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Part One: Profit and Surplus-Value in light of Transaction Costs

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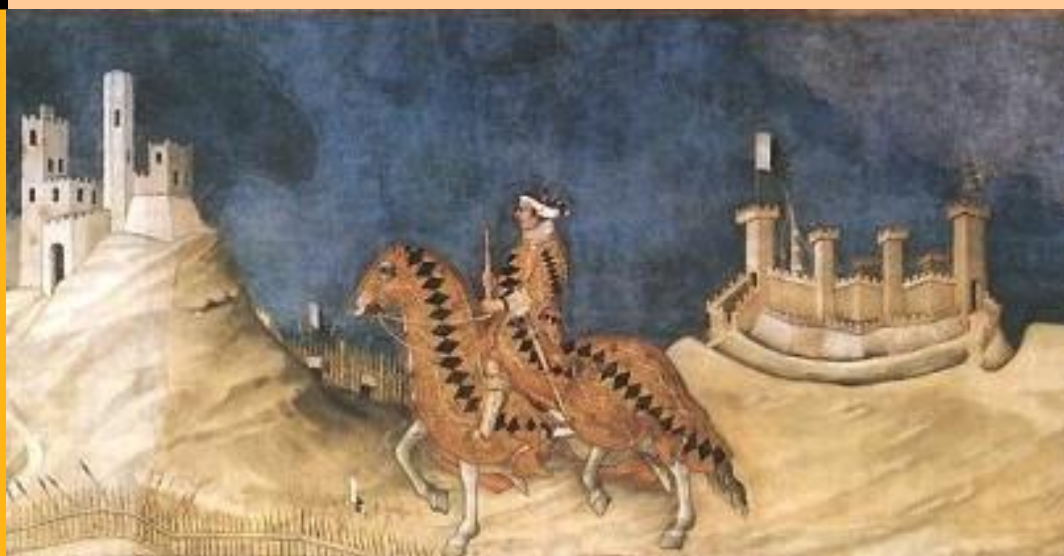

From Addition to Multiplication: The Labour Theory of Value and the Economic Institutions of Capitalism.

Part One: Profit and Surplus-Value in light of Transaction Costs.

Alberto Battistini[*]

Abstract: this three-parts study presents an institutional and evolutionary -or a qualitative and inter-subjective- re-interpretation of Marx's version of the labour theory of value.
More specifically, in this Part One Marx's own contribution to that theory - that is, the theory of surplus-value, or the difference between use-value and exchange-value of labour power as a determinant of profit in perfectly competitive conditions and of the contradictory nature of the capital accumulation process- is re-dis-covered.
Accordingly, the amount that would have been the cost of obtaining the same commodity in the non-capitalist Commodity → Money → Commodity circuit -that is, in the market of independent or small-and medium-size producers, takes the place of the direct and indirect quantity of working hours contained in a given commodity, thus representing its exchange value.
By applying - as Marx did- the same pricing rule which holds for the other commodities to labour power, therefore, the quantity of labour socially necessary to produce subsistence goods is in its turn substituted with the amount that is possible to earn from independent participation in the production process, without specific means of production in the usual meaning of the term.
Since the step in terms of surplus-labour is then skipped for theoretical as well as practical reasons, the use-value of labour-power corresponds to the exchange-value of the commodities. Consequently, as in Marx, also in this case a kind of profit that derives from the difference between the use-value and the exchange-value of labour-power, but measured in terms of transaction costs, comes to light.
Moreover, because it derives from the aforementioned difference, this kind of profit is not eliminated by competition. As a consequence, it should be named as 'Marxian' or 'industrial' profit in order to distinguish it from monopoly profit, which instead derives from price setting.
On the basis of this result, in the next two Parts of the study the hypothesis that the principle of the maximization of this kind of profit might work as a general positive principle for the economic domain, including as special cases Pareto-efficiency and conflict, will be verified.

Key words: transaction costs; wealth effects; use-value; exchange-value; team production**;** methodological individualism.

JEL: A10; B00; C70; P10; D02

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SUMMARY

Though rarely made explicit, one of the fundamental axioms of standard economic theory, perhaps the most important, is the postulate of methodological individualism. With such an expression it is meant that the value of economic relationships, and therefore also the value of the commodities, is invariably seen as determined by the sum of independent and separate individual contributions. Even more significant is then the corollary from the point of view of practice of this postulate, that is, the limitation of the analysis to contexts characterized by additive separability, where in effect 'the whole is strictly equal to the sum of its parts'.

Consequently, given that in this context there is nothing that cannot be explained by individual actions, and must be therefore explained by the relations among individuals, the latter can only be considered as *explananda*, whereas to the former is reserved the exclusive role of *explanans* (see footnote 3, below and footnote 12, Part Three).

It is therefore from its link to the theory of value and distribution of standard economic theory that this axiom derives its central position. According to the former, in competitive conditions, the price of goods is determined by the sum of the values of production factors' contributions, considered individually. According to the latter, under the same competitive conditions, the values of production factors' contributions coincide with their prices, and therefore with the distributional shares.

As a result, in this context conflict disappears entirely from the analysis and the economic domain, moreover meant as separated from the other domains of public life such as the political and the social ones, turns out to be a sort of 'province of will', where economic relationships, in turn modelled on the basis of exchange relationships between different individuals, are fully voluntary and beneficial for all the parties involved.

These relationships and these exchanges are consequently unanimously accepted, a feature to which standard economists associate a notion of objectivity, which they think is able to solve the problem of observer independence – that for the social sciences presents itself in a more serious way than for the natural sciences, at least in part. In other words, only in this case economic analysis can be characterized as 'scientific' and 'without value judgements'.

To sum up, this axiom and the notion of competition as an assumption guarantee the elevation of a normative principle such as Pareto-efficiency to the universal positive principle for the economic domain.

Unfortunately, however, this postulate of methodological individualism poses two serious and interconnected problems. The first is realism, since the contexts characterized by non-additive separability, that is, those where 'the whole is more than the sum of its parts' are clearly excluded from economic analysis. This fact becomes more significant the more it is recognized, as done by Alchian and Demsetz (1972) in their theory of the firm, and before them by Marx and especially his contemporaries, that the *raison d'être* of the capitalist firm is precisely the production of a joint product of which each worker cannot sell parts independently on the market. As explicitly pointed out by Alchian and Demsetz themselves, this feature requires as a necessary condition a non-additively separable production function (see footnote 2, below).

The related logical problem is that, since such non-additively separable contexts are incompatible with methodological individualism, the theory of value and distribution of standard economic theory does not hold. In the basic case of the general equilibrium model, where it is the contribution that determines the reward, the problem is to how determine the former: on the one hand, production factors' marginal productivities are rather difficult to find in reality, to the point that they are sometimes measured – in a quite surprising way- by their prices; on the other hand, in any case they do not exhaust the joint product because the related Euler's theorem does not hold, either.

In the case of the 'general equilibrium model plus compatible imperfections', which can be understood as the standard economic theory's favourite way to increase the realism of the general equilibrium model by adding separate and independent deviations that do not jeopardize its basic structure, and in particular its theory of value and distribution, the problem is how to determine the reward. Indeed, in this conceptual framework the just-mentioned direction of causality regarding the general equilibrium is reversed, so that it is the reward that determines the contribution. But then, if it is not the contribution that determines the reward but the other way around, the latter cannot be subsequently determined as a sum of the former.

In both cases, the risk is that, once the researcher wears the lens of methodological individualism, he or she may suffer from a sort of 'optical illusion' whereby the fact that the joint product of the firm *resolves itself* in the distributional shares is mistaken

for the confirmation of the idea that the former is determined by the sum of the latter, given their coincidence with the value of individual contributions.

As will be seen in what follows, this kind of optical illusion goes through the vast majority of standard economic theory. Nowhere, however, the associated mental habit emerges more clearly than in the just quoted analysis by Alchian and Demsetz.

Indeed, even though the production function is explicitly defined in terms of non-additive separability, the joint product of the firm is then treated as if it were a common good, therefore coming back to additively separable contexts. Whence derives the idea that the entrepreneur, by separating workers' individual contributions, paying for them accordingly and keeping the residual as a – competitively determined- compensation for the job done, in so doing exhausts the value of the joint product, thus coming back even in this case to the familiar and harmonious framework of standard economic theory.

As a matter of fact, however, the reward, i.e. this value of the joint product, proves to be indeterminate, so that the entrepreneur finds him or herself in the somewhat curious situation of distributing shares of a joint product whose total value, though, is unknown.

Accordingly, in these situations the problem can only be solved by introducing a pricing rule different from that of standard economic theory, and in particular a theory of value and distribution which allows for the fact that the condition of non-additive separability essentially means that there is a residual that is not explained by individuals' actions but by their – pre-existing- relations.

While obviously legitimate, this criticism would be less significant if an alternative was not available, the more so because it is a high-profile as well as a time-honoured alternative. And, of course, such an alternative theory of value and distribution is the one developed by classical political economy, which includes Malthus, Ricardo and, for what matters here, most importantly Marx and Smith.

Indeed, in such a perspective the value of the joint product – its exchange-value, its 'natural' or long-term price, around which market or short-term prices gravitate- is given because it is determined by the production process taking place within the firm. As a consequence, it *really* resolves itself in the distributional shares, rather than being determined by them in an additive way. Consequently, once the wage is determined – preferably, by the same pricing rule which applies to the other commodities- profit

turns out to be determined in a residual way. Hence the possibility, though not the necessity, of conflict.

The main reasons behind this critical difference are the following: (i) production (and not exchange) is identified as the primary economic phenomenon; (ii) the division of labour (and not individual differences) is recognized as the source of value; (iii) exchange values or 'natural' prices are determined by the labour theory of value (and not by scarcity, which is itself endogenous to the value creation process).

Equally unfortunately, however, as will be discussed in some detail below, the big problem with the labour theory of value is that its validity is almost universally rejected, rather than almost universally accepted. The reason of this rejection, though, the so called problem of the transformation of values in prices, was meaningful only in the perspective of superseding capitalism meant in the general sense as comprising markets, firms and private property of the means of production (see Sections 1 and 2, below, and Section 3, Third Part). And, apart from the fact that a measure of value in physical terms such as the working hours belongs to a perspective which in any case is no more appropriate to our times - as shown, for example, by zero-hours contracts and the re-emergence of the piece-rate system- the basic point here is that such superseding of capitalism in the just-mentioned general sense also belongs to the past, presumably in a definitive way.

This is the reason why in this study the problem of the transformation of values in prices is solved by elimination, and an evolutionary and institutional, or a qualitative and inter-subjective, re-interpretation of Marx's version of the labour theory of value is presented. In other words, its general purpose is the re-dis-covery of the figure of Marx as a critical economist and the contextual demise of his figure as political-ideologue, which in turn is the reason why a significant amount of attention has been paid to his relationship with Smith's theory (see conclusions, Part Three).

More specifically, this trilogy is organized as follows: Part One revisits the debate on the labour theory of value at Marx's times, as well as his several contributions to what today is known as the theory of the firm. Therefore, this part also contains a detailed discussion of the two-way relationship can be established between Marx's insights and the neo-institutional approach, most notably as regards the Coasean approach.

The basic issue, in effect, is the re-interpretation in terms of transaction costs of Marx's theory of surplus-value, that is, the difference between the exchange-value and

the use-value of labour power as the determinant of profit in perfectly competitive conditions and of the contradictory nature of the process of capital accumulation.

Part Two links the analysis of the division of labour within the firm with the analysis of the division of labour among firms. In this regard, the point is that the condition of non-additive separability extends itself from the firm's production function to the aggregate production function because of the relationship of interdependence – synchronic and diachronic- between the phase of production and the phase of profit realization. As a result, the problem of the determination of the reward arises for the aggregate product essentially in the same terms in which it arises for the joint product of the firm, weakening the theory of value and distribution of standard economic theory even from the macro-economic point of view.

Accordingly, aggregate variables should not be understood as the sum of the individual ones nor, even less, as endowed with a logic different from the individual ones, without this leading at least to a departure from the additive framework typical of micro-economics and, most importantly, without this different logic being made explicit in a sufficiently satisfactory way. By contrast, aggregate variables can be understood as micro-founded by the value creation process taking place within the firm and in their turn as macro-founding the individual ones. Whence derives the retrieval and the re-interpretation of the cumulative causation mechanisms on which, respectively, Marx and Smith based their theories of crisis and growth.

Finally, Part Three concludes the general and dynamic extension of the static and partial analysis initiated in Part One. The stating point is the difference between Marxian or industrial profit and monopoly profit: since the former does not depend on price-making like the latter, the Marxian one is not eliminated by competition. Therefore, capital, in Marx's definition of "money in motion" in the Money→ Commodity → More Money circuit, can be taken as unit of selection in an evolutionary process taking place both within and among firms and driven by the capital accumulation process (see footnote, 2, below).

Consequently, in a relation of partial analogy with the role of the principle of differential replication in the biological domain, the principle of the maximization of this kind of profit can play the role of a general positive principle for the economic domain, of which conflict and Pareto-efficiency prove to be special cases. Indeed, to the extent that it is accepted that the advent of capitalism has coincided with the emergence of the classical firm, and that the implied notion of cooperation extends

itself to the other economic institutions of capitalism because of the thick web of interdependencies that links them, they can all be understood as endogenous to the operation of the just-mentioned principle. Accordingly, such institutions turn out to be characterized by a relation of analogy: apart from their obvious but crucial differences, in fact, they can all be interpreted as mechanisms with which to appropriate or share the benefits of cooperation, i.e. the residual which is not due to the actions of particular individuals but to their relationship.

