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Karl Marx after New Institutional Economics*

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Abstract

In this paper, we consider the two main causation mechanisms characterizing the Marxian theory: the one running from productive forces to relations of production (Marx I) and the other moving in the opposite direction (Marx II). We argue that Marx did not achieve a satisfactory integration of the two mechanisms and that he failed to point out how multiple technological-institutional paths may stem from the cumulative interactions between relations of production and productive forces. In spite of many important analytical insights, NIE has exacerbated the primacy of technology and productive forces, which characterized “Marx I”. After NIE, the analysis of the complex relations between “Marx I” and “Marx II” can still help to extend the scope of institutional theory and, in particular, its application to the comparative analysis of models of capitalism coexisting in the global economy.

Keywords: Marxian Theory, New Institutional Economics, organizational equilibria, institutional complementaries.

1. Introduction

The main claim of this paper is that there are some parts of Marxian theory that, together with “Old-Institutionalism”,¹⁾ can be used to improve upon the important contributions of New Institutional Economists, like Coase, Alchian, Demsetz and Williamson, who have greatly helped our profession to overcome the sterility of the neoclassical theory.

In this paper I will draw a schematic distinction between two Marxes—a *senior brother Marx* (or *Marx I*) and a *junior brother Marx* (or *Marx II*)—which will strike

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¹⁾ Also Veblen and other “old institutionalists” contain some useful ante-litteram criticism and integration of NIE. These issues have been developed in many important works by Geoff Hodgson and, in particular, in Hodgson (2004). On the same point, see also Pagano (2007a).

many scholars as artificial. Of course, for a historian of economic thought, this distinction is on the border of professional legitimacy. One justification for it is that, over the years, I have found no better way to explain my contradictory relationship with Marx as regards both his political vision and his economic theory. For this reason, I shall propose a distinction between two Marxes that is perhaps even more schematic than that set out twenty years ago in my book *Work and Welfare in Economic Theory*.²⁾ A second justification for this schematic distinction should become clearer later in this paper when I will claim that there is a surprising affinity between *Marx I* and New Institutional Economics (NIE), and that *Marx II* can help us overcome some limitations shared by NIE as well as by the *senior brother*.

Marx takes into account two crucial features in analysing the organization of production: the rights that individuals exercise over the resources employed, and the technological nature of those resources. The relations that Marx identifies between these two factors are the fundamental ingredients of his conception of history. The nature and the attribution of rights are influenced by the technological characteristics of the productive forces, which, in their turn, influence the nature of the productive forces and the technology employed.

Although Marx endeavoured to unify these two directions of causality into a consistent framework, they were often separate components in his analysis and eventually gave rise to a dualism also in his utopian projects of societies alternative to capitalism. ‘Mechanistic’ versions, which emphasised the influence of the productive forces on production relations, were counterposed by ‘voluntarist’ ones, which stressed the capacity of production relations to influence the nature of the productive forces. At the same time, a socialism viewed as the simple quantitative development of the productive forces was flanked by a vision of a communism founded upon their radical qualitative transformation.

The compatibility between the two societies proposed by Marx as alternatives to capitalism is today unacceptable, and they are by now very distant from each other. The link of evolutionary necessity, which, according to Marx, existed between his models of socialism and communism, can no longer be sustained. The obvious incongruities of these two projects explain how Marx could inspire both authoritarianism and economic democracy, and they shed light on the contradictory implications of the economic policy

²⁾ I refer the reader to the third chapter of that book for more detailed analysis of Marx’s texts. Here such analysis is restricted for reasons of space, given that the article’s principal concern is with the relationship between Marx and some contemporary economic theories.

and the systemic change that derive from Marxism. Yet it is precisely when we explore the meaning (or lack of meaning) of these contradictions and errors that we find, at a more analytical level, that Marx's ideas are still current. They are so both in the sense that they may enrich the theories propounded by contemporary schools of thought, and in the sense that they furnish a useful standpoint from which to understand the nature of the contemporary economy.

2. The Senior Brother and the Primacy of Productive Forces

The first alternative to capitalism, which in Marx coincides with the "first phase of socialism", connects with the influence exerted by the productive forces on production relationships and property rights.³⁾ Marx saw a sort of 'single-firm economy' (i.e. a centrally planned economy) as a first alternative to capitalism, which would sooner or later be imposed by the development itself of the productive forces. Comparison between the anarchy of the market and the deliberate order of the firm induced him to extol the latter and to propose its extension to society as a whole.

Besides being a political proposal, single-firm socialism was, according to Marx, a historical necessity. The firm's greater efficiency with respect to the market had already been evinced by the growth in firms' size during capitalism, and productive forces exerted strong pressure for their further growth. By eliminating private property, socialism did nothing other than complete an inevitable process of concentration, whose onset was "scientifically guaranteed" by historical materialism. According to Marx, capitalism was a dual economy in which firm and market coexisted. 'Single-firm socialism' would definitively supersede that dualism and enable the greater development of the productive forces.

