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Appearances do mislead: Marxist economic theory and
the demise of the labour theory of value.
First part: The firm as a for-profit institution.

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Summary: by completely abandoning the labour theory of value, Marxist economic theory has actually obliterated Marx's own contribution to that theory and more generally to the critique of political economy: the theory of surplus-value, that is, the difference between use value and exchange value of labour power as the determinant of profit in perfectly competitive conditions and of the contradictory character of the capital accumulation process.

Starting from the observation that such a contribution is instead still relevant and timely, both in theoretical and practical terms, it is shown in this paper how it could be made independent from its original analytical formulation in terms of labour quantity. It is indeed that analytical formulation, which Marx largely borrowed from Ricardo, that today seems useless, again for both theoretical and practical reasons.

More specifically, the first part of this paper addresses the static part of the aforementioned theory, verifying in particular the hypothesis that the role played by the Ricardian notion of production cost, which Marx, differently from Ricardo himself, used to determine wages, could be played by the general notion of transaction costs, in the Coasean meaning of the costs of using the price system.

The second part, instead, addresses the dynamic part of the same theory, verifying in particular the hypothesis that capital, in Marx's definition as money in motion in the Money → Commodity → More Money circuit, can be taken as the unit of analysis in an evolutionary process substituting the so-called circular view of the production process, which Marx also borrowed from Ricardo but in fact goes back directly to Quesnay and, equally significantly, was conceived with reference to an agricultural economy.

The final result is an evolutionary and institutional re-interpretation of Marx's version of the labour theory of value.

Key words: transaction costs; wealth effects; use value; exchange value; differential replication; methodological individualism.

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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 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, 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 so 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. As a consequence, it is tempting to conclude that, when there are wealth effects, it is the price of labour and the price of capital 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 in the case of power for new-institutional economics, albeit in reverse, in this case the traditional justification of markets 'laws' in terms of free will and meritocracy provided by standard economic theory would be the result of an analysis which limits itself to what superficially appears at first glance. It thus does not see 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, that is to say, 'upside down', so to speak.¹

This temptation, however, 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 today seems so implausible that the only stream of literature referring to it does so in explicit accounting terms rather than in theoretical ones (Foley, 2000).

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 lies 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, that is, 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

¹Unless 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.

actual and necessarily joint operation of the two most important and, at least for now, most durable institutional innovations of capitalism, the labour market and the industrial firm, or – in a single expression – wage labour; on the other hand, the analytical formulation of this contribution, that is, the determination of the use value of labour power in terms of surplus labour with respect to the quantity of labour socially necessary 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, and more generally of the 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.²

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 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).

This is not true, however, for the fundamental intuition lying behind the contribution just referred to – 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 its own methods, assumptions and objectives, 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’, or even ‘remaining only with the bathwater’, as happens with ‘Ricardian Marxism’, 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.

Not surprisingly, 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). In other words, just as the production cost represented the opportunity cost of production in physical terms, so the notion of transaction cost represents the institutional opportunity cost or the cost of the next best institutional arrangement with respect to the firm – the market, and in particular the one of independent producers which, not taking part in the capitalist Money → Commodity → More Money circuit, but in the non-capitalist Commodity → Money → Commodity circuit represents the opportunity cost of subsuming an economic activity within the capitalist circuit and so a measure of the profit which can be obtained from it.

²Among classical economists, the subject of the theory of value consists in the natural, production or long-term prices around which market prices gravitate, determined by changes in supply and demand. In this paper, also on the basis of these notions, and in particular on the Marxian one of exchange value, these denominations are used interchangeably.

In this respect, it can 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: firms do exist to make profits, in other words, but they are profits which, to be distinguished from monopoly profits, should be called Marxian or industrial profits.

(ii) an evolutionary process in which capital, in Marx's definition of "money in motion" in the Money → Commodity → More Money circuit, and therefore apparently endowed with a self-expansive property at least in part analogous to that of the gene in the biological domain, is taken as the unit of selection, with markets and firms representing the external or 'phenotypical' manifestations, objects or targets of selection and consequently endogenous to the capital accumulation process.

On the one hand, while the circular view of the production process could be appropriate for an agricultural economy and the associated notion 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 paper, where the just mentioned unilinear view of history typical of Marx and his contemporaries is also given up.

On the other hand, the proposed interpretation of prices is not based on the scarcity principle but on the principle of differential replication. And, also in this case, it can be useful to point out from the outset that, as the words themselves say, such principles give rise to opposite interpretations of reality. For example, in the case of the evolutionary dynamics, if the return to one strategy decreases when its adoption in the population increases as a consequence of imitation- that is to say, if the negative feedbacks implicit in the notion of scarce resource are at work- rather than the typical extreme equilibria where all or almost all of the population adopts the same strategy, and in so doing blocks the invasion of potential mutants or entrants, we would only have the usual intermediate equilibrium between demand and supply which, perhaps in a stationary state, populates economics textbooks.

Naturally, however, questioning that the principle of scarcity is the only principle at work in the economic domain does not mean questioning its existence nor, moreover, imagining that it operates independently from the other principles possibly at work. The point is instead that the relative scarcity of one production factor with respect to another, when it is real and is not exogenous in the sense of depending on extra-economic factors like wars or famines, is endogenous to the capital accumulation process and as such is better understood in its allocative effects as well as in its distributional effects.

