_t\mathbf{x}_t = C_t + V_t + S_t \tag{A11}$$

i.e. the total labour value $C_t + V_t + S_t$, determined by $\mathbf{x}_t$ and by Equation (A8), gets redistributed by the process of exchange so that $\mathbf{p}_t$ is the vector of labours embodied. At the moment of exchange, labours embodied are no longer $\boldsymbol{\lambda}_t$, they are $\mathbf{p}_t$. Surplus labour value S is the difference between living labour $\mathrm{L}_{\mathrm{t}} = \mathbf{a}_{\mathrm{L}}\mathbf{x}_{\mathrm{t}}$ and variable capital as defined by (A10), hence, with Π standing for profits, and dropping for simplicity the index t from the current quantities:

$$\begin{aligned}\Pi &= \mathbf{px} - \mathbf{p}_{t-1}\mathbf{Ax} - \mathbf{p}_{t-1}\mathbf{z}\mathbf{a}_{\mathbf{L}}\mathbf{x} = \boldsymbol{\lambda}\mathrm{x} - \mathbf{p}_{t-1}\mathbf{Ax} - \mathbf{p}_{t-1}\mathbf{z}\mathbf{a}_{\mathbf{L}}\mathbf{x} \\ &= (C+V+S) - C - V = S\end{aligned} \tag{A12}$$

Thus, profits too are the same in prices and in labour values; equalities (a) and (b) are both satisfied.

But as noticed by Veneziani (2004), there is an infinite regress in this theory, because Equation (A9) requires knowledge of $\boldsymbol{\lambda}_{t-1}$, and the determination of $\boldsymbol{\lambda}_{t-1}$ requires knowledge not only of relative prices at t–2 but also of $\boldsymbol{\lambda}_{t-2}$, and so on. The postulated redistribution of labours embodied due to the exchange process renders *relative* labour values equal by assumption to relative prices, but the approach is unable to determine the *magnitudes* of the labours embodied to be thus redistributed (and then also, as a consequence, the magnitude of the final redistributed labour values) unless one assumes the magnitudes of the labour values of their inputs to be known, but these require in turn the knowledge of the magnitudes of previous labour values, ad infinitum. In conclusion, labour values are indeterminable, only redistributed *relative* labour values are trivially determinable, because of the *postulate* that they coincide with the independently determined relative prices. The pointlessness of this definition of labour values is even more evident than in the other approaches.

A4.

We can now discuss the 'reduction' of 'complex' to 'simple' labour. As admitted by a majority of authors, e.g. Steedman (1985, p. 564) or Roberts (2009, p. 596, fn. 15), Marx like Ricardo 'reduces' on the basis of relative wages, implying a uniform rate of surplus value or uniform 'rate of exploitation', which of course does *not* mean that all categories of workers are equally badly treated by capitalists, but derives from an analytical necessity. Ricardo's and Marx's 'reduction' has its analytical reason in the realization that exchange ratios *equal to relative 'wages embodied'* supply the correct normal relative prices when the rate of profit is zero, or wages are advanced for the same time length in all industries (Ricardo), or the organic composition of capital is uniform (Marx), so that for the labour theory of value to fit these cases, labours embodied *must* be proportional to 'wages embodied';[22] from which Marx concludes (owing to the idea of a reciprocal compensation of deviations) that labours embodied so determined also supply the correct rate of profits in the general case. In short, Marx's 'reduction' is analytically necessary for his aim of arriving through the labour theory of value to *determining* rate of profits and prices of production on the basis of the idea of a compensation of deviations.

This analytical necessity is lost in the three approaches discussed in this paper, as part of the abandonment of that role of the labour theory of value and of the connected idea of a compensation of deviations. In all three approaches, prices are determined before labour 'values' and independently of them, which cannot but leave considerable arbitrariness for the determination of labour values; and indeed, these are determined differently in the three approaches. Little surprise then if the relative

[22] Evidently Marx like Ricardo thought of relative wages as ascertainable *before* knowing labour values or prices of production, e.g. fixed in terms of gold.

'value'-creating capacities of different types of labour remain undetermined; it comes out that one can determine them arbitrarily (a racist might even deny any value-creating capacity to a certain portion of the labour force, on the basis of race) and one will still obtain the aggregate results of the approaches and the validity of (a) and (b), because those results are imposed *ex post* by the normalizations adopted.