This is therefore the main difference with respect to the approach of standard economic theory, where economic institutions – starting from markets and prices but arriving also in this case to the firm and property rights as well as, in some more infrequent cases, to the state or at least economic policy- are instead understood as abstract mechanisms with which to align individual costs and benefits.

This principle of profit maximization, in effect, coincides with the maximization of the profit of capital owners or with the maximization of the total value depending on how the class divide between those who do not have the productive means to produce and sell their own products, and therefore must content themselves with selling their labour power, and those who, while having the productive means to produce and sell their own products, nevertheless prefer to buy the labour power of the former on the market in order to subsequently sell the joint product, is treated and perceived.

This in turn shifts the focus of the analysis to the role of the existing property rights' distribution as well as to the Marxian theory of institutional change, that is, the effect of structural crises on the ideological super-structure and the feedback effect that a change in the latter may exert on the former.

In this regard, as will be seen in a moment, when standard economic theory is applied to non-market relationships as in the case of the theory of the firm, the assumption of price-taking must be replaced or at least supplemented by that of the absence of wealth effects, i.e differences in the wealth owned by the parties that may act as barriers to the exchange of property rights. And, because in this way the consequences and the contradictions deriving from the just-mentioned class divide are simply assumed away, even this assumption poses problems related to realism and logical consistency, further limiting the scope of the conceptual framework of the general equilibrium plus compatible imperfections.

1.Introduction

Recently, new-institutional economics has shown that the actual exercise of property rights on production activities, and the power relationships which derive from it in an incomplete contracts framework, can be interpreted as an appearance behind which there is a reality driven by exchange relationships mediated by the price system and which, therefore, are fully voluntary. As pointed out by Milgrom and Roberts in their textbook (1992, Ch. 2), this interpretation requires the assumption of no wealth effects: that is, the absence of barriers to the exchange deriving from differences in the wealth owned by the parties involved. Not by chance, therefore, such a theory has found its best applications in the case of relationships among firms rather than in the case of employer-employee relationships, that is, in explaining vertical integration (Hart, 1995).

However, since this assumption of no wealth effects, or more technically of quasi-linear preferences, eliminates the class divide between those who do not have the productive means to produce and sell their own products, and therefore must content themselves with selling their labour power, and those who, while having the productive means to produce and sell their own products, nevertheless prefer to buy the labour power of the former on the market in order to subsequently sell the joint product, it is tempting to conclude that, as a consequence, when there are wealth effects, it is the markets - of labour, of capital and of goods - that are appearances behind which lies a reality driven by the capital accumulation process, both from the point of view of the asymmetric control of the production process within the firm, and from the point of view of the competition for profit maximization in relationships among firms.

As Marx himself (1867, p. 222, emphasis added) points out: “It is not our intention to consider, here, the way in which the laws, immanent in capitalistic production, manifest themselves in the movements of the individual masses of capital, where they assert themselves as coercive laws of competition, and are brought home to the mind and consciousness of the individual capitalist as the directing motives of his operations. *But one thing is clear; a scientific analysis of competition is not possible, before we have a conception of the inner nature of capital, just as the apparent motions of the heavenly bodies are not intelligible to any but him, who is acquainted with their real motions, motions which are not directly perceptible by the senses*.”.

As already noted, however, this temptation must be in some way controlled because it is a common belief among economists of every inclination that the Marxian

maxim depends in its turn on the validity of the labour theory of value, which – with the possible exceptions of Foley (2000) and Pasinetti (2021)- they have found increasingly difficult to accept.

This common belief, however, does not distinguish with sufficient clarity between the two lines of thought that converge in Marx's labour theory of value: as regards the first, starting with Locke and passing through Smith, the labour theory of value owes its name to the identification of labour as the only resource able to transform itself and thus create value, which in turn resides in the fact that commodities have a use-value to their owner; as regards the second, which instead was put forward by Ricardo, the labour theory of value owes its name to the identification of a physical and objective measure of value such as labour time, as opposed to the psychological and subjective characteristics typically linked to the concept of utility.

Indeed, Marx's specific contribution to the labour theory of value and to the critique of political economy - the theory of surplus value, i.e., the difference between use-value and exchange-value of labour power as the determinant of profit in perfectly competitive conditions and of the contradictory nature of the capital accumulation process- can be seen as an attempt to combine those two traditions of thought.

On the one hand, the general idea from Locke and Smith is linked to the actual and necessarily joint operation of the two most important and, at least until now, most durable institutional innovations of capitalism, the industrial firm *and* the labour market, or – in a single expression – wage labour; on the other hand, the analytical formulation of Marx's contribution, that is, the determination of the use value of labour power in terms of surplus labour with respect to the quantity of socially necessary labour to produce subsistence goods, which is its exchange value, is an application of the Ricardian notion of production cost to labour power understood as a commodity. More generally, this analytical formulation is based on the same circular view of the production process, according to which annual production normally includes a surplus in physical terms after replacing the resources consumed in it.[1]

Fortunately, starting from the much studied issue of the transformation of values in prices, the problems which have led to the complete demise of the labour theory of

[1] Among classical economists, the subject of the theory of value was the natural, production or long-term prices around which market prices gravitate, determined by endogenous changes in supply and demand. In this study, also focused on these notions, and in particular on the Marxian one of exchange-value, these terms are used interchangeably.

value, and consequently in the first place to the mystification, and ultimately to the disappearance of a minimally founded critical perspective, are restricted to such an analytical formulation, so that the best strategy seems to be to solve them by elimination.

In any case, the tradition of thought to which they belong seems useless today for several reasons, including: (i) the - positivist- philosophy of science on which it was based; (ii) the ever increasing divide, inherent to the transition from an agricultural economy to an industrial and service economy, between a monetary or qualitative measure of wealth and a physical or quantitative one; (iii) and of course the practical meaning assumed in the overall work of Marx himself as both a critical economist and a political ideologue (the prediction about the inevitability of the demise of capitalism and the justification of the first phase of communism in terms of the abolition of markets and private property – the so-called first phase of single firm socialism – no less).

This is not true, however, for the fundamental intuition lying behind the contribution just referred to – the recognition of the link between value creation and the *use* of labour within the firm, rather than in the exchange of its products on the market; an intuition which in its turn is based on the identification of co-operation and the division of labour as the determinants of the phenomenon of capitalist production with respect to that of commodity exchange on the market. As noted at the outset and will become clearer in what follows, this intuition is at the centre of the contemporary theory of the firm, although it is of course treated with that theory's methods, assumptions and objectives - with which it is difficult to agree as will be seen-, and it is equally naturally at the centre of the process of capitalist development itself through its effect on the interaction among technology, institutions and ideologies by which it is determined (Marx, 1959; Denzau and North, 1994).

Consequently, as the saying goes, to avoid 'throwing the baby out with the bathwater', as happens with 'liberal Marxism' (see, for instance, Romer, 1980), or even 'remaining only with the bathwater', as happens with 'Ricardian Marxism' (see for instance Garegnani, 1981), in what follows it is shown how Marx's original contribution to the labour theory of value and to the critique of political economy can be made independent from its original formulation in terms of labour time, presenting therefore an institutional and evolutionary, or a qualitative and inter-subjective, re-interpretation of it.

Not surprisingly, as already anticipated in Battistini (2019a) in a slightly different way, this result is obtained by eliminating the two just-mentioned elements of the Ricardian theory of value, respectively substituting them with: (**i**) the notion of transaction cost, meant in the general sense of the 'cost of using the price mechanism' (Coase, 1936, p. 90). However, differently from the Coasean theoretical framework, the price system substituted by the firm is not the one resulting from the general equilibrium model but instead the one resulting from the market of independent producers or small- and medium-sized firms, that is, the one not taking part in the Money → Commodity → More Money capitalist circuit but in the non-capitalist circuit Commodity → Money → Commodity.

In other words, just as the Ricardian production cost represented the opportunity cost of production in physical terms, so the amount that would have been the cost of obtaining the same commodity in the market just referred to represents the institutional opportunity cost or the cost of the next best institutional arrangement with respect to the industrial firm. Consequently, the aforementioned amount represents the opportunity cost of subsuming an economic activity within the capitalist circuit. Hence, it is a measure in terms of transaction costs of both the benefit of collective production and the profit which can be obtained from it.

In this respect, it may be already useful to point out that there is no contradiction between the Marxian explanation of the firm in terms of for-profit production and the new-institutional explanation in terms of savings in transaction costs: of course, the firm is indeed a for-profit institution, but the aforesaid savings are profits which, to be distinguished from monopoly profits, should be called 'Marxian' or 'industrial' profits. The difference between the two kinds of profit is that the latter does not depend on price-setting and therefore is not eliminated by competition. Instead, competition determines the conditions of its extraction and is in its turn determined by it because of the relationship of interdependence between the "sphere of production" and the "sphere of circulation". [2]

[2] Unless otherwise specified, in what follows the phrases within quotation marks refer to expressions of Marx (1859; 1867) whose popularity renders the precise bibliographical indication redundant. It is precisely the huge impact of Marx's thinking, however, that makes the reading of the original texts anything but redundant. This paper, in particular, is essentially based on the volume I of *Capital*, moreover the only one of the three to have been actually written by Marx himself, and on the equally famous preface to the Introduction to the Critique of Political Economy. See also footnote 1, Part Two.

(**ii**) an evolutionary process driven by the principle of the maximization of Marxian or industrial profit in which capital, in Marx's definition of "money in motion" in the Money→ Commodity → More Money circuit, is taken as the unit of selection in partial analogy with the role of the gene and of the principle of differential replication in the biological domain (see Introduction, Part Three).

Indeed, while the circular view of the production process may be appropriate for an agricultural economy and the notion associated with it of surplus in physical terms, the cyclical view typical of contemporary evolutionary analysis seems more appropriate to the qualitative notion of surplus-value proposed in this study, where the just-mentioned unilinear view of history typical of Marx and his contemporaries is also renounced.

This evolutionary process, developing both within and among firms, will therefore be the basis for the general and dynamic extensions of the static and partial analysis of this part of the study, which will be presented in both its second and third part.

The general point in this regard is that not only the firm but also the market and the other economic institutions of capitalism such as property rights and the state, or at least economic policy, can be usefully understood as endogenously determined by process of capital accumulation and therefore by the principle of maximisation of the type of profit just referred to.

This in turn implies that such economic institutions, in the afore-mentioned Marxian sense, are characterized by a relation of analogy. Apart from their obvious but crucial differences, indeed, they can all be interpreted as mechanisms with which to appropriate or share the benefits of cooperation, i.e. as a situation characterized by the presence of non-additively separable production functions (see the next footnote and footnote 20, below).

This is indeed the main difference with respect to the new-institutional approach, and before that the neo-classical one, where economic institutions –starting from markets and prices but arriving also in this case to the firm and property rights as well as, in some more infrequent cases, to the state or at least economic policy- are instead understood as - abstract- mechanisms with which to align individual costs and benefits.

In its turn, this difference depends on the fact that the new-institutional approach, and before that the neo-classical one, are based on the postulate of methodological individualism, which establishes that the value of economic relationships, and

therefore also of goods, is invariably determined by the sum of independent and separate individual contributions.[3]

Consequently, from a Marxian point of view, the individualistic framework and the corresponding canonical condition of individual optimization are actually applicable only to the sector of independent or small and medium sized production, that is, paradoxically if you like, only to the non-capitalistic sector participating to the Commodity → Money → Commodity circuit (but see footnote 24).

Accordingly, such a sector represents a special case of a more general context which includes, in a relation of fundamental interdependence, the capitalistic sector in a strict sense, that is, the one that, referring to non-additively separable contexts, participates in the Money → Commodity → More Money circuit.

Analogously, the Pareto-efficiency principle, whose elevation to a universal positive principle for the economic domain in the reason why both the postulate of methodological individualism and the assumption of no wealth effect have been formulated, turns out to be a special case, like conflict, of the more general principle of profit maximization just referred to.

This principle of profit maximization, indeed, coincides with the maximization of the profit of capital owners or with the maximization of the total value depending on how what, mimicking Marx's terminology, may be called the 'fundamental contradiction of capitalism from the point of view of production' -and that in more current terms can be interpreted as the problem of separation between ownership and control of the labour power- is treated and perceived (see Part Two, Section 2, Part Three, Section 3, and Ferreras, Battilana and Meda, 2020).

[3] With regard to the cumbersome notion of individualism, it is appropriate to distinguish between an ontological dimension, for which there is nothing in social reality other than the individuals who belong to it, and an epistemological dimension, for which even the explanation of social reality requires nothing more than the analysis of individual actions. Traditionally, with the notion of methodological individualism standard economic theory has not distinguished between these two dimensions, thus denying the possibility that relationships among individuals can also have an explanatory power themselves and considering them as *explananda* only (Hodgson, 2007). Of course, this is not the case with Marx, where relations between individuals, and in particular class relationships, have a central role. It is precisely the theory of surplus-value, however, that allows us to interpret Marx's approach as individualist in an ontological sense, thus considering the notion of class to be an adjective rather than a noun (Wright, 1996). The distinction between those two dimensions with respect to the notions of objectivity and subjectivity and their role in illuminating the distinction between natural and social sciences is due to Searle (2005), and will be critical in the analysis of institutional change performed in Part Three**.** Finally, the limitation of the analysis to additively separable context, where everything can be explained by individual actions rather than by their relations, represents the corollary from the point of view of practice of the postulate under discussion. See also Sections 3 and 4, Part Three.

The rest of the first part of this study is organized as follows. The next section returns to the debate on the labour theory of value in Marx's time. The argument is that, from a purely theoretical point of view, Marx's adoption of the Ricardian labour theory of value may be interpreted as an attempt to give scientific dignity to the other version of the labour theory of value existing at that time, which already worked in qualitative and inter-subjective terms, though not entirely rigorous ones.