Because the capital accumulation process is in its turn driven by the principle of differential replication, or the principle of profit maximization, the delicate issue of the relationship between individual choices and structural or systemic constraints finally arises. This issue, which Marx himself left in abeyance, will be discussed in detail in the second part of this paper, where the focus will be on the interdependence between the phase of production and the phase of circulation, or between the phase of value creation and the phase of value realization: "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." (Marx, 1867, p. 222).

The rest of this first part of the paper 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 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 imperfections compatible with it.

In Section 4 the argument is summarized by means of a classification distinguishing among various organizational forms of the firm and of the labour market according to the presence or the absence of transaction costs and wealth effects. Finally, Section 5 draws some conclusions which serve to introduce the second part of this paper.

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, today as then, was the additive theory of value, that is, the theory which conceives the price of goods as the sum of the contributions to production made by the various productive 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. Were it not holding, 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 the normative principle of individualism, according to which that relation should be as strict as possible.³

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 be clarified below.

In any case, while in Smith the labour theory of value in terms of the quantity of labour contained in commodities co-exists with the additive one, and as is well known the distinction between the two theories is not always considered clear, not least because the Scottish economist is rightly or wrongly considered the pioneer of both the approaches, it is with Ricardo that the former becomes the alternative theory to the latter even for the development stages following the primitive one. That is to say, those in which the problem of capital compensation arises.

³ With regard to the hefty 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). Distinguishing between those two dimensions is also important for the notions of objectivity and subjectivity, but because of space constraints this will not be done with the depth it warrants (see Searle, 2005, and Battistini, 2011).

This was indeed the main preoccupation of the former English broker, who on the one hand 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 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 Ricardo's well-known position in favour of wheat imports, which decreasing its price would have hindered the just described tendency, and the first 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 just 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 would 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, is required by the labour theory of value as the identification of labour as 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 constant 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, the heir to the additive theory or neo-classical approach, it may be appropriate to investigate the reasons for such a success, briefly 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 no more agreeable but 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,

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, and 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.

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 2. 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 extract, is basically unpaid labour.

As far as Smith is concerned, as usual, the question is more complicated because on the one hand the Scottish economist sometimes seems to embrace the additive theory. However, in the dynamic part of his reasoning – that on the relation between the division of labour and the extent of the market – it is not scarcity, but the division of labour, that creates value. Consequently, the extent of the market, and therefore scarcity itself, are endogenous to the value creation process which in this way gives rise to the cumulative causation mechanisms that Smith used to explain growth.⁵

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 be “scientific”. That the social sciences should have the “same precision of the natural sciences” was not just a reason for pride but also of sustained critique of those other approaches to the labour theory of value – curiously gone down in the history of economic thought as those of ‘Utopian socialists’⁶ – 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 for the distinction between the quantitative and qualitative aspects of commodities. Of course, also in this case, 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 power and, what is more, a unique one.

⁵To confirm this apparent ambiguity, if the famous example of water and diamonds as an illustration of the difference between use value and exchange value of commodities seems clearly based on scarcity, the equally famous distinction between embodied labour and commanded labour is very close to the Marxian one between labour and labour power, as well as that between productive labour and unproductive labour in relation to the determinants of the accumulation of capital. Moreover, what was called exchange value in regard to water and diamonds was actually called by Smith ‘value in exchange’ and referred to the market price, while the expression ‘exchange value’ was restricted to the natural price and therefore to commanded labour. See footnote 15 and 25.

⁶ 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.

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. Since he was actually a self-taught economist, it is not to be excluded 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 his failure to explain profit, because – according to Marx – he saw it as plainly 'natural' and not worth 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 mentioned 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 assumed 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 the competition among capitalists as well as among workers made equivalent not only one to the other but also at purely subsistence level, so that, to the extent that it was a matter of choice, it was one compulsory for survival which didn't change the oppressive nature of the relationship between dominants and dominated.

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 divide between those who, not owning 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 exchange of labour power from workers to capitalists was characterised as an "exchange of equivalent", so that this was not the place to look for profit and exploitation. On the contrary, from this it follows that market relations are characterised not only by voluntariness and meritocracy, as advocated by the economists of the additive school, whom Marx in his often contemptuous 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

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 trade takes place because the buyer identifies a use value in the commodity that s/he 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

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 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, 1979, emphasis in the text, quoted in Rowthorn, 1974, p. 85).

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 labour market and the industrial firm or, in a single expression, wage labour.

Accordingly, it is from the above remark that the labour market and the industrial firm could not exist independently - a remark 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.

It is not by chance that Marx considered such 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, as with slavery, it seems that labour is not paid at all, but this is not the case; or as 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, 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 derives 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 without 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 next section).

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, to a completion of sorts.

Paradoxically, 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 adhering to 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 ‘laws’ 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 one existing, the market size is also fixed, or even declining. Consequently, the competition among capitalists to gain profits consists in trying to increase their own market share to the detriment of competitors, in the attempt to compensate the decrease in the rate of profit with an increase in its volume. This gives rise to a tendency to concentration and therefore to the possibility, which will be highlighted again in the next part, 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, 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 difference 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 overall profit according to the relevant share of constant capital, as, even then, was the case of shareholders of joint stock companies.⁸

Furthermore, for Marx this matter regarding the invariable measure of value was essentially a fantasy because in his opinion the issue did not concern investigating a non-existent world without markets but rather identifying 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 subsequently to technological progress.