This is easy to see for the New Interpretation; as pointed out in footnote 9, since prices, net physical product, and labour employments are given, any change in the 'reduction' criterion only changes L and hence the quantity of 'value' represented by a unit of money, without disturbing the equality between relative amounts of labour 'represented' by prices and relative prices since this is imposed by definition; therefore, equalities (a) and (b) cannot be disturbed. The thing is also evident for the TSS approach. Let me now show it for the approach of Wolff, Roberts, and Callari. Let there be two types of labour 'α' and 'β' with respective physical column wage vectors $\mathbf{z}_\alpha$ and $\mathbf{z}_\beta$ and row vectors of technical coefficients $\mathbf{a}_{L\alpha}$ and $\mathbf{a}_{L\beta}$. Equation (A1) becomes

$$\mathbf{p} = (1+r)(\mathbf{pA} + \mathbf{pz}_\alpha \mathbf{a}_{L\alpha} + \mathbf{pz}_\beta \mathbf{a}_{L\beta}) \tag{A13}$$

Assume that the amount of 'value' created by a unit of type 'α' labour, respectively, by a unit of type 'β' labour, is respectively, α and β. Then Equation (A2) determining labour values before their redistribution becomes

$$\boldsymbol{\lambda} = \mathbf{pA} + \alpha \mathbf{a}_{L\alpha} + \beta \mathbf{a}_{L\beta} \tag{A14}$$

Now 'labour value added', or the labour value of the net product, is $(\alpha \mathbf{a}_{L\alpha} + \beta \mathbf{a}_{L\beta})\mathbf{x}$. Subtracting from it the labour value of wages $(\mathbf{pz}_\alpha \mathbf{a}_{L\alpha} + \mathbf{pz}_\beta \mathbf{a}_{L\beta})\mathbf{x}$, one obtains profits in labour values. Hence, the rate of profit determined via labour values is:

$$r = \frac{(\alpha \mathbf{a}_{L\alpha} + \beta \mathbf{a}_{L\beta})\mathbf{x} - (\mathbf{pz}_\alpha \mathbf{a}_{L\alpha} + \mathbf{pz}_\beta \mathbf{a}_{L\beta})\mathbf{x}}{\mathbf{pAx} + (\mathbf{pz}_\alpha \mathbf{a}_{L\alpha} + \mathbf{pz}_\beta \mathbf{a}_{L\beta})\mathbf{x}} \tag{A15}$$

Let us compare this with the prices-of-production determination of r:

$$r = \frac{\mathbf{px} - \mathbf{pAx} - (\mathbf{pz}_\alpha \mathbf{a}_{L\alpha} + \mathbf{pz}_\beta \mathbf{a}_{L\beta})\mathbf{x}}{\mathbf{pAx} + (\mathbf{pz}_\alpha \mathbf{a}_{L\alpha} + \mathbf{pz}_\beta \mathbf{a}_{L\beta})\mathbf{x}} \tag{A16}$$

Again only the numerators differ. But they become identical if one again stipulates the equality between price-of-production value of the net product and its labour value, like in (A5):

$$\mathbf{px} - \mathbf{pAx} = (\alpha \mathbf{a}_{L\alpha} + \beta \mathbf{a}_{L\beta})\mathbf{x} \tag{A17}$$

Then the total production price of the social product equals its total labour value:

$$\mathbf{px} = \mathbf{pAx} + (\alpha \mathbf{a}_{L\alpha} + \beta \mathbf{a}_{L\beta})\mathbf{x} = (\mathbf{pA} + \alpha \mathbf{a}_{L\alpha} + \beta \mathbf{a}_{L\beta})\mathbf{x} = \boldsymbol{\lambda}\mathbf{x} \tag{A18}$$

and profits equal surplus value, given by total labour value added $(\alpha \mathbf{a_{L\alpha}} + \beta \mathbf{a_{L\beta}})\mathbf{x}$ minus the labour value of wages, i.e. their production price $(\mathbf{pz_\alpha a_{L\alpha}} + \mathbf{pz_\beta a_{L\beta}})\mathbf{x}$:

$$\begin{aligned}\pi &= \mathbf{px} - \mathbf{pAx} - (\mathbf{pz_\alpha a_{L\alpha}} + \mathbf{pz_\beta a_{L\beta}})\mathbf{x} \\ &= (\alpha \mathbf{a_{L\alpha}} + \beta \mathbf{a_{L\beta}})\mathbf{x} - (\mathbf{pz_\alpha a_{L\alpha}} + \mathbf{pz_\beta a_{L\beta}})\mathbf{x} \qquad \text{(A19)}\end{aligned}$$

Thus, the correct rate of profit and the validity of (a) and (b) are obtained for any magnitudes of α and β: one is free to fix them arbitrarily.

Nor can one appeal to Marx, and take from him 'value'-creation proportional to wages, as, for example, done by Roberts [2009, Equation (8), p. 597]. One cannot abandon the price-determining role the labour theory of value had in Marx, without also losing Marx's reason for his 'reduction', which was motivated by that role. One should rather admit that the absence of compelling criteria for determining the 'value'-creating capacities of different types of labour radically questions the notion itself of a homogeneous 'labour value'. A magnitude that can be determined arbitrarily is just words. But this only confirms the arbitrariness of the definition of 'labour values' in these approaches, evidenced already by the simple fact that—even assuming homogeneous labour—each approach defines them differently, without any difference resulting for the explanation of the working of the economy.

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