The subsequent section tackles the way in which such issues are treated in the contemporary theory of the firm, noting that, while the notion of transaction costs can be a bridge between the two perspectives, in addition to the assumption of no wealth effects, the irreconcilable differences as far as the notions of power, profit and conflict are concerned are mainly to be attributed to the adherence of this literature to the canons of neo-classical economics and in particular to the conceptual framework of the general equilibrium model plus compatible imperfections.

Finally, Section 4 draws some conclusions which also serve to introduce the second part of this trilogy.

2. The labour theory of value in Marx's time.

As stated above, the labour theory of value was not invented by Marx; on the contrary, given the status of its advocates, it was the dominant theory in his time. The alternative, then as today, was the additive theory of value, that is, the theory which explains the price of goods as the sum of the contributions to production made by the various production factors, in their turn coincident with their price as determined by the mechanisms of supply and demand in their markets.

As said, however, the innovation introduced by new-institutional economics consists in the attempt to include in this framework even cases in which such demand and supply mechanisms are substituted by private contracting and/or by the firm; and this is indeed the reason why the assumption of no wealth effects is so critical to it. If it did not hold, so that Pareto-efficiency and total value maximization were not coincident, the causality relation between individual contributions and individual rewards, normally guaranteed by the competitive market price, could not be inverted to explain in efficiency terms how the institutional arrangements that can be seen in reality emerge from a sort of 'meta-exchange' of property rights, preventing the use in positive terms of a normative principle such as the Pareto-efficiency one, which

defines the approach of the standard economic theory -as just noted and will be made clearer below.

More concretely, if this assumption of no wealth effect did not hold, the 'islands of conscious power' represented by the firms in the metaphor used by Robinson (1930, p. 90; quoted by Coase, 1937, p. 88) could not be treated as individual agents in the 'ocean of unconscious cooperation' represented by the market, consequently losing the much sought-after compatibility with the general equilibrium model, which ensures the elimination of potentially not earned incomes and which, in fact, on treating the firm in the well-known terms of a 'technological black box', does not need such an assumption but, if anything, its opposite - as will also be clarified below.

In any case, while in Smith the labour theory of value in terms of the quantity of labour contained in commodities is literally applicable only to the first stages of development, it is only with Ricardo that such a version of the labour theory of value becomes the theory alternative to the additive one even for the development stages following the primitive one, that is to say, those in which the problem of capital compensation arises.

This was indeed Ricardo's main preoccupation, because on the one hand he identified capitalists as the only social group endowed with the ability and willingness to save and invest, so as to increase the surplus; but on the other hand he was persuaded that, because of decreasing returns in agriculture, the share of the product to be paid in rents and wages, respectively determined by the theory of the differential rent and by the long-term Malthusian population mechanism, would continuously increase at the expense of profits until their full disappearance.

From this derives his well-known position in favour of wheat imports, which decreasing its price would have hindered the just described tendency, and the first fully coherent understanding of profit as residual income rather than as a return on a scarce factor, or in other words the first conflictual theory of distribution, in opposition to the harmonic view of the additive theory, where the value to be distributed is not given but originates from the sum of the production factors' contributions, autonomously formed in the market.

In his famous model of wheat production by means of wheat and labour, indeed, after having set the rents to zero as a consequence of the theory of differential rent, the value of production is determined by the quantity of past and present labour which has

been used and, once the real wage is known, the rate of profit also turns out to be determined.

It is therefore to Ricardo that we owe the passage, complete and even formal, from a view in which the value of goods is determined in the sphere of exchange and so, in the end, by differences in preferences and/or endowments, to a view where the value of goods is instead determined in the sphere of production and measured in terms of physical, and therefore objective, quantities. And it is consequently to Ricardo that we also owe the problem of the transformation of values into prices: that is, the fact that, while in the model with a single good all the variables are expressed in physical terms so that there are no problems of valuation, if the goods are even only two but are produced with a different relative intensity of labour and capital, a variation in relative prices will also determine a variation in the value of the total product, which therefore will not be determined by the quantity of labour alone.

Accordingly, it is possible to conclude that the labour theory of value as the identification of a unit of measure of value does not require nor, as will be clarified below, it is required by the labour theory of value as an identification of the only resource able to transform itself and thus create value. This latter conception, indeed, as shown in an enlightening way by Marx's critique against the decomposition of capital into fixed and circulating capital, rather than into fixed and variable capital, could not have been further from the mind of Ricardo, who as already noted, identified technological investment, and therefore capital, as the driver of development.[4]

However, since the basic idea of this tradition of thought – that the 'true' value of commodities is the one measurable in physical terms and that in the long run the monetary measure should converge to it – exerted a sizeable and enduring influence on economic theory, first as the dominant theory and then as the alternative to the subsequent dominant theory -that is, as the heir to the additive theory or neo-classical approach- it may be appropriate to investigate the reasons for such a success, briefly

[4] As is well known, the distinction between fixed and circulating capital is similar to that between fixed and variable capital to be found in economic textbooks. Consequently, included in the latter category are all the costs that vary with the variation of the production, like for example both labour and the raw materials. On the contrary, the Marxian distinction between constant capital and variable capital includes in the latter category only the human element, that is, labour as the only factor able to transform and therefore 'vary'. In the former category instead all the other types of costs feature, including therefore those –like for example the raw materials - that Ricardo included in the circulating capital but that, being related to things, for Marx simply transfer their own value into that of the product. Quite a similar, if opposite, distinction was subsequently put forward by Becker (1962), the one between physical and human capital (see Battistini, 2019b).

expanding on what has already been anticipated in the Introduction. Especially if one takes account of the historical context in which it has emerged, such reasons are in part not more persuasive but they are certainly more understandable.

The first, in effect, was a widely shared scepticism about the possibility that the market mechanisms of demand and supply could explain the long-term trend, or the development trajectory, of the economic systems to be studied. From this derived the unanimous recourse to the notions of natural, production or long-term prices mentioned in footnote 1. As will be pointed out below, however, while Marx and Smith considered such movements of demand and supply as determined by natural prices, the aim of Ricardo was instead to formulate a theory according to which such natural prices would prove to be independent from such movements of demand and supply, and in particular independent from distributional shares.

Such scepticism was shared by Smith, Ricardo and Marx. In the case of the latter two to be added is scepticism about the possibility that such mechanisms of demand and supply could be related to the contribution of the various production factors to the total product. While for Ricardo, landlords appropriated the rent even if they did not participate in any way in the production process, and moreover without being even useful as consumers given his acceptance of the so-called 'Say law', for Marx, profit, which capital owners may yet contribute to extracting, is basically unpaid labour.

As far as Smith is concerned, as usual, the issue is more complicated because, his theoretical scheme remaining at least partially individualistic, the additive theory of distribution and the classical one are basically indistinguishable, a feature from which the possibility of conflicting interpretations about his contribution derives. Not by chance, indeed, this contribution is considered - more wrongly than rightly- the basis of both the classical and neo-classical approach. However, when Smith makes use of the labour theory of value to identify the only resource able to transform itself and in this way to create value - as in the case of the distinction between productive and unproductive labour with regard to the process of capital accumulation, or the distinction between commanded and embodied labour, which in many respects anticipates the Marxian one between 'labour' and 'labour power'-, the prevalence of the classical approach seems quite unquestionable (see footnotes 14 and 25, as well as the next part).

The second, and related, reason was the philosophy of science dominant at the time, as it was emerging from the nascent natural sciences. To be attributed to that philosophy is a notion of objectivity couched in terms of observer independence, together with its superiority with respect to subjective notions related to non-directly measurable elements or, to use Marx's words, "in the air" as utility. Today such a notion of objectivity is no longer considered appropriate for the natural sciences themselves, but it should not be forgotten that for Marx socialism should have been "scientific". That the social sciences should have the "same precision of the natural sciences" was not just a reason for pride but also for sustained criticism of those other approaches to the labour theory of value – curiously gone down in the history of economic thought as those of 'Utopian socialists'[5] – which already at that time worked on an inter-subjective and qualitative labour theory of value, and to which Marx was persuaded to give scientific dignity precisely for this reason.

The third and probably the most important reason, also understandable but no more acceptable than the former, was the idea that the physical measurement of wealth would coincide with its monetary measurement, or in other words that to accumulate an ever-increasing quantity of commodities would necessarily amount to accumulating ever-increasing wealth. While this is obviously true for an agricultural economy, a context in which it is important to remember once again that the circular view of the production process was first conceived by Quesnay, or in the first phases of industrial development, today it is no longer true because of the increasing importance of immaterial goods and consequently because of the divide between the quantitative and qualitative features of commodities. Of course, denying that producing more tons of, for instance, steel is necessarily linked to the accumulation of more wealth does not mean denying its possibility. The point is to deny that the physical variables have an explanatory character and, what is more, a unique one.[6]

[5] After all, it was Marx himself who, in the more political works such as the Communist Party Manifesto, spoke of the "new man" and the "abolition of competition". See also Pagano, 2007.

[6] Without going into details for now, this not always clear distinction between physical variables and monetary variables seems to be relevant to standard economic theory, as well. For example, in the case of increasing returns in micro-economics and the quantitative theory of money in macro-economics. Furthermore, since prices do not play a significant role in Keynes' General Theory, which – incidentally- may be the reason why he was not particularly concerned with inflation, the issue may be in fact relevant to the whole of the latter.

Finally, from Marx's point of view, nor can it be forgotten that the adaptation, or even the simple application, of the Ricardian conceptual framework was perfectly in line with the general purpose of his analysis, as discussed in the next sub-section.

Moreover, since Marx was actually a self-taught economist, it cannot be ruled out that this situation gave him substantial intellectual satisfaction.

2.1. Critique and continuity in Marx's version

Obviously what Marx was unable to accept of Ricardo's labour theory of value was its failure to explain profit, because - according to Marx- Ricardo saw it as plainly 'natural' and not worthy of further explanation. In addition, Marx criticized Ricardo's analysis because of its abstract nature, precisely in the sense of disregarding the actual features of the capitalist mode of production.

From a general point of view, indeed, Marx's message was that the difference between the capitalist production system and previous ones was less a difference of nature than a difference of degree. As said above, whilst the freedom to choose the capitalist for whom to work could be seen as a marked improvement compared with the physical coercion typical of surplus production and distribution in the feudal age, not to mention slavery, Marx's point was that this was a sort of 'cosmetic' change, that is, an appearance only due to attention being exclusively paid to market mechanisms and the consequent failure to analyse the capital production process as a whole. When realistically considered, such freedom actually consisted in a choice between alternative options which competition among capitalists as well as among workers made them equal to each other - and at the purely subsistence level. Consequently, to the extent that it was a matter of choice, it was one compulsory for survival and which did not change the oppressive nature of the relationship between dominants and dominated.

In one of his best known passages, indeed, Marx (1867, p. 123, emphasis added) summarizes the lack of consideration of the production process in the standard economic theory of his times and the consequent exclusive focus on market mechanisms as follows: "This sphere we are deserting, within whose boundaries the sale and purchase of labour-power goes on, is in fact a very Eden of the innate rights of man. There alone rule Freedom, Equality, Property and Bentham. Freedom because both buyer and seller of a commodity, say of labour-power, are constrained only by free-will. They contract as free-agents, and the agreement they come to, is but the form

in which they give legal expression to their common will. Equality, because each enters into relation with the other, as with a simple owner of a commodity. *And they exchange equivalent for equivalent*. Property, because each disposes only of what is his own. And Bentham, because each looks only to himself. The only force that brings them together and put them in relation to each other is selfishness, the gain and private interests of each. Each look to himself only, and no one troubles about the rest, and just because they do so, in accordance with the pre-established harmony of things, or under the auspices of an all-shrewd providence, work together to their mutual advantage, for the common weal and in the interest of all."

As in the case of power for new-institutional economics, albeit in reverse, the traditional justification of markets 'laws' in terms of free will and meritocracy provided by the additive school would be the result of an analysis which limits itself to what superficially appears at first glance. It therefore fails to notice that "despotism" in the division of labour within the firm and "anarchy" in the division of labour among firms are "conditions one of the other", and it can only provide interpretations of reality which tend to be a mystification, or, so to speak, 'upside down'.

According to Marx the distinguishing feature of capitalism – and it is in itself significant having to recall it here – is that for the very first time labour is treated as a commodity, which in turn requires assuming the existence of the labour market and therefore the class distinction between those who, because they do not possess their own means of production to produce and sell their commodities, are forced to sell their labour power and those who, despite having such means of production, actually prefer to buy labour power from the latter on the market to subsequently sell the joint product.