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.⁹ 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 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 version, 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 mode of production and includes the increase in labour intensity due to technological innovations, cooperation or group production and the division of labour.

It is therefore quite clear that, with regard to the aim of this paper, 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 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 labour, and the division of labour 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

⁸ Besides, such a difficulty could have been easily 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.

⁹ "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).

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: “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 we have there 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 Hodgskin¹⁰.

It is equally true, however, that whilst a better description could be that of ‘area’ to the left of Marx’ 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 ameliorate 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 that 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, as a consequence, Marx should be attributed with the first explanation of the existence of the industrial firm as the combination of the two notions of cooperation and division of labour just referred to, or what could be termed the *raison d’être* of the firm.¹³

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, Hodgskin 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 (2007a, 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 labour, within the workshop, is regularly carried out, becomes in the division of labour 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 footnote 1, part two.

¹³ “The capitalistic form [of cooperation], on the contrary, presupposes from first to last, the free-wage labourer, who sells 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 were actually taken up by new-institutional economics. 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.

Accordingly, 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 new-institutional economics, 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 nature 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.

Secondly and more importantly, on closely following Marx’s assertion in the last quote, 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 the common sense of the word. In its turn, this identification is an application of the general rule to determine the exchange value of goods anticipated in the Introduction, i.e. the amount necessary to obtain the same commodity in the independent producers market, in this case equipped with specific means of production but not belonging to the capitalist Money → Commodity → More Money circuit.¹⁴

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.

Because in the qualitative interpretation suggested in this paper, 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 categories of transaction cost just mentioned.

Naturally, as anticipated in the Introduction, if transaction costs represent a bridge between these two perspectives, the remaining differences in relation to the concepts of power, profit and conflict are attributable not only to the presence or lack of it 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 profit, has actually

¹⁴ 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 countries, the problem is not that there are too few markets but, on the contrary, that there are too many.

downsized Smith's contribution as well, as if it were an intuitive and informal anticipation of the general equilibrium model.

Marx himself, who actually denounced the potential deceptiveness of the idea that the maximisation of individual self-interest could lead to the maximisation of collective interest, would have found such an interpretation reductive at best.¹⁵

3. Power, profit and conflict in the contemporary theory of the firm.

It seems therefore perfectly reasonable to presume that it is one of the many side effects stemming from the enormous impact of Marx's thinking if it did take almost a century for the themes discussed right at the end of the previous section to become the focus of attention of today's standard economic theory. Moreover, Marx himself is not openly mentioned within the various key articles. On the contrary, the explicit objective of the new-institutional literature consists of countering the theory that meanwhile emerged as the most convincing, namely that 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 formalisation of the static part of the Smithian metaphor of the Invisible Hand within the theory of general equilibrium (Harrow and Hahn, 1971).

Strongly influenced by physics, the protagonists of this revolution endeavoured to achieve the "same precision of the natural sciences" by means of the axiomatic approach, that is, by formulating postulates and hypotheses whose truth was self-evident and whose discussion or challenge was therefore pointless, not least because such axioms were also presented as neutral and free from value judgements.¹⁶

It was approximately during this period that economic theory 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 neatly cutting off the classic issue of capital accumulation. Within this framework, in some respects unique because it defined the discipline according to its methodology rather than its field of investigation, competition is no longer seen as a process to become an assumption, while methodological individualism becomes a postulate.

It is therefore not surprising that, because the beauty and truth of axioms lie in the eyes of the beholder and in the mind of those formulating them, the result of this process is a rather attractive situation where nobody has power over anybody because everybody interacts indifferently with current counterparts rather than any other potential economic agent, whilst profit and conflict are eliminated because, once again, everybody receives exactly his/her own contribution to the production as a reward.

¹⁵ From the perspective of this paper the most appropriate interpretation of Smith's contribution is to see him as a 'classical economist with a tendency to think in individual terms'. In this way the references to the additive approach present in his work can be accounted for, while at the same time preserving the dynamic part, that is, his focus on the classic problems of development and growth, as well as those of value creation and capital accumulation. As always, then, the other element to take into account in evaluating his contribution is that Smith wrote one century before Marx, and so basically before the Industrial Revolution, and that his target was Mercantilism.

¹⁶ In itself, an axiomatic approach is not necessarily useless. In the case of the advent of the State, for example, although Hobbesian theorizing from the state of nature has nothing to do with the process that actually determined it (Carneiro, 1970), it can be taken into account as an ex post rationalization. Given its intrinsically normative character, however, it is in some way even dangerous when it is employed in empirical research, for example when marginal productivities are measured by prices. In this case, econometrics, rather than verifying the model, risk applying it – and not with its real name. See also section 4, part two.

This is indeed the meaning of the basic condition of general equilibrium that, by recovering the coincidence between the theory of value and the theory of distribution introduced by the additive school, requires that each factor obtain the same return from alternative uses. Should it not be so - that is, should a factor earn positive profits in a specific use, it would be imitated by others. Such an occurrence, by increasing the factor's substitutability and thus decreasing its ability to appropriate more value compared to such alternative uses, would bring the system back to its initial conditions, as implied by the assumption of decreasing returns.

In this framework, essentially static and inspired by the theory of the exchange of commodities that have already been produced, where value essentially derives from differences in preferences and/or endowments, the Schumpeterian metaphor of "creative destruction" asserts itself as the only possible theory of profit and growth compatible with a view whereby the scarcity of production factors individually considered is the defining principle of what is economic as opposed to what is not.

In contrast to Marx, indeed, for Schumpeter the key actor in the value creation process is the entrepreneur - leader and innovator - who, by qualitatively modifying the combination of land and labour, i.e. the original productive factors in the sense that the right to their use is not usually sold, is able to produce something that, because it is new and therefore temporarily unique, is worth more than it costs, i.e. more than what such production factors were paid in their previous use.

Consequently, because the entrepreneur-innovator creates surplus-value as well (Schumpeter 1911, p. 129-130), s/he obtains a monopoly profit that rewards him/her for the effort made. But it is soon eliminated by imitation, which spreads the improvement across the economic system by starting to reward the two original production factors in accordance with their new use.

Accordingly, given that this theory of profit provides the system with an internal dynamic of development that can be metaphorically envisaged as a balloon inflated by innovation and deflated by competition, I shall focus on it more closely in the following part, where I compare it with the one which, drawing instead on the classic tradition, originates from the production process and identifies the source of value in the combination of cooperation and division of labour. However – as stated in the Introduction with respect to scarcity – it is already possible to anticipate that the point is not to doubt the existence or importance of innovation but rather to note that when it is not exogenous, i.e. due to extra-economic factors such as scientific or technological revolutions (Mokyr, 2002), then it is endogenous to the capital accumulation process. As such, it is better understood from the point of view of the benefits that it makes available as well as that of their distribution.¹⁷

For now, it is instead important to note that the Schumpeterian theoretical framework introduces the conceptual framework, publication-proof to date, of the general equilibrium plus compatible imperfections, that is, localized departures from the basic model that do not call its overall structure into question.

It is indeed within this framework, later generalised in terms of internalisation of externalities by Coase (1960), that one should read the new element represented by the neo-institutionalist approach - the observation that also the institutions other than the market matter and their subsequent inclusion within the economic debate - as well as the differences from the Marxian approach as discussed in the previous section.

¹⁷ There are various reasons to respect Schumpeter. In addition to being among the few who read, understood and quoted Marx, he is also among the few who do not credit capital with the capacity to create value. His characterization of economic behaviour as essentially repetitive and driven by habit, but punctuated by random change, has also been remarkably developed by the evolutionary approach, though even in this respect Schumpeter himself took care to clarify that his approach was not evolutionary but basically Walrasian. Naturally, in a context like that of the present paper, his approach is undermined by the fact that even his goal was to provide an alternative to the Marxian framework, and at those times this meant to stay on the other side of the barricade, so to speak: "In a communist society the leader would not certainly receive profit. (...). If we so define the ambiguous expression "exploitation" that exploitation occurs when a necessary agent of production, or the possessor of it as it may be the case, receives less than its product *in the economic sense*, then we can say that this extra payment to the workers is only possible by exploiting the leaders." (Schumpeter, 1911, p. 145-146, emphasis added). See also footnote 24.

However, unlike Schumpeter himself, and with the remarkable exception of Alchian and Demsetz (1972) that will be examined in detail in section 3.2 and that, at least in their intentions, integrates the theory of firm with the neo-classical theory of value and distribution, 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 distribution considerations.

The authentic conceptual innovation of such literature took place earlier, however, and its origin has to be sought in the debate between capitalism, as a pure market system, and communism, as a pure command system.

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

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

Hence 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).

Whence 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). As the argument, interpreted as a theory of vertical integration, remains that 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 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. This is indeed 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 2, 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 been 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 (1992). 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 (1957, p. 894) that in the general economic equilibrium "it does not matter who employs whom".

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 costs 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, differently from 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.¹⁸

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) returned the focus to the Marxian notion of cooperation, by calling it 'team production' or 'non-additively separable production function'. Rather than defining it in terms of difficulty in determining individual contributions, however, the two American economists defined 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.

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 that 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).

¹⁸ 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.

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 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 the additive theory. 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, even if only expected, cannot be determined as the sum of individual contributions independently originating from their respective markets. 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.

If on the one hand it is true that also the analytical device of the inversion between contributions and rewards may have to be ascribed to Schumpeter, within his theory the amount of reward is uniquely determined by the temporary monopoly rent, whilst the coincidence between the neo-classical theories of value distribution is not contradicted for two reasons: (i) the specifically individual nature of the innovation process which Schumpeter had in mind; (ii) the fact that imitation instantly eliminates such return as much as its justification, thus restoring the direction of causality that runs from contributions to rewards, as already noted with regard to the process of spreading the benefits of innovation and that Schumpeter, with an old-fashioned but rather suggestive expression, called ‘imputation law’.

On the other hand, as already noted, 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 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 the relative importance of perfection with regard to imperfections and if there a limit to the latter,

whilst 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.