Moreover, because the price of labour power was determined in the same way as that of any other commodity, the sale of labour power from workers to capitalists was famously characterised as an "exchange of equivalents", so that this was not the place to look with regard to profit and exploitation. On the contrary, from this it follows that market relations are characterised not only by free will and meritocracy, as advocated by the economists of the additive school, whom Marx in his sometimes provocative terminology would label "vulgar", but also by equality. They were therefore perfectly aligned with the principles of bourgeois justice with respect to private property.[7]

[7] "Now in my presentation profit on capital is in fact not only "a deduction or 'theft' from the labourer". On the contrary, I represent the capitalist as the necessary functionary of capitalist production, and

The problem, however, is that what is exchanged on the labour market is not the product of labour, as perhaps was the case with handcraft production, but rather what in contemporary language would be termed 'rights to the use of labour power'. In other words, exactly as with the ordinary purchase of other commodities, the exchange takes place because the buyer identifies a use value in the commodity that he or she is purchasing. However, in the case of labour, and only in its case, such use-value is 'consumed' within the production process that takes place inside the industrial firm and consists of the contribution made by the worker to the production of other commodities which are in turn sold and purchased due to their use-value, i.e. their utility: "The change of value that occurs in the case of money intended to be converted into capital, cannot take place in the money itself, since in its function of means of purchase and of payment, it does no more than realize the price of the commodity it buys or pays for; […]. Just as little can it originate in the second act of circulation, the re-sale of the commodity, which does no more than transform the article from its bodily form back again into its money form. The change must, therefore, take place in the commodity bought by the first act, M-C, but not in its value, for equivalents are exchanged, and the commodity is paid for at its full value. We are, therefore, forced to the conclusion that the change occurs in the use-value, as such, of the commodity, i.e., in its consumption. In order to be able to extract value from a commodity, our friend, Moneybags, must be so lucky to find, within the sphere of circulation, in the market, a commodity, whose use-value possesses the peculiar property of being a source of value, whose actual consumption, therefore, is itself an embodiment of labour, and, consequently, a creation of value. The possessor of money does find on the market such a special commodity in the capacity for labour or labour-power." (Marx, 1967, p. 119).

In the case of capitalism, therefore, the combination of technology and property rights defining the various modes of production brought about the inception and necessarily joint operation of two new, and as history would later show, at least to date enduring, economic institutions: the industrial firm *and* the market of subordinate labour or, in a condensed expression, 'wage labour'.

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indicate at length that he does not only 'deduct' or 'rob' but enforces the production of surplus-value and thus first helps to create what is deducted. I further indicate in detail that even if in commodity exchange only *equivalents* are exchanged, the capitalist –as soon as he has paid the labourer the real value of his labour-power- quite rightfully, i.e. by the rights corresponding to his mode of production, obtains surplus-value" (Marx, 1879, emphasis in the text, quoted in Rowthorn, 1974, p. 85).

Consequently, it was from the foregoing observation that the labour market and the industrial firm could not exist independently from each other – an observation which does not always receive the weight it deserves given that it entails a connection between the theory of the firm and the theory of distribution - that Marx derived his theory of surplus-value. He thus filled the gaps that he identified in Ricardo's approach as well as the still more obvious ones in the additive theory and, as will be seen below, in the general equilibrium model itself.

Not by chance Marx considered this distinction between use-value (labour) and exchange-value (labour power) to be his main contribution not only with respect to the additive theory but also with respect to the economists he respected the most, such as Smith and Ricardo or the above-mentioned 'Utopian Socialists'. Before him, labour power was classified as just 'labour', thus giving the impression that the exchange of labour power could pay for the actual work provided. Instead, Marx thought that going beyond the appearance of the exchange entailed acknowledging the fact that, with slavery for example, it seems that labour is not paid at all, but this is not the case; similarly, with feudal *corvès*, the distinction between the labour given on behalf of the master and that carried out by the farmer on his own could not be clearer, and finally with capitalism it seems that labour is all paid for but it is actually not: "What economists […] call value of labour, is in fact the value of labour-power, as it exists in the personality of the labourer, which is as different from its function, labour, as a machine is from the work it performs. Occupied with the difference between the market price of labour and its so-called value, with the relation of this value to the value of profit, and to the values of the commodities produced by means of labour, they never discovered that the course of analysis had led not only from the market prices of labour to its presumed value, but had led to the resolution of this value of labour itself to the value of labour-power. Classical economy never arrived at a consciousness of the results of its own analysis; it accepted uncritically the categories 'value of labour', 'natural price of labour', etc., as final and adequate expressions for the value-relations under consideration, and was thus led (…) into inextricable confusion and contradiction, while it offered to the vulgar economists a secure basis of operations for their shallowness, which on principle worships appearances only." (Marx, 1867, p. 380).

Whence derived the original explanation of profit in a Marxian or industrial sense as well as, due to the subsequent inability to do the same by Marxist economic

theory, which entirely forsook the labour theory of value, a sequence of shaky interpretations with regard to each and every one of the concepts that are usually associated with Marxism (see the footnote 21).

Notwithstanding Marx's unflattering opinion of Ricardo's theory, which he rightly respected to a lesser extent than Smith's, however, the criticism by the German thinker did not lead to a complete rejection of the approach of the English economist. Rather, it developed into its implementation and therefore, in this regard, some sort of completion.

Paradoxically, in fact, Marx draws the key distinction between the two approaches, i.e. the endogenous determination of wages as the price of labour rather than being generated by exogenous factors like the long-term demographic trends of Malthusian origin, by maintaining the circular view of the production process *à la* Quesnay and applying the Ricardian notion of production price to labour power.

Indeed, Marx believed that, besides being the only "alive" resource and as such able to transform itself and create value, labour was also the only resource to actually possess a specific use-value not "in the air", as already noted. In other words, whilst for any other commodity the use-value stems from the qualitative relationship between the owner of the commodity and the commodity itself and its commensurability originates from the exchange-value, in the case of labour such use-value could be measured in physical and objective terms, hence scientifically, by the duration of the workday.

Once the exchange-value of labour power has been defined as the number of hours socially necessary to reproduce the labour power, i.e. the number of hours socially necessary to produce the basic goods required for the workers' subsistence, the surplus-value is consequently determined in terms of surplus-labour, i.e., the difference between the whole workday and how many hours are socially necessary to produce the basic goods required for the workers' subsistence (4 hours for wage and 4 hours of surplus-labour according to the example used by Marx in Capital).

Thus, because competition does not consist in reducing artificially high prices but rather in reducing the cost of production, the two 'tendencies' driving the evolution of the capitalist system can be identified: the progressive impoverishment of workers on the one hand; and the tendency of profit to fall on the other.

Production costs are reduced by technological progress, and this implies both the decrease of the number of hours necessary for the production of the means of

subsistence and the reduction of variable capital to the benefit of constant capital. The first consequence is a decrease in the exchange-value of labour power; and the second one is the exhaustion of profit opportunities themselves. Because the growth of constant capital does not create value but instead appropriates the existing one, the market size is also fixed, or even declining. Consequently, competition among capitalists in the phase of profit realization consists in an attempt to increase their own market share to the detriment of competitors. This gives rise to a tendency to concentration and therefore to the possibility, which will be discussed in more detail in Part Two, that the decrease in Marxian or industrial profits is more than offset by an increase in monopoly profits.

Whence derives, also for Marx, the transformation problem which, in his conceptual framework, stems from the fact that, because competition implies an equal rate of profit among capital-intensive and labour-intensive industries, the volume of profits will be larger for capital intensive sectors, gainsaying the notion that profits originate purely from the amount of labour.

It should be noted, however, that this issue is less significant than in the Ricardian theory: whilst, in Marx, it emerges in relation to demonstrating his thesis that value originates from labour and therefore, given that the latter is measured through working hours, the logical step questioned is that of extending the measurement of labour to measuring value[8], in Ricardo it pertains to the thesis itself, i.e. whether it would be viable or indeed preferable to study the evolution of distributional shares in physical terms and independently from monetary variables. Besides being shown in a simple but equally indicative manner by the distinction between the notions of surplus and surplus-value, it is particularly evident from the issue of the invariable measure of value. While Ricardo, having encountered the problem, fought a lifelong struggle to identify a commodity produced under average conditions of capital- and labour-intensity, suitable to replace working hours as the unit of measure of value, Marx resolved the issue by contending that the theory was valid at aggregate level, with competition playing the key role of redistributing the

[8] "A use value, or useful article, therefore, has value only because human labour in the abstract has been embodied or materialized in it. How, then, is the magnitude of this value to be measured? Plainly, by the quantity of the value-creating substance, the labour, contained in the article. The quantity of labour, however, is measured by its duration, and labour time in its turn find its standard in weeks, days, and hours." (Marx, 1867, p. 29). Naturally, even in this case, the fact that the present approach is not based on the notion of surplus-labour does not mean that its possible existence is denied. It a well-known phenomenon, for instance, that working hours are typically longer in America or Asia than, say, Europe.

overall profit according to the relevant share of constant capital, as, even then, was the case of shareholders of joint stock companies[9].

Furthermore, for Marx this matter regarding the invariable measure of value was essentially an illusion, that is, a totally un-Marxian problem because in his opinion the issue was not investigating a non-existent world without markets and even less building the analysis on variables which do not exist in reality, but rather identifying the key determinants of market prices. In other words, whilst Ricardo focused on his quest for a theory of distribution independent from the theory of value, completely contrary to the additive theory where the theory of distribution coincides with the theory of value, also from this point of view Marx's stance can be seen as intermediate. It is so in the sense that his theory of distribution and his theory of value are *interdependent,* as shown by the just-mentioned reasoning on the effect of competition on the prices of commodities and labour power as a consequence of technological change.

Obviously, this last observation does not dispute that Marx actually embraced from the beginning to the end of *Capital* the notion of (re)production cost in terms of the amount of socially necessary labour. The concern here is to give credibility to the hypothesis (as anticipated in the Introduction) that from a strictly theoretical point of view the main purpose of his adherence to the Ricardian analytic formulation was to give scientific dignity to the alternative version of the labour theory of value which, even then, sought to be qualitative and inter-subjective. This version of the labour theory of value was already present in the debate and, as will be seen in the next section, also in Marx's own work.

2..2. The determinants of surplus-value

Therefore, if we agree with Marx in person that the theory of surplus-value is his very own contribution to the labour theory of value and to the critique of political economy, it becomes necessary to analyse what, in his view, are its determinants.

Trapped, so to speak, within the Ricardian quantitative framework, the classification proposed by Marx distinguished between (i) absolute surplus-value, non-dependent on any particular mode of production and originating from the increase in working hours, and (ii) relative surplus-value, which is instead typical of the capitalist

[9] Besides, such a difficulty could have been solved by eliminating the assumption of a constant rate of surplus-labour among sectors. But Marx saw it as a consequence of the competition among workers.

mode of production and includes the increase in labour intensity due to technological change, cooperation or group production and the division of labour.

It is therefore quite clear that, with regard to the aim of this study, a more appropriate distinction would be between determinants of the increase of surplus-value and determinants of surplus-value in the first place. In this case, the increase in working hours and the increase in labour intensity, already discussed above, belong to the former category, whilst cooperation and division of labour (which are now considered) belong to the latter.

With regard to the division of labour, Marx takes a step forward from Smith. By this is meant that the latter, despite the famous example of the pin factory, conceived the division of labour mainly as the specialisation of individual activities later coordinated by the market, a mechanism that - incidentally- before Smith lacked explanation. It was with Marx that the concept was applied to specialisation in the production of parts of a product which could not be sold separately on the market. There was therefore a shift from the view according to which specialisation consists only in an ever increasing partitioning of tasks so that they can be carried out separately to a more sophisticated one where the problem also involves combining and coordinating them: "Now it is quite possible to imagine, with Adam Smith, that the difference between the above division of labor, and the division of labor in manufacture is merely subjective, and exists merely for the observer (…). But what is it that forms the bond between the independent labours of the cattle-breeder, the tanner and the shoe-maker? It is that their respective products are commodities. What, on the other hand, characterises division of labour in manufactures? The fact that the detail labourer produces no commodities. It is only the common product of all the detail labourers that becomes a commodity." (Marx, 1867, p.246).

In its turn, cooperation is what makes this kind of specialisation beneficial, given that it consists in the fact that the whole is greater than the sum of its parts, or - as already said in the Introduction- in the fact that the production function is non-additively separable: "Just as the offensive power of a squadron of cavalry, or defensive power of infantry is essentially different from the sum of the offensive or defensive powers of the individual cavalry or infantry soldiers taken separately, so the sum total of the mechanical forces exerted by isolated workmen differs from the social force that is developed when many hands take part simultaneously in one and the same undivided operation, (…). Not only do we have here an increase in the productive

power of the individual, by means of cooperation, *but the creation of a new power, namely, the collective power of the masses* (Marx, 1867, p. 229, emphasis added).

To be honest, as said above, this role of cooperation as the explanation for the existence of the industrial firm, and of the associated type of division of labour as a potential determinant of exploitation, was earlier highlighted by what has often been termed the 'Utopian Socialist school', and in particular by Hodgskin[10].

It is equally true, however, that whilst a better description could be that of 'area' to Marx's left since from that area, already in those times, came the admonition that if the problem was the excessive power of capitalists, then to concentrate it completely in the hands of politicians would have worsened rather than ameliorated the problem, it is just as true that Marx's dissatisfaction with the degree of scientific rigour of such studies was anything but unwarranted.

Paradoxically, however, perhaps not quite deliberately, at least judging in current terms Marx had added that lacking scientific dignity already in Capital, and he had done so thanks to the analytical device represented by the distinction between use-value and exchange-value of labour power.

Firstly, he had already identified the nature of the firm in its hierarchical organization -i.e. (i) the link between group production and the need for coordination,[11] and (ii) the potential superiority of the ex-ante or hierarchical coordination typical of firms compared to the ex-post or spontaneous coordination typical of the market[12].

Secondly, there is little doubt that Marx should be attributed with the first explanation of the existence of the industrial firm as the combination of the two notions

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[10] '[With cooperation] [t]here is no longer anything which we can call the natural reward of individual labour. Each labourer produces only some part of a whole, and each part having no value or utility in itself, there is nothing on which the labourer can seize, and say: It is my product; this I will keep to myself' (Hodgskin, 1825, p. 85; quoted in Marx, 1867, p.355). Immediately afterwards, Hodsgkin also points out that: '*If all kinds of labour were perfectly free*, (…), there would no difficulty on this point, and the wages of individual labour would be justly settled by what Dr Smith calls the "haggling of the market." (ibidem, pp. 85, 86, emphasis added). See also Battistini (2007, 2013).

[11] "All combined labour on a large scale requires, more or less, a directing authority, in order to secure the harmonious working of individual activities, and to perform the general functions that have their origin in the action of the combined organism, as distinguished from the action of its separate organs. (…) The work of directing, superintending, and adjusting, becomes one of the functions of capital, from the moment that the labour under the control of capital, become co-operative." (Marx, 1867, p. 231).

[12] "The *a priori* system on which the division of labor, within the workshop, is regularly carried out, becomes in the division of labor within the society, an *a posteriori*, nature-imposed necessity, controlling the lawless caprice of the producers, and perceptible in the barometric fluctuations of market prices. Division of labour within the workshop implies the undisputed authority of the capitalist over men, that are but parts of a mechanisms that belongs to him. The division of labour within society brings into contact independent commodity-producers, who acknowledge no other authority but that of competition. (Marx, 1867, p. 246-7; see also Pagano (1994) and section 3, part two).

of cooperation and division of labour just referred to, or what could be termed the *raison d'être* of the firm: "The capitalistic form [of cooperation], on the contrary, presuppose from first to last, the free-wage labourer, who sell his labour power to capital. Historically, however, this form is developed in opposition to peasant agriculture and to the carrying on of independent handicrafts whether in guilds or not. From the standpoint of these, capitalistic cooperation does not manifest itself as a particular historical form of cooperation, but cooperation itself appears to be a historical form peculiar to, and specifically distinguishing, the capitalistic process of production (Marx, 1867, p. 233).

Thirdly, and most importantly, precisely because of the theoretical innovation represented by the theory of surplus-value, Marx was already in the ideal position to grasp what could be its most obvious formulation in a context, like the one presented below, which avoids use of the notion of surplus-labour: "The labourer is the owner of his labour-power until he has done bargaining for its sale with the capitalist; and he can sell no more than what he has i.e. his individual, isolated labour-power. This state of things is in no way altered by the fact that the capitalist, instead of buying the labour-power of one man, buys that of 100, and enters into separate contracts with 100 unconnected men instead of with one. He pays them the value of 100 independent labour-powers, *but he does not pay for the combined labour-power of the hundred*." (Marx, 1867, p. 232, emphasis added).

To the extent that, as done in the next section, it is possible to advance the argument that Marx anticipated many of the themes later resumed by the new-institutional approach, it seems appropriate to discuss how these themes are actually taken up by this stream of literature. This entails verifying the hypothesis that the general notion of transaction cost may play the same role – of measurement rather than explanation – performed by the Ricardian notion of production cost.

Consequently, this general notion of transaction cost, already cited in the Introduction, is distinguished between (i) standard transaction costs, i.e. those further distinguished between incentive and coordination transaction costs normally analysed by the new-institutional literature, and (ii) transaction costs resulting from the existence of wealth effects, i.e. those originating from the fact that included in the costs of using the prices mechanism are obviously those resulting from the payment of the price itself, particularly when it is possible not to pay it or to pay it to a limited extent. This latter category, which as will be seen can also be interpreted in terms of

contractual incompleteness, proves useful in explaining why the natures of both the firm and profit have not significantly changed in the recent re-emergence of the 'piece rate system', especially within the contemporary 'flexible' firms where technological progress seems to have removed the transaction costs just now defined as standard (see Battistini, 2019a, section 4).

Secondly, and more importantly, on closely following Marx's assertion in the above quotation, the exchange-value of labour power is identified with what could be obtained through independent participation in the production process with no specific means of production. In its turn, this identification is an application of the general rule to determine the exchange value of goods anticipated in the Introductions, i.e. the amount necessary to obtain the same commodity in the market of independent or small and medium-sized producers, in this case equipped with specific means of production but not belonging to the capitalist Money → Commodity → More Money circuit.[13]

As already pointed out, this feature – the fact that production is not driven by the principle of capital accumulation– characterises such a market as the obvious alternative to capitalist production and, in its turn, identifies this exchange-value as its opportunity cost in institutional terms.[14]

Indeed, three features make it particularly fit to play this role: (i) transaction costs, especially if understood *à la* Matthews (1986) as the organizational costs of the relationships between individuals as opposed to the technological costs of the relationships with nature, are absent both in the standard version and in the one deriving from wealth effects; (ii) profits, both Marxian or industrial as well as monopolistic, under competitive conditions are zero; (iii) the direction of causality between contributions and rewards, and vice versa, as well as the neo-classical and the classical theories of distribution, are indistinguishable since the theory of value and the

[13] Small and medium-sized enterprises, whose relative predominance in less developed countries can be taken as an indirect confirmation of the validity of the observation by Marx and his contemporaries, should therefore be included in this category. Moreover, in the still less developed counties, the problem is not that there are too few markets but, on the contrary, that there are too many.

[14] In this respect, it may be however interesting to note that such a re-interpretation of the exchange value can at least as equally legitimately be linked to the analogous Smithian definition: "The real price of every thing, what really costs to the man who wants to acquire it, is the toil and trouble of acquiring it. What every thing is really worth to the man who has acquired it, and who wants to dispose of it or exchange for something else, is the toil and trouble which it can save for himself, and which it can impose upon other people." (Smith, 19776, p.47). By contrast, in the case of the famous example of water and diamonds as an illustration of the difference between use value and exchange value of the commodities, Smith was referring to market prices and, accordingly, the expression employed was "value in exchange".

theory of distribution in this case coincide in a trivial way, a situation that, as already noted, is able to dissipate much of the ambivalence that surrounds Smith's contribution.

But now, since in the qualitative interpretation suggested in this study, the passage concerning surplus-labour is omitted, the use-value of labour power turns out to be equal to the exchange-value of the product. Hence also in this case there is a profit originating from the difference between use-value and exchange-value of the labour power, although it is measured in terms of the two just-mentioned categories of transaction cost.

Naturally, as anticipated in the Introduction, if transaction costs represent a bridge between these two perspectives, the remaining differences in relation to the notions of power, profit and conflict are attributable not only to the presence or the absence of the assumption of wealth effects, but mainly to the fact that new-institutional economics is not a development of Marx's theory but rather of the neo-classical one: that is, the theory that, in seeking to remove the Marxian theoretical framework, and especially to cancel any potential connection between labour and value, has actually hampered the task of re-inserting such Marxian issues in a fully coherent way.

3. Appearances do mislead: Power, profit and conflict in the contemporary theory of the firm.

It therefore seems perfectly reasonable to presume that it is one of the many side effects stemming from the enormous practical impact of Marx's thinking that it took almost a century for the themes discussed at the end of the previous section to become the focus of attention of today's standard economic theory. Moreover, Marx himself is never overtly mentioned in the various key articles, which seem to be exclusively focused on the explicit objective of countering the theory that meanwhile emerged as the most convincing: namely the one explaining the existence of the firm in purely technological terms, linking vertical integration to increasing returns and therefore to the -inefficient- pursuit of monopoly profits.

Indeed, during the period immediately following the publication of *Capital*, the additive school underwent what would later be termed the 'marginalist or neo-classical revolution' which historians of economic thought, not just those of Marxist inspiration, tend to interpret as an attempt to neutralise the work of Marx himself. Support for this

interpretation is provided by the just-mentioned observation that this process culminates with the proof of the – theoretical- existence of general equilibrium points (Harrow and Hahn, 1971).

This result is achieved by eliminating any reference to the interaction between the capitalist and non-capitalist sectors, so that the economic system ends up being represented as composed only of a potentially infinite number of markets.

Despite a remarkable increase in mathematical complexity, the basic idea of the general equilibrium model, moreover, remains the rather simple one of additive theory, namely that to the extent that the value of economic relations is understood as invariably determined by the sum of separate and independent individual contributions, it is quite reasonable that the optimal situation from a social standpoint requires that each participant, in his or her turn, makes his or her individual decisions in an optimal way.

The condition that ensures that this is the case requires only that no one has the power to set prices. On the one hand, if this is the case, individual decisions are taken in conditions of strategic independence, that is to say, without the decisions of the participants influencing each other. On the other hand, if no one has the power to set prices, the latter can play their role of aligning individual costs and benefits by eliminating any possible form of profit. Indeed, if a production factor could obtain greater benefits than costs for a particular use, imitation would reduce its scarcity and consequently its price would be reduced until it reached the equilibrium condition just referred to.

For the very same reason, even power and conflict disappear entirely from the scene given that no individual has influence on anyone else and everyone receives exactly his or her own contribution to production.

Indeed, the basic difference with respect to the additive theory is that this conceptual framework is ‘armoured’ through the use of logical-mathematical models based on the axiomatization method: that is to say, the formulation of postulates and assumptions justified on the basis of their alleged self-evidence. Such justification in turn implies that the view of reality established by such axioms is also the one-and-true one, and consequently that their critical discussion or analysis is basically useless by definition (see Part Three, Section 3).

The most important of these postulates, perhaps for this reason rarely formulated explicitly, is that of methodological individualism already mentioned in the

Introduction. This is the idea that relationships between individuals are only '*explananda*' with respect to individual actions, which in turn are only '*explanans*' (Hodgson, 2007).

As also repeatedly mentioned, perhaps even more important is this postulate's corollary from the point of view of practice, namely, the restriction of the economic domain to contexts characterized by additive-separability. These contexts, unlike those not additively-separable already analysed by Marx and his contemporaries, are indeed characterized by the fact that 'the whole', being strictly equal to the sum of the parts, is entirely explained by individual actions, so that there is nothing left that may be due instead to relationships between individuals.

Consequently, from the formulation of this postulate it follows the limitation of the economic domain to common interest situations, for which the principle of unanimity – and therefore also the Pareto principle- applies. Neo-classical economists associate with this principle a notion of objectivity, also not particularly sophisticated, with which they believe they can solve the problem of observer-dependence, which presents itself in a more critical way for the social sciences than it does for the natural sciences, at least in part. From this notion of objectivity therefore also follows the idea that only in such common interest contexts can analyses and theories be considered 'scientific' and 'without value judgements'.

The second key postulate is then the identification of scarcity as the only source of value, which market prices are meant to measure, and therefore its elevation to the defining principle of what is economic and what is not.

Indeed, it was approximately during this period that economic theory even changed denomination – from *'Political Economy'* to *'Economics'* – and the foundations were laid for Robbins' definition (1932) of *'Economics'* as a science studying the optimal allocation of scarce resources having alternative uses but given ends, thus clearly leaving aside the classic issue of capital accumulation.

From this postulate and from the application of the marginal analysis to goods and production factors considered individually, a consequence of the previous axiom and its corollary, there ensue the 'laws' of decreasing marginal utility and productivity. Whence derive both the already-mentioned coincidence between individual contributions and rewards, and the analogous condition of equality between the returns of a production factor in its various uses. If the value of a good or a production factor depends on its scarcity, indeed, this value decreases as its use increases, that is, as its

abundance grows. From this the typical equilibrium, intermediate and balanced, between supply and demand populating economics textbooks also follows.

The third postulate, finally, is the passage from competition as a process to competition as an assumption: that is, the just-discussed hypothesis of price-taking, which in turn requires that the condition of free-entry applies. This assumption then closes the logical-deductive circle that began with the postulate of methodological individualism with the well-known ‘zero profit condition’, commonly used to ‘close’ the models.

To sum up, what Marx –as pointed out in the previous Section- almost jokingly called the “Eden of Man’s innate rights” becomes something more serious and less tolerant since ‘joking about it’ means leaving the field of study of economics and therefore also in good substance exiting from the category of economists.[15]

The other obvious consequence of the removal of any link between labour and value is that the human element is effectively eliminated from the analysis. This in turn gives rise to a mechanical vision of the functioning of the economic system, which still persists in contemporary analyses - moreover, not only in the standard ones- and which in Marx’s terminology is equivalent to “the treatment of people as things and the treatment of things as people” (see the next footnote).

As Bowles and Gintis also note (1998, p. 84, emphasis in the text) from another point of view: "Adam Smith exemplified the liberal tradition in his lively concern for the selfish pursuit of economic goals and its ramifications in economic theory. Leon Walras, by contrast, had defined the pure science to which he aspired as the study of relationships among *things*, not *people* and sought, with notable success, to eliminate human relationships from his purview. His device for accomplishing this, the *Walras’ fiction* as we call it, was the notion that economic interactions among economic agents may be represented as if they were relationships among economic outputs. Walras (1873 [1954, p. 225) wrote: “Assuming equilibrium, we may even go so far as to abstract from entrepreneurs and simply consider the productive services as being, in a

[15] Indeed, a peculiar feature of this view of economic theory is that, rather than being defined with respect to the subject matter, it is defined on the basis of the methodology. Whence derives the quite paradoxical circumstance by which such a methodology can be considered more appropriate for other disciplines such as law and politics, where in effect both the normative element and the individualist perspective may be more critical.

certain sense, directly exchanged for one another…" He added (p.71): "the pure theory of economics resembles the physico-mathematical sciences in every respect.".[16]

In this essentially static framework, inspired by the theory of the exchange of goods already produced, in which value essentially derives from given differences in preferences and/or endowments, production is then treated in terms of an a-critical application of the theory of consumption.