The additional question of whether such a value (however determined) 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 possessed 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 distinction 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 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, or 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 the 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 – s/he would be eliminated by another entrepreneur able to achieve the same efficiency gains, hence larger profits, thanks to technological innovations that make subordinated 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 presented in Part 2. Moreover, besides making the ‘democratic’ 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 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 concerns what Marx 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. In fact, 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/her grocer. The former is able to give the latter the incentive to stock his 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

More appropriate in this respect seems to be the property rights approach that, while not directly addressing the issue as the 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 nonhuman 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, 1990)²⁰, is representable in terms of game theory, not as the usual symmetrical Prisoner's

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 and Demsetz, 1972, p. 194).

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 $f(x_1, x_2) = 1 + x_1 + x_2 + \epsilon x_1 x_2$ is sub-modular for $\epsilon < 0$, super-modular for $\epsilon \geq 0$ 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. Finally, the mathematician who developed the theory is Topkis (1978).

Dilemma in the state of nature 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.

From the mathematical definition just provided in the footnote it follows that the simultaneous increase of the variables yields better results than their separate increase, and that 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 the equilibria tend to take extreme values rather than intermediate ones. 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 a Pareto-efficient equilibrium 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).²¹

	L	COMP	COOP
K			
	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 the 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.

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.

Accordingly, in this way it is possible to retrieve the original concept of power for Marx, also denoted with a term as misleading as it is indicative, 'political': indicative because, apart from the just highlighted exception represented by monopoly power, strictly speaking this kind of comparison between Pareto-efficient allocations does not belong to the subject matter of economics as meant by the neo-classical approach; misleading because, as will be clarified in the next part in a more formal way, 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 section 2.1).

In his perhaps most celebrated sentence, the *incipit* of the Preface to the Critique of Political Economy, Marx notes that: "In the social production of their life, men enter into definite relations that are *indispensable* and *independent* of their will, relations of production which correspond to a definite

²¹ Precisely because pay-offs depend on a parameter, the representation of the game in normal form is not totally correct but can be preferred for the sake of exposition.

stage of development of their material productive forces The sum total of these relations of production constitutes the economic structure of society, the real foundation, on which rises a legal and political superstructure and to which correspond definite forms of social consciousness.” (Marx, 1859, pp. 8-9, emphasis added).

Accordingly, such a notion of power can be understood as characterized by the following three features: (i) they are power relationships in which, taken at system level, one does not enter or exit freely; (ii) in which the power relationship consists of the fact that the party that possesses power decides what the party that does not *has to* do; and (iii) which are usually resolved depending on how sovereignty over a specific territory, in this case the workplace, 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 their foundation – the right of workers to have a say in the organisation of labour and a share of the joint product – as well as their outcome – the softening of the effects of the presence of the wealth effects – are more than ever valid.

It would be however inaccurate to ascribe solely to the lack of consideration of wealth effects full responsibility for the inability to use in positive terms the normative principle of individualism which, with the intent of making each individual responsible for his or her actions, would require that the individuals themselves bear all the costs and enjoy all the benefits of such actions.

Even following Alchian and Demsetz in their argument, 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 truly characterised by the absence of wealth effects and hence 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 condition connected to the principle just referred to – significantly 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.²²

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 methodological individualism, which restricts the possible causality directions to the one from individual actions to their relations and, as a corollary, limits the analysis to additively separable contexts, the only ones in line with the just mentioned direction of causality since they leave nothing that could not be explained by individual actions and should be explained instead by their relations (see footnote 3).

Indeed, in the case of localized externalities, for instance, which as will be discussed in more detail in the second part belong to additively separable contexts, the assumption of absence of wealth effects is actually sufficient to remain within the individualistic methodology. This is because the absence of obstacles to the exchange of property rights deriving from differences in the wealth owned by the parties makes it possible to interpret the emergence of the institutions that internalize them as an – optimal – alignment between individual costs and benefits. In the case of strategic complementarities, instead, such an assumption is not sufficient because, by definition, there is a

²² “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).

residual which cannot be attributed to a particular individual but to the relations among individuals. Consequently, the assumption is in contradiction with the postulate of methodological individualism both from the point of view of the restrictions of the possible causality relations and from the point of view of the limitation to additively separable contexts such as, incidentally, the Prisoner's Dilemma.

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 habit of 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 individual and separate contributions.

In the case of Alchian and Demsetz, however, the value of the good remains indeterminate because, given the general character of the analysis and the attempt to relate a theory of the firm based on group production with the theory of distribution, a formulation alternative with respect to the one just referred to would have been necessary. But in this way the two American economists would have negated the postulate of methodological individualism, putting at risk even the belonging of their contribution to standard economic theory.

Whence derives not just the legitimacy but also the opportunity to bring 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. Indeed, because in this theory the value of the good is determined in the phase of circulation and *resolves* itself in the distributional shares, if the analyst uses the lenses of methodological individualism, s/he may also suffer from a sort of optical illusion whereby s/he has the impression that instead the former is determined by the latter in an additive way (see fig. 2, part two).

Be it as it may be, 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'; conclusion which could also be reached by the just mentioned analysis of partnerships if, extending the analysis to a more general context, they addressed the problem of explaining where the profit they share comes from.