As a result, the firm turns out to be a very poorly defined entity which, as the above-quoted sentence from Walras suggests, fades into the market *tout court*. Indeed, in such a firm **:** (i) a rather indistinct figure, such as the one resulting from the metaphor of the entrepreneur Sisyphus, buys the right to use capital and labour with the never attainable objective of maximizing profits; (ii) this activity is carried out by substituting the two aforementioned production factors until the value of their individual marginal productivity is equal to their price, an operation which is also rather mysterious in the case of a joint product, which in its turn may explain the – definitely improbable - practice of measuring such marginal productivities by their prices; (iii) since the production functions are assumed to be homogeneous of degree one, the returns prove to be constant, which is the only case fully compatible with demonstration of the existence of a general equilibrium just as the assumption of gross substitutability between production factors is the only one fully compatible with the demonstration of its uniqueness; consequently, the number of Sisyphus entrepreneurs and therefore of firms is also undetermined, varying from 1 to infinity; (iv) the ownership of the means of production plays no role, as illustrated by the famous sentence by Samuelson (1957, p. 894) that in the general economic equilibrium "it does not matter who employs whom"; (v) since homogeneous functions of degree one are also additively-separable and therefore imply the validity of Euler's theorem of the exhaustion of the product, each factor receives its own contribution to production regardless of the actual identity of the entrepreneur Sisyphus, thus 'armouring' the additive theory of value and distribution, although the margin of analysis is definitely shifted from individuals to goods and production factors.

[16] In this case, too, it is not to be excluded that Walras was aware of Marx's position on the subject and that, as subsequently happened with the 'Weberian mystique', his goal was simply to reverse it. This position can be summarized as follows: "There is a definite social relation between men, that assumes, in their eyes, the fantastic form of a relation between things. In order, therefore, to find an analogy we must have recourse to mist-enveloped regions of the religious world. In that world the productions of the human brain appear as independent being endowed with life, and entering into relation both with one another and the human race" (Marx, 1867, p. 48).

It is therefore from the 'self-evident' theoretical and practical insufficiency of such treatment of the firm, also known as 'technological black box', and perhaps even more so from the dissatisfaction with the aforementioned alternative theory of the firm - which saw the search for monopoly profits as the explanation of the existence of big firms and which was therefore incompatible with the general equilibrium model- that the neo-institutionalist approach originates.

As already mentioned more than once, this approach is based on the model of general equilibrium plus compatible imperfections: that is, localized departures from the basic model that do not call its overall structure into question. With the remarkable exception of the study by Alchian and Demsetz (1972) - which will be examined in detail below and which, at least in their intentions, integrates the theory of firm with the neo-classical theory of value and distribution- this is the reason why new-institutional theories are generally presented in terms of partial equilibrium analyses focused on explaining the emergence of such institutions in efficiency terms leaving aside distributional considerations.

However, the authentic conceptual innovation of such literature took place before the proof of the existence of the general equilibrium, and not by chance its origin has to be sought in the debate between capitalism, as a pure market system, and communism, as a pure command system. Significantly, this was the same period in which Keynes wrote his General Theory (see Section 3 and footnote 1, Part Two).

3.1. The introduction of transaction costs and re-discovery of the nature of the firm

As is very well known, the starting point of the new-institutional approach was Coase's most famous article (1937), where he introduced the already-mentioned general concept of transaction cost, meant as 'the cost of using the price mechanism'.

Coase's article put forward the so-called 'fundamental intuition' according to which firms will produce their own products on their own as long as such production is cheaper than, in both technological and organisational terms, purchasing the same commodities on the market: "The question always is, will it pay to bring an extra exchange transaction under the organizing authority? At the margin, the costs of organizing within the firm will be equal either to the costs of organizing in another firm or the costs involved in leaving the transaction to be "organized" by the price mechanism." (Coase, 1936, p. 104). From this intuition derives the core of the argument which, to simplify somewhat, would enable the so-called 'Chicago school'

to displace that of Harvard to represent one of the lines of thought on which the neo-liberal restoration would be able, in its turn, to displace state-friendly Keynesianism (the other one being the theory of rational expectations and more generally the so-called public choice school).

Since the argument, interpreted as a theory of vertical integration, is still the one put forward by Marshall in terms of margins and substitution, the explanation of the existence of the firm turns out to be couched not just in efficiency terms, but also in ones compatible with the general equilibrium model and the related assumption of decreasing returns, as well as with the notion of competition as an assumption and with the zero – monopoly – profit condition. Indeed, this is the meaning of Robertson's metaphor of the 'islands of conscious power in the ocean of unconscious cooperation', cited at the beginning of Section 2.

From the point of view of the theory of the firm as an employer-employee relationship, Coase's contribution consists instead in the re-discovery that the nature of the firm lies in the fact that the movement of resources is not driven by the price mechanism but rather by that of authority: "(…) in economic theory we find that the allocations of production between different uses is determined by the price mechanism. The price of factor A becomes higher in X than in Y. As a result, A moves from Y to X until the difference between the prices in X and Y (…) disappears. Yet in the real world, we find that there are many areas where this does apply. If a workman moves from department Y to department X, he does not go because of a change in relative prices but because he is ordered to do so. *Those who object to economic planning on the grounds that the problem is solved by price movements can be answered that there is planning in our economic system which is quite different from the individual planning mentioned above and which is akin to what is normally called economic planning* (Coase, 1936, p.98, emphasis added; see also footnote 1, second part)

Nonetheless, whilst this approach comprises power, treated for the very first time as a sort of 'commodity' exchanged on the market of property rights, what is missing is the reason for power, or what has already be called the *raison d'être* of the firm. Indeed, perhaps because Coase overly focused on highlighting the significance of the introduction of transaction costs, he explicitly ruled out that the division of labour and its complexity could also play a role, not necessarily in contrast to that of transaction costs, in the substitution of the coordination provided by the price system with that guaranteed by the hierarchical organisation (p. 96).

Indeed, at this initial stage transaction costs are essentially identified with the costs related to finding the relevant prices, later named more precisely as 'bargaining costs' by Milgrom and Roberts (1990a). Consequently, the distinctive feature of the firm is a long-term contract that ties it to its employees, in accordance with the idea that it is the saving of bargaining costs that makes it attractive compared to the immediate and impersonal relations of the market, an idea subsequently embraced and developed by Simon (1951).

This idea, however, besides being gainsaid by the facts, as will be seen shortly, has the disadvantage of not envisaging a specific role for the notion of property rights on the means of production. It thus does not depart significantly from Samuelson's well-known statement just referred to.

In this regard, a final observation concerns Coase's position in relation to another theory significant at the time: the theory advanced by Knight (1921) in which the key element in explaining the distinctive nature of the employer-employee relation was the different degree of risk tolerance. By noting that in reality there exist variable income contracts, which remain of subordinate nature, and fixed income contracts, which remain of independent nature, Coase appears to give credit to the interpretation according to which, when referring to a situation in which transaction cost are absent, he has in mind a situation where wealth effects are also absent or, to use the terminology introduced in the previous section, a situation where both standard transaction costs and those originating from such wealth effects are absent.

This in turn confirms the above-mentioned general approach of this body of literature. which, following the general equilibrium model and its two Welfare Economics Theorems, tends to maintain a strict separation between efficiency and distributional considerations, the latter being usually determined on the basis of the rather vague concept of the differences in the bargaining power of the parties.[17]

[17] For the sake of exposition, in the text the first interpretation of Coase's work has been presented, i.e. the one according to which – treating the assumption of zero transaction costs as basically innocuous – it could be viewed as a generalization of the general equilibrium model. As is well-known, such an interpretation was subsequently and forcefully rejected by Coase himself (1991), who instead stressed that his contribution should be understood as an invitation to study a world where transaction costs are both positive and substantial, thus highlighting his distance from general equilibrium theorists. From this point of view, the perspective of this paper responds to this invitation, since it studies a world where standard transaction cost as well as transaction costs deriving from wealth effects are both positive and substantial. Analogously, the policy implication of the so-called Coase's theorem (1960) –that the initial distribution of property rights matters- is also confirmed, if extended to another context. See Conclusions, Part Three).

Time passes for everyone, however - especially for social scientists- and, as already mentioned, the recent re-emergence of the 'piece rate system' and of zero-hours contracts clarifies that the subordinated nature of labour is not dependent on the terms of the contract nor on an efficient risk allocation, but rather, as noted by Marx and his contemporaries earlier, on the cooperative nature of the work carried out and, in particular, on the fact that the division of labour within the firm is such that each worker produces only part of the end product which is sold on the market.

This notion played a key role also within new-institutional economics, given that it forms the basis of the only fully developed theory of the firm with respect to the employer-employee relationship. It is therefore discussed in some detail in the next section.

3.2. The new-institutional treatment of group production.

Thirty years passed before Alchian and Demsetz (1972) shifted the focus back to the Marxian notion of cooperation, defined as involving a non-additively separable production function and called 'team production'. Rather than treating it in terms of difficulty in determining individual contributions, however, the two American economists treated it instead in terms of difficulty in metering the effort, a feature that, as will be seen below, induced them to mistake the solution for the problem and to show very clearly the standpoint from which they considered the issue.

In any case, transaction costs are consequently identified with monitoring costs and no longer given an explanatory role, but rather that of measuring the benefits originating from technology. This is also the case within the stream of literature that focuses on specific investments and which represents, together with the one based on asymmetric information, what has been called the attempt to make transaction costs operational, that is, to establish the circumstances in which they are important (Williamson, 1985).

The distinctive feature of the firm is in turn associated with the entrepreneur *qua* separator-monitor, who is the key figure to whom all others are connected in a nexus of contracts. In other words, within this framework the distinctive feature of the firm consists of the replacement of public markets with a private market where the entrepreneur, by reversing the relationship between contributions and rewards typical of public markets, separates each individual contribution, paying for it accordingly, and retains the residual as a reward for the activity carried out, which competition in (public) markets will be in charge of determining at an appropriate level and,

presumably, uniformly across the economic system: "The [neo-] classic relationships in economics that runs from marginal productivity to the distribution of income implicitly assumes the existence of an organization, be it the market or the firm, that allocates rewards to resources in accord to their productivity. The problem of economic organization, the economical means of metering productivity and rewards, is not confronted directly in the [neo-]classical analysis of production and distribution. Instead, that analysis tends to assume sufficiently economic – or zero cost –means, *as if productivity automatically created its reward. We conjecture the direction of causation is the reverse – the specific system of rewarding which is relied upon stimulates a particular productivity response*. If the economic organization meters poorly, with rewards and productivity only loosely correlated, the productivity will be smaller; but if the economic organization meters well, productivity will be greater." (Alchian and Demsetz, 1972, p. 779; emphasis added).

From this point of view, the process of assimilation of the theory of the firm into the general equilibrium model is extended to the theory of value and distribution at least in the intention if not logically. If indeed the implicit aim of the notion according to which the role of the entrepreneur consists of taking back into the reassuring and harmonious domain of addition a potentially conflictual and destabilizing concept like multiplication, this theorized inversion of the causality direction between contributions and rewards actually contradicts the coincidence of the theory of value with the theory of distribution typical of both the additive theory and the general equilibrium model. Paradoxically, it assigns Alchian and Demsetz's approach to the class of theories introduced by Ricardo where the value of the product is given and profit has a residual nature which in turn implies an inverse relationship with wages (see Section 2).

If it is not the contribution that determines the reward but vice-versa, the latter, either ex ante or ex post, cannot be determined as the sum of the former. Rather, it coincides with the value of the end product, suggesting that it should be determined in terms of the notion of exchange-value of the product set out at the end of the previous section.

Significantly, the rest of new-institutional analyses, which likewise make use of the reversal of the causal relationship from contributions to rewards but are meant as partial analyses within which distributional considerations are sacrificed to efficiency considerations, do not raise this kind of problems of logical compatibility

with the general equilibrium model because the reward at hand is determined on the basis of *ad hoc* notions such as the quasi-rent in the case of specific or human capital investments and the amount of external costs and benefits in the case of localized externalities.

Given the pervasiveness of the use of this analytical device in recent decades, however, on the one hand the question remains of what is the rule and what are the exceptions**:** in other words, whether firms and profits, as well as crisis and growth for that matter, are really 'imperfections' with respect to the general equilibrium model, or structural elements of the normal working of the capitalist system as are instead understood in this trilogy; on the other hand, it appears remarkable that in both cases such a reward is measured by the difference of (standard) transaction costs associated with the various alternative institutional arrangements.[18]

In any case, accepting for the sake of argument, that in the case of Alchian and Demsetz this return could be determined in a way different from that just indicated, the additional question of whether such a value of the end product is actually distributed so that individual rewards correspond to individual contributions and, when added up, imply its exhaustion could be technically defined as 'empirical'. But in theoretical terms it requires consideration of the three conditions ensuring the absence of wealth effects between two parties engaged in a bilateral negotiation (Milgrom and Roberts, 1991, chap. 2). The first condition is that every aspect of the relationship between the parties can be expressed in monetary terms; the second is that the payment for the activities to be carried out is not dependent on the amount of wealth owned by the parties; the third is that every party has enough wealth to pay the sums required by the other parties.

If those conditions, particularly the second and third, are no longer valid due to the class divide between those lacking the means of production for independent participation in the production process and are therefore forced to settle for selling their labour power, and those that instead, despite having those means, prefer to purchase

[18] A more subtle point in this regard is that to the extent that the reversal of the causal direction between contribution and reward contradicts the coincidence between the value creation process and its realization, just as the theory of the firm with regard to the capital/labour relationship implies a relationship with the labour market, and therefore with the theory of distribution, the theory of vertical integration, which concerns the division of labour among firms, implies a relation with the market of goods and therefore with the theory of the value. This extension, obviously, is not among the objectives of neo-institutionalist theorists but is the reason why the problem of vertical integration will be treated in greater detail in the next Part.

the labour power of the former to subsequently sell the joint product, it is not clear why the entrepreneur should not pay the minimum possible wage, i.e. the exchange value of labour power, thus keeping the maximum profit possible, i.e. its use-value, both of them as defined at the end of the previous section by the same rule applied for the exchange value of goods.

Indeed, the typical argument according to which if a worker is not paid his or her marginal product, then an entrepreneur willing to pay him or her a bit more will come forward to take advantage of the subsequent profit opportunity, does not work in this context. This is firstly because, as noted by Alchian and Demsetz themselves, it is precisely the difficulty of obtaining perfect information from outside the firm that justifies the existence of the firm itself in the first place. Secondly, should an entrepreneur exist willing to settle for lower profits to achieve efficiency gains attributable in turn to a more egalitarian sharing of earnings – as in fact is perfectly plausible – he or she would be eliminated by another entrepreneur able to achieve the same efficiency gains, hence larger profits, thanks to technological change that makes subordinate labour more homogeneous and therefore easier to monitor and more replaceable, either directly by new machines or indirectly by outsourcing parts of the production process (for example through the adoption of cameras or electronic tagging, to remain within Alchian and Demsetz's context).

This, however, will occur in any case in a dynamic context driven by the capital accumulation process like the one informally presented in Part 2 and more formally in Part 3. Moreover, besides making the 'democratic' or 'altruistic' entrepreneur irrelevant in theoretical terms, it is also a first example of how competition seen as a process does not eliminate profits which do not arise from a temporary lack of substitutes but rather from the difference between the use-value and exchange-value of labour power. On the contrary, as already pointed out by the quotation from Marx in the Introduction, competition compels its extraction by making it systemic and to some extent independent of the will of individual capitalists.

Clearly connected to this situation, which derives from the interdependence between the theory of value and the theory of distribution and consequently from the inseparability of efficiency considerations from distributional ones, is therefore the existence of a class conflict that does not require collusion among capitalists because profit maximization is in the interest of, and actually needed by, each and every one of them, consistently with the notion of class relations introduced in footnote 3.

Supporting this interpretation is the circumstance according to which, if this kind of conflict derives from what has already been called the 'fundamental contradiction of capitalism in the sphere of production', then in the case of the subsequent contradiction among capitalists in the "sphere of circulation", i.e., in the phase of profit realization, it is precisely the competition among capitalists that determines the tendency to the real crisis implied by the capital accumulation process. Likewise, it was the competition among workers that induced Marx to maintain the assumption of constant surplus-value without which he would have easily solved the problem of the transformation of values into prices (see footnote 9).

In other words, in line with the general perspective of Marx's approach, which treats the opposing theory under its most ideal conditions, i.e. those that, already at that time, were those of perfect competition and therefore did not include collusion despite its presence being already noticeable, the notion of class behaviour is restricted to situations where the just-mentioned condition applies.

The second paradox of Alchian and Demsetz's approach is that, although in this version there is, at least potentially, the reason for power, power itself does not feature. In other words, not considered is the nature of the firm seen as the institution where the prices mechanism is replaced by that of authority. Instead, given that the inversion of the relationship between contributions and rewards consists of using prices as an incentive to the movement of resources within the firm, one has the equally famous example of the grocery, according to which the entrepreneur would not have more power over the workers than that enjoyed by a consumer over his or her grocer. The former is able to give the latter the incentive to stock his or her favourite products by offering to pay for them insofar as he or she values them or, should that not suffice, switch to another grocery.[19]

[19] "It is common to see the firm characterized by the power to settle issues by fiat, by authority, or by disciplinary action superior to that available in the conventional market. This is delusion. The firm does not own its inputs. It has no power of fiat, no authority, nor disciplinary action any different in the slightest degree from ordinary market contracting between any two people. I can 'punish' you only by withholding future business or by seeing redress in the courts for any failure to honor our exchange agreement. That is exactly all that any employer can do. He can fire or sue just I can fire or sue my grocer by stopping purchases from him or sue him for delivering faulty products. (…). Telling an employee to type this letter rather than to file that document is like me telling a grocer to sell me this brand of tuna rather than that brand of bread. I have no contract to continue to purchase from the grocer and neither the employer nor the employee is bound by any contractual obligations to continue their relationship. Long term contracts between employer and employee are not the essence of the organization we call a firm." (Alchian e Demsetz, 1972, p. 194).

More appropriate in this respect seems to be the property rights approach that, while not directly addressing the issue since its focus is on vertical integration in a partial equilibrium framework, notes that the power relationship between employers and employees is probably linked to the ownership that the former have of the means of production: "When non-human assets are present, it is not difficult to understand the difference between the employer-employee situation and the independent contractor situation. In the former case, if the relationship breaks down, the employer walks away with all the nonhuman assets, whereas in the latter case each independent contractor walks away with some nonhuman assets. (…). Individual *i* is more likely to do what individual *j* wants, if *j* can exclude *i* from assets that *i* needs to be productive than if *i* can take these assets with her, (…). *In other words, control over non-human assets leads to control over human assets*" (Hart, 1995, p. 58, emphasis in the text).

Indeed, in this case too, the implicit assumption of no wealth effects lies behind this paradox. If it did not, it would be clear that logically prior to the issue of incentives, group production raises a coordination problem. In other words, logically prior to the issue of how to induce employees to carry out their tasks is the problem of determining what they should do, that is, what their tasks are.

In this regard it should be noted that group production or non-additively separable production functions, whose definition in terms of non-zero cross partial derivatives is a particular case of the more general notion of super-modular functions, or of strategic complementarities (Milgrom and Roberts, 1990b)[20], is representable in terms of game theory, not as the usual – symmetrical and additively separable-Prisoner's Dilemma where it does not pay to cooperate even if the opponent does so, but rather as a coordination game which typically has two equilibria corresponding respectively to the full deployment or complete lack of it of such strategic complementarities.

[20] The definition is as follows: a function $f: R^n \rightarrow R,$ is super-modular if for every $x, x^i \in R^n,$ $f(x) + f(x^i) \leq f(\min(x, x^i) + f(\max(x, x^i))$ (Milgrom and Roberts, 1990, p.506). It is important to point out that from this definition, as well as from those of the other ways in which 'group production' is referred to in the text and which are considered equivalent if not specified otherwise, no necessary relation with returns to scale follows. For example, the Cobb-Douglas? production function $f(x_1, x_2) = x_1^a x_2^b$ may have increasing or decreasing returns but is super-modular for all positive values of a and b. Related but distinct is instead the notion of sub-additivity: for example, the function $f(x_1, x_2) = 1 + x_1 + x_2 + \varepsilon x_1 x_2$ is sub-modular for ε<0, super-modular for ε≥0 and sub-additive for ε sufficiently close to zero. This last relationship proves to be important especially for the difference between externalities and strategic complementarities. The mathematician who developed the theory is Topkis (1978).

Indeed, from the mathematical definition just provided in the footnote it follows that: **(i)** the simultaneous increase of the variables yields better results than their separate increase, so that optimal choices are not necessarily marginal; (**ii**) the marginal return from a player's strategies is dependent on the level at which such strategies are employed by the other players, so that pay-offs actually vary according to a parameter, a feature known as 'increasing differences' which also illustrates the fact that the representation in normal and numerical form is not fully correct, while being preferable in terms of clarity of presentation; (**iii**) the demonstration of the existence of the equilibria of this type of games is not based on the fixed point theorem of Brower but on that of Tarski, where the main difference lies in the fact that such fixed points are not the intermediate ones but rather the extreme ones, so that such equilibria are typically also extreme ones with the possibility of jumps from one to another (see Vives, 2005).

And, in the presence of wealth effects, it becomes an asymmetrical coordination game like that depicted in Figure 1. This is characterised by the existence of two Pareto-efficient equilibria, one of which does not maximise the total value ((COMP, COMP), where COMP represents the strategy connected to a hierarchical organisation of labour, COOP the one connected to an egalitarian organisation of labour, and K and L denote the two players).

K \ L	COMP	COOP
COMP	3, 1	0, 0
COOP	0, 0	2,5, 2,5

Fig. 1

Consequently, explicitly taking into account wealth effects, without which it would be difficult to explain the existence of the labour market as a market where the right to use labour power is exchanged, the theory of the firm based on group production provides the reason for power as well as explaining power itself. Moreover, because profit maximisation by individual capitalists prevents the maximisation of the total value of the relationship with their employees, it is also associated with an abuse of power conceptually entirely analogous to that of the monopolist. Differently from

the common interest situations typically analysed by standard economic theory, where the problem is to pass from a Pareto-inefficient allocation to a Pareto-efficient one, in this case too problems arise from the necessity to compare two Pareto-efficient allocations, and especially to move from one to the other.

However, given that like Marxian or industrial profit also this type of power does not originate from the ability to set prices but rather from ownership of the means of production, in this case too competition does not eliminate such power but rather has the effect of making it structural and in some respects independent from the will of individual capitalists.

In this way it is therefore possible to retrieve the original concept of power for Marx, also denoted with a term as misleading as it is indicative, as 'political': indicative because, apart from the just highlighted exception represented by monopoly profit, which is not by chance basically illegal, strictly speaking this kind of comparison between Pareto-efficient allocations does not belong to the subject matter of economics as defined by the neo-classical approach; misleading because, as will be clarified in Part Three in more formal terms, the whole point of the legacy of Marx as a critical economist as opposed to his role as a political ideologue is precisely the demonstration of how capitalism *embodies* the difference between systemic and physical coercion (see part three, section 2).[21]

Accordingly, such a notion of power can be understood as characterized by the following three features: (i) it involves relationships in which, taken at system level, economic agents do not enter or exit freely, since the production relations where they find themselves are "indispensable" and "independent of their will"; (ii) the power relationship consists of the fact that the party that possesses power decides what the party that does not *has to* do, although within the limits of the contract of course; and

[21] If anything, such a characterization may be appropriate for the Ricardian-Marxist approach which, not knowing anymore where profit comes from, can only interpret conflict in the zero-sum terms of the class struggle, because without the labour theory of value class behaviour can only refer to some form of unstable, if existent, collusion (see footnote 3). Consequently, power is understood in the rather vague terms of 'balance of power', or bargaining power, which in effect might also pass from the political process, though in a way that especially today is not easy to identify with a measure of clarity. What is more, such 'balance of power', involving cultural and historical elements in addition to the political ones, also determine the wage, which is therefore taken as *exogenous* and, together with the limitation of the analysis to *circulating* capital, seems to suggest that the research project of this stream of literature consisted of removing the figure of Marx as a critical economist in order to safeguard the figure of Marx as a political ideologue. Above all, this lack of consideration for the peculiar features of a capitalist system is shown by the explanation of exploitation: precisely the same as the one between land owners and peasants in feudal times (Garegnani, 1981, pp. 81-84). See also footnote 28, Part Two.

(iii) power relationships are usually resolved depending on how sovereignty over a specific territory, in this case the workplace through ownership of the production means, is conferred.

Consequently, a further conclusion that can be drawn from the analysis carried out thus far is that, depending on the presence or otherwise of the wealth effects, power 'buys' or 'is bought', just as contractual incompleteness is a consequence or the cause of the role of ownership rights over the production means. For this reason, the ways in which the notion of economic democracy has been applied could prove outdated, deteriorated by the inertia typical of institutions or no longer suited to the current technological and organisational conditions; but its foundation – the right of workers to have a say in the organisation of labour, that is, to control the use of their labour power, and to obtain a share of the joint product – as well as its outcome – the softening of the effects of the presence of the wealth effects – are valid more than ever.[22]

It would be however grossly inaccurate to ascribe full responsibility for the logical incoherence pointed out at the beginning of this section solely to the lack of consideration of wealth effects, as will be now made clear in a moment.

3.3. The perils of methodological individualism.

Indeed, even following Alchian and Demsetz in their argument, in the absence of wealth effects the theorised reversal of the relationship between contributions and rewards can only result in some form of profit sharing as typically happens with partnerships, these latter being not by chance characterised by the exchange of property rights over end products rather than over the labour power. In these situations, which are usually associated with the need to share information (Garricano and Rossi-Hensberg, 2015) or with the circumstance whereby everybody's investments are important (Hart, 1995), profit sharing is actually interpreted as a *solution* for the problem arising from the fact that the canonical condition of individual maximization – significantly but improperly called 'first best' by standard economic theory – is not available, even if it is of course acknowledged that such solution may give rise to free-riding behaviour as a *secondary problem* to protect against.[23]

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[22] In this regard it is not superfluous to note that, as will be discussed more widely in the second part, if the original quantitative version suggested a centralized solution to the 'fundamental contradiction of capitalism, the qualitative version presented in this study suggests instead a decentralized solution, which in itself does not require any form of delegation. See Part Two, Section 2.

[23] "The general drawback to revenue-sharing agreements, the drawback to transacting within firms in this context, is that free-riding problems emerge." (Garricano and Rossi-Hensberg, 2015, p. 10).

Consequently, having clarified the logical sequence in which the problems of determining the contributions and of metering the effort are raised by the collective nature of the production, the remaining obstacle to reconnecting the Marxian treatment, discussed in the previous section, with that of Alchian and Demsetz is their full adherence to the canons of neo-classical economics outlined at the beginning of this section and, especially, to the postulate of methodological individualism.

The very idea according to which the entrepreneur, by separating individual contributions, paying them correspondingly and keeping the residual as a reward for the job done, in so doing exhausts the value of the good, is the product of the mental habit instilled by standard economic theory to conceive the value of economic relationships, and hence the value of goods as well, as invariably determined by the sum of independent and separate individual contributions.

The logical misstep, indeed, consists in defining team production in terms of non-additively separable production functions but then considering the joint product of the firm as if it were a common good, which instead pertain to *additive* contexts. Hence, since the problem of common goods is in effect how to exclude from the enjoyment of collective benefits those who do not bear the associated costs, the idea is that the entrepreneur, as separator and monitor, could restore the canonical condition of individual optimization and in this way explain the existence of the firm without contradicting the postulate of methodological individualism.