If in the case of the classic firm and subordinated 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 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.²³

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 the above-mentioned dynamic part of the Smithian metaphor of the Invisible Hand, 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

²³ Of course, as already noted, the difference between use value and exchange value of production factors is completely undone with constant or physical capital, which transfers its exchange value in that of the product and therefore does not create value.

ignition of the self-reinforcing mechanisms which Smith used to explain growth and that, as will be seen in part two, are actually based on overcoming scarcity.

Accordingly, a further conclusion that can be drawn from the foregoing discussion is that the relativizing of neo-classical axioms concerning scarcity and individualism, and resuming the notion of competition as a process, enable retrieval of the element of Smith's thinking that became a collateral victim, so to speak, of the attempt to remove Marx's contribution from the domain of economic theory.

Of course, since such a recovery arises on taking account of the collective nature of production and of the material living conditions, 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 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 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 footnote 12, part two).

To summarise, the key point here is that there is no conflict between the explanation of the existence of the firm in terms of savings of transaction costs and the Marxian explanation in terms of production for profit, once it has assimilated the existence of a profit which is not monopoly profit. Indeed, it 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; nor is there 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, i.e. in the case of equal relationships within the group, 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.

Such a 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 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.²⁴

Marx himself, too practical to be convinced by the analogy 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 not be easy 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 paragraph.: "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

²⁴ "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). In the next part we will try our best to draw the –heroic- connection between this emblematic sentence and (i) patents and intellectual property; (ii) the evolutionary theory of the firm, according to which it evolves what cannot be imitated, and where the transfiguration of the entrepreneur in the figure of the artist-entrepreneur takes place.

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)²⁵.

Finally, if the reader is not sufficiently convinced by the logical quirks just found in Alchian and Demsetz’s treatment of group production, the following section is devoted to discussion of the fact that, also from a practical point of view, the difficulty of determining the contribution is effectively separated from the difficulty of measuring the effort. As argued in some studies, indeed, another consequence of technological change is the automation of the functions of coordination and control usually performed by entrepreneurs.

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 generated a return to the use of the price mechanism to fulfil such tasks while condemning the separator- entrepreneur to be the first entrepreneur made obsolete by the same technological change that he himself introduced.

4. Transaction costs and wealth effects: a classification.

Among the phenomena that a qualitative re-interpretation of the labour theory of value, differently from the original one in quantitative terms, makes it possible to tackle there is the recent re-emergence of the ‘piece rate system’.

While Marx observed the opposite movement, from the so-called ‘putting out system’ to wage labour and the classical firm, and such a change probably appeared to him as irreversible, especially in the digital economy industry today the opposite movement can be observed. Since the latter cannot be interpreted in terms of surplus-labour but only in terms of surplus-value, this re-emergence would justify the re-interpretation proposed here, even if the original version in terms of the quantity of labour socially necessary to produce the subsistence goods would not be jeopardized by the logical problems linked to the transformation problem which, as previously discussed, led to its total demise.

From the point of view of this paper, as confirmation that although history tends to repeat itself, it does so in different ways, the issue matters because the argument advanced to justify the new forms of organization of labour and production in the digital economy is that the new technologies enable the automation of the functions of coordination and control usually attributed to entrepreneurs. In turn, as a consequence of the decrease in the associated transaction costs, this change would make profitable a re-substitution of the firm with the typical mechanisms of the market and, in particular, with the price system.

In this interpretation, to be honest advanced more at the level of reports from international institutions or even commissioned by the firms themselves than at the level of academic research, digital platforms, or multi-side markets, would be a sort of ‘digital marketplace’ favouring the matching between two types of customers, those who supply a service and those who demand it.

As pointed out by Rochet and Tirole (2004), however, in the first place it is not true that there are no more transaction costs, because in this case such platforms would not be different from markets in the traditional sense or more generally the usual brokerage channels through which the demand for

²⁵ In this regard, the Smithian definition of natural price in terms of commanded labour does not seem out of place: “The real price of everything, what really costs to the man who wants to acquire it, is the toil and trouble of acquiring it. What everything 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).

and supply of a given service are matched. More specifically, the transaction costs that such platforms make it possible to save are those giving rise to the so-called ‘network externalities’, i.e., situations where the benefit from participating in the platform increases with the number of individuals who do the same, while the cost of such an increase is basically nil.

Accordingly, since the inevitable result is a tendency to monopoly, this phenomenon could represent the connection between the approaches that - for the sake of exposition- have been respectively associated with the Harvard school, which explained the existence of the firm in terms of the search for monopoly profits deriving from technological economies of scale, and with the Chicago school, where instead since Coase the existence of the firm has been explained in terms of the savings in transaction costs. Marx’s point remains however relevant since these benefits arising from increased participation have nothing to do with capital and their owners but originate from the human interactions virtually taking place in those networks.

However, in regard to the thesis of this paper, more important is the second condition which Rochet and Tirole (2004, p. 11) identify to distinguish such multi-sided markets from traditional markets and more generally from the usual brokers. This condition, which differently from that concerning transaction costs is conceived as not just necessary but also sufficient, is the so-called ‘non-neutrality condition’, that is, the non-neutrality of a total price re-allocation between the buyer and the seller, or in other words the possibility to subsidize the side with high elasticity at the expense of the side with low elasticity.