Unfortunately, however, the problem of collective action posed by non-additively separable production functions derives from the presence of a residual not attributable to the actions of any particular individual but rather to their relation, which is appropriated or shared depending on the presence or not of the class divide. In this situation, therefore, the canonical condition of individual optimization requiring the perfect alignment between individual costs and benefits is never really optimal since it is discarded from the outset with the transition from independent to group production. However, as will be discussed in more detail in Part Three, this does not mean that the behaviours associated with profit-sharing rather than exploitation cannot equally be understood in terms of individual rationality, even if they are so relatively to the non-additively separable context under discussion and in particular relatively to the fact that such context is driven by the principle of profit maximization.

Given that this way of thinking has already been encountered in Battistini (2019a, b), particularly with regard to the treatment of human capital within the theory

of endogenous growth and the differences between externalities and strategic complementarities, albeit in a less explicit way, it should only be noted here that the main problem of axiomatic approaches is that, because they are justified in terms of self-evidence, on the one hand they must present themselves as 'unique and true', but on the other hand, when they are not, they can only give rise to erroneous and logically contradictory results.

In the case of Alchian and Demsetz, indeed, the value of the product can only be indeterminate because, by definition, non-additively separable production functions contradict the postulate of methodological individualism and hence also the neo-classical theory of value and distribution. Consequently, it would have been necessary to devise a way to determine the reward alternative to that carried out in terms of the sum of individual contributions subsequently separated by the entrepreneur. But in this way Alchian and Demsetz would have put at risk even the pertinence of their contribution to standard economic theory or at least its understanding and penetration.

Whence derives not just the legitimacy but also the opportuneness of bringing the notion of group production back to the context in which it was originally conceived, re-interpreting the classical theory of value and distribution in qualitative terms. In effect, the point is that, because in this theory the value of the good is determined in the phase of circulation and *resolves itself* in the distributional shares, once the analyst wears the lenses of methodological individualism, he or she may also suffer from a sort of optical illusion whereby he or she has the impression that instead the former is determined by the latter in an additive way - an 'optical illusion' that, as will be seen, traverses the whole of standard economic theory. As mentioned in the Introduction, indeed, the auxiliary assumptions of price-taking (in the general equilibrium model) and of no wealth effects (in the framework of the general equilibrium plus compatible imperfections), then ensure the coincidence between individual contributions and individual distributional shares.[24]

[24] Alas, another logical quirk of this approach is that Alchian and Demsetz shift back the margin of analysis to individuals from production factors, making more problematic the issue of the compatibility with the general equilibrium model. However, as noted in the Introduction, this 'coherent' individualist perspective has a long tradition in economic theory – especially in the Austrian and German schools. Today, precisely because the almost ubiquitous presence of 'imperfections' makes it difficult to remain in the 'mechanical' Walrasian framework, it is explicitly advocated, for example, by Makovski and Ostroy (2001). Indeed, they define Pareto-efficiency as a situation where the economy is indifferent to the presence or to the absence of any particular *individual*. Thus, that large parts of economic theory are not directly applicable to a capitalist system as understood in this study is less paradoxical than an economist can normally think. To the contrary, since they do not need to attribute productive power to

Be that as it may, even in the absence of wealth effects it is possible to recognise the existence of a profit which is not monopoly profit and which consequently should be named ‘industrial or Marxian profit’; a conclusion which could also be reached by the just-mentioned analysis of partnerships if, extending the analysis to a more general context and renouncing compatibility with the general equilibrium model, it addressed the problem of explaining where the profit the partnerships share derives.

If in the case of the classical firm and subordinate labour such profit originates from the exploitation of labour and is measured as much by the savings in standard transaction costs as by the savings in transaction costs resulting from wealth effects, in the case of partnerships and professional labour markets, precisely because of the absence of wealth effects, such a profit originates instead from the appreciation of labour and is measured only by the savings in standard transaction costs. However, it too can be rationalised in terms of the difference between the use-value and the exchange-value of labour as a production factor – in this instance equal to the amount that could be obtained from independent participation in the production process equipped with specific means of production.

Also in this case, therefore, as illustrated in Figure 1 by the equilibrium (COOP, COOP), it is possible to anticipate that the reason why competition and imitation do not eliminate this profit is that, once again, it does not originate from a temporary absence of substitutes and the resulting possibility of price-setting but rather from the collective nature of production.

Besides, also within Smith’s theory of growth, which will be at the centre of the next Part, competition does not eliminate the benefits of the exchange originating from specialisation but is itself endogenous to the value creation process. To the extent that this deepening of the division of labour creates value compared to the previous use of the same resources, it actually creates its own demand, laying the bases for extension of the market’s size and, as a consequence, for ignition of the self-reinforcing mechanisms that Smith identified as the determinants of growth.[25]

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things like capital they could be considered more convincing than the neo-classical alternative, both theoretically and practically.

[25] In fact, Smith’s approach cannot be considered as methodologically individualistic in the sense reported in the text because of the explanatory role of relationships between individuals, in the form of the size of the market. However, like almost all evolutionary-inclined theorists who similarly recognize the explanatory role of social norms for the solution of the problem related to the assumption of common knowledge in situations of strategic interdependence, even Smith did not come to question its corollary

Of course, given the essentially ideal character of the Smithian solution, it is generally much more likely that there will occur the vicious circle which Marx, as discussed in the previous section, used to explain why the capital accumulation process shows a tendency to produce real crises, even if the qualitative interpretation proposed here makes it possible to construe it in less dramatic terms than the automatic superseding of capitalism envisaged by Marx.

In any case, the rediscovery of these two kinds of competition - the first being where profit grows as a result of the increase in the size of the market at fixed individual market shares, and the second where profit instead grows as a result of the increase of the individual market share at a given market size - both of them consistent with the conditions of perfect competition, particularly with free-entry and a homogenous product and consequently price-taking, is in itself an interesting result not least because it is a distinction present also in the biological and evolutionary literature (see Part Two, sub-section 3.1.).

To summarise, however, the key point here is the one already anticipated in the Introduction, i.e., that there is no conflict between the explanation of the existence of the firm in term of savings of transaction costs and the Marxian explanation in terms of production for profit, once the existence of a profit which is not monopoly profit has been assimilated. Indeed, as will become clearer when the asymmetric coordination game representing the division of labour within the firm is explicitly related to the symmetric coordination game representing the division of labour among firms, or in other words when the "sphere of production" is explicitly related to the "sphere of circulation", neither there is conflict between the explanation in terms of production for profit and that in terms of efficiency. This is because, as just said, in the absence of wealth effects, perhaps more realistically meant as a result of institutional change than as a starting point, maximisation of the value of the relationship within the group may in turn induce maximisation of the total value, which in this case coincides with profit and growth.

This more articulated understanding of profit, in its turn, may help to get rid of a certain discrepancy between the ordinary meaning of the term 'profit', whose

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from the point of view of practice, namely, the limitation to additive contexts. As mentioned, this is the reason why the interpretation of Smith may vary considerably. It seems however indicative that the one proposed in this work is also that of Marx and his contemporaries, none of whom dreamed of considering Smith a representative of the additive school.

existence is unquestionable and which is often seen as the obvious reason for undertaking a given production process, and the academic-professional one, according to which it is instead indicative of some imperfection in the operation of the market and competition mechanisms.[26]

Marx himself, too practical to be convinced by the metaphor of the entrepreneur Sisyphus but enough of a theorist to anticipate the fundamental Coasean insight, noted that if profits were really zero as in the pure exchange model without firm production, it would be difficult to tell who should take care of such production. In so doing, he also validated the notion of exchange-value provided at the end of the previous Section.: "Our capitalist stares in astonishment. The value of the product is exactly equal to the value of the capital advanced. The value has not expanded, no surplus-value has been created, and consequently money has not been converted into capital. (…) Our capitalist, who is at home in his vulgar economy, exclaims: "Oh! But I advanced my money for the express purpose of making more money." He won't be caught napping again. *In the future he will buy the commodities in the market, instead of manufacturing them himself.* (…) He tries persuasion: "Consider my abstinence; (…). Can the labourer, he asks, merely with his arms and legs produce commodities out of nothing? (…) Have my self not worked? (…). Though he chanted to us the whole creed of the economists, in reality, he says, he would not give a brass farthing for it. He leaves this and all such like subterfuges and juggling tricks to the professors of Political Economy, who are paid for it. He himself is a practical man; (…) in his business he knows what he is about." (Marx, 1867, 134-5, emphasis added).

Finally, if the reader is not sufficiently convinced by the logical quirks just found in Alchian and Demsetz's treatment of group production, Section 4 in Battistini (2019a) is devoted to discussion of the fact that, also from a practical point of view, the difficulty of determining the contribution is effectively separate from the difficulty of measuring the effort. As argued in some recent studies, indeed, another consequence

[26] "That the economic system in its most perfect condition should operate without profit is a paradox. If we remember the meaning of our statement, the paradox vanishes, at least in part. Of course our assertion does not mean that if it is perfectly balanced the economic system produces without results, but only that the results flow entirely to the original productive factors. As value is a symptom of our poverty, so profit is a symptom of imperfection." (Schumpeter, 1911, p. 31). The theoretical scheme of Schumpeter, the only one able to explain profit and growth in the neo-classical context, and the first and only example of general equilibrium model plus compatible imperfections that is internally coherent and of a general character, has also been discussed in more detail in Battistini (2019a, b). See, however, footnote 8, Part Two.

of technological change is the automation of the functions of coordination and control usually performed by entrepreneurs and/or their managers.

To the extent that this automation is complete, the argument is that such changes have eliminated transaction costs of both incentive and coordination, so as to determine a re-substitution of the firm with the market. That is to say, they have determined a revival of the use of the price mechanism to fulfil such tasks while condemning the separator- entrepreneur to being the first entrepreneur made obsolete by the same technological change that he himself introduced[27].

4. Conclusions.

In the first part of this study, the Marxian theory of surplus-value, that is to say, the difference between use-value and exchange-value of the labour power as determinants of profit in conditions of perfect competition and the contradictory nature of the process of accumulation of capital, has been re-dis-covered.

More specifically, the amount of direct and indirect labour embodied in commodities, namely the Ricardian notion of production cost, has been replaced by the amount that it is necessary to pay to obtain a certain commodity in the circuit of independent or small- and medium-sized production, which therefore represents its exchange-value. Consequently, by applying the same pricing rule used for other commodities to the labour power, as Marx did, the exchange-value of the labour power is in turn equal to the amount that can be earned from independent participation in the production process, without owning specific means of production. This formulation has therefore replaced the number of working hours socially necessary to produce subsistence goods.

Moreover, given that for the theoretical and practical reasons discussed in the text the step in terms of surplus-labour is skipped, in this case too a type of profit dependent on the difference between use-value and exchange-value of the labour power comes to light. As such, therefore, it should be called Marxian or industrial.

As repeatedly pointed out, the distinctive feature of this type of profit is that, because it does not depend on market power like monopoly profit, it is not eliminated

[27] In the just quoted paper, however, such analyses are also shown to be even more misleading and contradictory because of the failure to acknowledge that the *raison d'être* of the firm lies in the provision of a joint product which cannot be sold separately.

by competition, which instead determines the conditions of its extraction and is in turn determined by it due to the relationship of interdependence between the "production phase" and the "circulation phase".

To start verifying the validity of this statement, the importance of which derives from the fact that it is a counter-example to the general equilibrium model in the sense that, although there is free-entry and the product can be considered homogeneous, profits are not only positive but can even increase or decrease, in the next Part we begin the introduction of the general and dynamic extensions of the static and partial analysis presented in this Part One.

And, although he would hardly agree with the idea that the principle of the maximization of this type of profit can play the role of a general positive principle, of which the Pareto-efficiency and conflict turn out to be special cases, that this is the appropriate next step is suggested by none other than Hayek (1967, pp.70-71, quoted in Hodgsoon, 2007, emphasis added): "The overall order of actions in a group is in two respects more than the totality of the regularities observable in the actions of individuals and cannot be wholly reduced to them. It is so not only in the trivial sense in which the whole is more than the mere sum of its parts *but presupposes also that these elements are related to each other in a particular manner*. It is more also because the existence of those relations which are essential for the existence of the whole cannot be accounted for wholly by the interaction of the parts *but only by the interaction with an outside word both of the individual parts and the whole"*.

Finally, from the point of view of the new-institutional literature, on the one hand this re-interpretation could not have been conceived, and therefore could not have been explained, without the introduction of the notion of transaction costs by Coase. On the other hand, the reversal of the causality direction between contributions and rewards which defines the conceptual framework of the general equilibrium plus compatible imperfections, presents the problem of how this reward can be determined.

In the case of the majority of new-institutional approaches, which are of a partial nature and where distributional considerations are relinquished in order to concentrate on the efficiency ones, the aforementioned problem can be solved by the introduction of *ad hoc* notions such as the quasi-rent in the case of specific or human capital investment, when meant as individual investments. In the case of team production, instead, being defined in terms of non-additively separable production functions, a notion of the value of economic relationships different from the sum of

independent and separate individual contributions – such as the one, typical of the classical approach, of exchange-value- is needed.

This situation deprives the new-institutional literature of the only fully developed theory of the firm with regard to the capital/labour relationship, which is also obviously necessary for the theories of vertical integration. Unfortunately, such a situation seems bound to persist, both because it depends on the postulate of methodological individualism and because even the secondary assumption of no wealth effects is actually incompatible with the very existence of subordinate labour market, as pointed out in the Introduction and in sub-section 3.2.

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