Because wealth effects imply a very low, if not null, elasticity of labour supply, such a condition can be set in relation to the kind of transaction costs deriving from wealth effects. Such transaction costs therefore make it possible to continue to characterize as a firm relationship, rather than a market one, the working relationship between those who furnish a service on those digital platforms and the platforms themselves, and consequently to interpret the profit generated on them in terms of savings on this type of transaction costs, i.e. in the Marxian or industrial terms discussed in this paper.

This interpretation is reinforced by the fact that such ‘piece rate’ workers, differently from wage labourers, may have regained control of when and how to supply such services –though it is a basically nominal form of control, by all accounts– but certainly they have not regained control of the end product, a feature placing the relationship between this kind of platforms and workers within what has been identified as the *raison d’être* of the firm (see footnote 9).

In this respect, it should be also pointed out that the issue originates from the fact that we are dealing with hybrid organizational forms midway between the market and the firm such as, for example, the groups of firms in industrial districts originally studied by Marshall (Battistini, 2007b). For instance, when the service supplied concerns commodities already produced as in the case of real estate, such a brokerage service can be interpreted in terms of a market relationship on both the buyer’s side and that of the seller - after all, in this case the non-neutrality condition does not appear very significant though of course both the issue of monopoly power and of the origin of the benefits remain intact.

On the other hand, when the service involves a working relationship with workers who do not own specific means of production for independent participation in the production process, the relationship between the platform and the worker cannot be interpreted solely as a relation between a broker and a client; it also represents the purest form of exploitation. It does so because profit originates solely from the savings in transaction costs deriving from wealth effects, and it illustrates the less contentious role of the entrepreneur which, as the nickname – “Mr Moneybags” – used by Marx to denote him suggests, is to provide capital, often in the form of substantial initial losses to be recouped when the existing industry – not belonging to the capitalist Money → Commodity → More Money circuit but to the non-capitalist one of Commodity → Money → Commodity – will be definitively ousted from the market and subsumed in the capitalistic circuit proper.

In any case, from the point of view of this paper, the other main purpose of this digression is to point out once again that explaining the existence of the firm also entails explaining the existence of the labour market. Consequently, such an explanation also requires a connection to the theory of distribution, a step that, as already noted, Alchian and Demsetz have not been able to achieve and that is instead the distinctive feature of Marx's approach.

More specifically, the discussion thus far can be summarized by the following table, where **TC** indicates standard transaction costs, and **WE** indicates transaction costs deriving from wealth effects.

	WE	NO WE
TC	Classical firm Unskilled labour market	Partnerships Professional labour market
NO TC	Flexible firm Piece-rate system	Independent production Commodity market

Fig. 2

From this relationship of interdependence between the firm and the labour market there follows another logical problem for the conceptual framework of the general equilibrium plus compatible imperfections, at least as far as the employer-employee relationship is concerned: on the one hand, as repeatedly noted, the neo-institutional approach needs the assumption of no wealth effects to explain in efficiency terms the emergence of institutions other than the market; on the other hand, however, that assumption is incompatible with the existence of the unskilled labour market, which actually derives from the existence of the class divide between capital owners and workers, as well as from the complementary existence of the classical firm.

Accordingly, the temptation mentioned in the Introduction was not so hasty: within a Marxian framework, the neo-classical labour and capital markets, meant as markets where the right to use the respective productive factors is exchanged and paid for by the contribution that they make to production, turn out to be just appearances behind which stands a reality driven by the capital accumulation process, both from the point of view of the relationships within the firm and from that of the relationships, to be discussed in more detail in the next part, between firms.

Finally, though it is in part a simplification, it is worth noting that that the lower box to the right, that is, independent production, corresponds to the situation that standard economic theory characterizes as 'first best', or the situation where every individual receives his or her own contribution to production leaving the others indifferent to his or her presence or absence (Makoski and Ostroy, 2001).

From the perspective of this paper, on the contrary, it represents the opportunity cost of capitalist production, that is, the sector that does not belong to the capitalist Money → Commodity → More Money circuit but to the non-capitalist Commodity → Money → Commodity circuit, and consequently corresponds to how economic reality would appear in the absence of the capitalist sector in a strict sense (see footnote 13). This is also a typical Marxian feature: a theory of value where the value of economic relationships is invariably conceived as the sum of individual and separate contributions does not hide only power and profit but capitalism itself.

5. Conclusion.

The first part of this paper has been concerned with the static side of the institutional and evolutionary re-interpretation of Marx's theory of surplus-value outlined in the whole essay. The issue has been the existence of a kind of profit arising from the difference between the use-value and exchange-value of labour power which, consequently, should be called Marxian or industrial in order to be distinguished from monopoly profit.

More specifically, verification has been made of the hypothesis that the general notion of transaction costs, separated between standard transaction costs and transaction costs arising from the presence of the wealth effects, could play the same role, more as a measure than an explanation, as that played by the Ricardian notion of production price in Marx's original theory.

From the point of view of the new-institutional approach, the problem is that the reversal of the causality direction ranging from contributions to rewards, with which the emergence of institutions other than the market is explained in terms of exchange of property rights, besides requiring as a necessary condition the assumption of the absence of wealth effects, leaves open the question of how to determine such a reward. Such a reversal, indeed, contradicts the coincidence between the theory of value and the theory of distribution which characterise the additive theory as much as the one of general economic equilibrium. Accordingly, it prevents such a reward from being determined as the sum of contributions by individual factors, in turn determined by the supply and demand mechanisms in their respective markets and, therefore, by their marginal productivities taken separately. If in fact it is not the contribution that determines the reward but the other way around, then it is obvious that the latter cannot be determined by the former.

As has been seen, in the case of innovation the problem can be circumvented by determining such a reward in terms of temporary monopoly rent, whilst in the case of the partial analysis characterising the majority of studies using the new-institutional approach, reference may be made to *ad hoc* concepts such as (i) the quasi-rent (in the case of specific investments in Transaction Cost Economics or human capital investments in the Property Rights Approach), or (ii) the difference between external costs and benefits (more generally, in the case of localised externalities in the original Coasean framework).

However, there remains some concern, as reiterated at the end of the previous section, arising from the fact that on one hand the fundamental message of such literature is that in the economic domain there are other important institutions besides the market, but on the other hand such acknowledgement has no impact on a theory of value and distribution conceived according to a view of the economy where, on the contrary, only markets are present – and whose limited realism is confirmed by the standard economic literature of recent decades itself.

For general analysis *à la* Alchian and Demsetz, in any case, such a problem requires an equally general solution, which in turn suggests searching for it in the classical theory of distribution within which the value of the product is given, and resolves itself in the distributional shares, rather than being determined by them.

Indeed, since the Schumpeterian analysis is based on a kind of temporary scarcity, it is compatible with the general equilibrium model, firstly because it does not contradict its individualistic methodology, and secondly because imitation immediately erases such monopoly rent as well as its justification, thus re-establishing the causality direction from contributions to rewards. But the same cannot be said of the analysis by Alchian and Demsetz, which is based on a different source of surplus-value, i.e. the not new notion according to which the whole is greater than its parts, which they call 'team production'.

By definition, in fact, such a notion contradicts the postulate of methodological individualism and the axiom according to which the scarcity of production factors individually considered is the defining principle of what is economic and what is not, so that competition and imitation, rather than re-establishing the causality direction ranging from contributions to individual rewards, make systemic the existence of a profit that ends up by being appropriated or distributed depending on whether the presence or otherwise of the wealth effects implies that in the labour market the right to use of labour power rather than property rights on the end product are exchanged.

In other words, the causality relation from contributions to rewards is shifted to the group level and its reversal within the group ensures that the residual return is appropriated by those who have control rights. Moreover, in line with the transition perspective of these conclusions, it is possible to anticipate that it is exactly the insertion of an intermediate level of analysis between individuals and

the system as a whole that makes it possible to recognise the mystificatory potential of the view that maximising the individual value leads to maximizing the total value, just like the one behind the first stage of single firm socialism, which maintained that maximising the individual value may result as a consequence of maximising the total value. And, no matter how strange it may seem, given that he would hardly agree on the economic policy implications, also Hayek can be quoted in support of this methodology: “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 world both of the individual parts and the whole” (Hayek, 1967, pp.70-71, quoted in Hodgson, 2007).

In any case, if these doubts over the compatibility of group production with the general equilibrium model make more legitimate than it would be otherwise its placement within the conceptual scheme within which it was originally conceived, it is equally true that, as discussed in detail in the second section, the quantitative analytical expression in terms of working hours that Marx had largely borrowed from Ricardo to achieve the “same precision as the natural sciences” appears unworkable today due to a rather long and convincing series of reasons.

Whence derives the possibility to identify the natural price, the production price or the exchange value of the commodities produced within the firm, as it was called, respectively, by Smith, Ricardo and Marx, with the amount that it would be necessary to pay to obtain the same goods using the price system, and specifically the market of independent producers, i.e. those producers whose economic activity is not driven by the capital accumulation principle.

Significantly for the role of this price as a measure of the advantage of capitalist production and thus as a measure of profit, indeed, in this circumstance: (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 theory of distribution in this case coincide in a trivial way, a situation that as will be seen in the next part is able to dissipate much of the ambivalence that surrounds Smith’s contribution.

Of course, by renouncing a physical measure, and proposing instead a qualitative interpretation of prices, also this price is a market price and is therefore expressed in monetary terms. But it is not the market price as meant by the additive theory and the general equilibrium model, firstly because it is obviously not determined as the sum of the individual contributions and secondly because, following Marx’s suggestion that a scientific analysis of competition requires a preliminary analysis of the capital production process, the market itself is in turn determined by the self-same process of value creation that determines the other economic institutions.

In this sense, Williamson’s famous statement (1985) that “in the beginning there were markets” well illustrates the differences that still remain between the new-institutional approach and the re-interpretation of the Marxian approach proposed here, paving the way for the development of the evolutionary perspective to be introduced in the second part of this paper, which deals with the relationship of interdependence between the phase of value creation and the phase of value realization.

Based on these considerations, indeed, what follows is concerned with the dynamic part of the Marxian theory of surplus-value, that is, the role of the profit maximisation principle in determining the contradictory character of the capital accumulation process, so as to confirm the results obtained thus far in the more general and dynamic context deriving from the focus on the relationship of interdependence just referred to.

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