As shown by the following passage from *Capital*, the market's limitations sprang from the anarchy of production due its nature as an *a posteriori* coordination mechanism which operated only after decentralized, often inconsistent, decisions had been implemented:

While within the workshop, the iron law of proportionality subjects definite numbers of workmen to definite functions, in the society outside the workshop, chance and caprice have full play in distributing the producers and their means of production among the various branches of industry. The different spheres of production, it is true,

³⁾ More recently, the primacy of the productive forces has been stressed by Cohen (1978), while Brenner (1986) has emphasised the primacy of property rights with reference to the (non-)superseding of feudalism.

constantly tend to an equilibrium: for, on the one hand, while each producer of a commodity is bound to produce a use-value, to satisfy a particular social want, and while the extent of these wants differs quantitatively, still there exists an inner relation which settles their proportions into a regular system, and that system one of spontaneous growth; and, on the other hand, the law of the value of commodities ultimately determines how much of its disposable working-time society can expend on each particular class of commodities. But this constant tendency to equilibrium, of the various spheres of production, is exercised, only in the shape of a reaction against the constant upsetting of this equilibrium. 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 barometrical fluctuations of the market-prices (Marx, 1967, p. 355).

The negative conception of the market's workings is contraposed in Marx by an almost acritically positive view of organization within firms; a view which, in polemic with Proudhon, induced Marx to advocate the extension of this type of organization to society as a whole.

Society as a whole has this in common with the interior of a workshop, that it too has its division of labour. If one took as a model the division of labour in a modern workshop, in order to apply it to a whole society, the society best organized for the production of wealth would undoubtedly be that which had a single chief employer, distributing tasks to different members of the community according to a previously fixed rule. But this is by no means the case. While inside the modern workshop the division of labour is meticulously regulated by the authority of the employer, modern society has no other rule, no other authority for the distribution of labour than free competition (Marx, 1955, p. 151).

Hence, according to *Marx I*, the extension of the planned organization of production of the capitalist factory would complete a process already ongoing in the historical dynamics of capitalism whereby productive forces tended constantly to increase the size of firms. Socialism was the final outcome of this tendency of the productive forces to shift production relations within the firm. The scientific certainty of the advent of socialism was, for Marx, inherent in the tendency of the productive forces to influence production relations. The extension of the authoritarian world of the capitalist firm to the whole of society was necessary to reap the benefits of a planned coordination made more and more necessary by the increasing interdependence among the production sectors.

3. The Junior Brother and the Alternative to Capitalist Production Relations

Single-firm socialism was therefore the first project for a society alternative to capitalism. There is, however, another Marx. This version saw self-fulfilment and the performance of interesting work as fundamental human rights, and it stressed that people's preferences are not only consumer preferences but also those of producers. This is the Marx of the final utopia of communism, where work would be so interesting as to be indistinguishable from leisure. Work itself would become recreational in the sense that it would recreate the person and his/her capacities. Marx's second utopia derived from his critique of the authoritarian mechanisms of the capitalist firm, whose principal purpose was to pursue the maximum amount of profit. In this case, it was capitalist production relations that determined the alienating characteristics of the productive forces developed in capitalism. For Marx, only the superseding of capitalism would give rise to a truly democratic economy, where the preferences of individuals-producers would have the same importance as that possessed, according to neoclassical theory, by the preferences of individuals-consumers. As evinced by the following passage in *The Poverty of Philosophy*, there was a 'junior brother' of the Marx considered in the previous section, who emphasised a different type of causality, this one operating from property relations to the nature of the productive forces. Because of capitalism, the latter were characterized by a parcelized and alienating division of labour, which, by eliminating the specific qualitative characteristics of human activities, made them perfectly commensurable. As the following passage from *The Poverty of Philosophy* shows, for Marx this commensurability was a typical feature of capitalist industry.

Competition, according to an American economist, determines how many days of simple labour are contained in one day's compound labour. Does not this reduction of days of compound labour to days of simple labour suppose that simple labour is itself taken as a measure of value? If the mere quantity of labour functions as a measure of value regardless of quality, it presupposes that simple labour has become the pivot of industry. It presupposes that labour has been equalized by the subordination of man to the machine or by the extreme division of labour; that men are effaced by their labour; that the pendulum of the clock has become as accurate a measure of the relative activity of two workers as it is of the speed of two locomotives. Therefore, we should not say that one man's hour is worth another man's hour, but rather that one man during an hour is worth just as much as another man during an hour. Time is everything, man is nothing; he is, at the most, time's carcase. Quality no longer matters. Quantity alone decides

everything; hour for hour, day for day; but this equalizing of labour is not by any means the work of M. Proudhon's eternal justice; it is purely and simply a fact of modern industry.

In the automatic workshop, one worker's labour is scarcely distinguishable in any way from another worker's labour: workers can only be distinguished one from another by the length of time they take for their work (Marx, 1955, p. 59).

Marx believed that capitalism produced a very detailed and hierarchical division of labour, and he criticised it principally in this regard: the capitalist-owned firm was a structure that oppressed people's capacities; above all, it restricted the development of the most important productive forces, namely those connected with the person's abilities. Planning could be made on an objective basis in socialism as it emerged from capitalist society because, according to Marx, capitalism had eliminated every element of subjectivity from production. In Marx's view, the labour theory of value reflected the conditions of the productive forces in capitalism and, in particular, the unimportance of preferences among the forms of work. This irrelevance of workers' preferences made work homogeneous in capitalism; but it also made possible, in the first phase of a socialist society, authoritarian planning based on the theory of labour value, which took no account of subjective preferences for different kinds of work. Whilst a vision of a future society in which work would entirely match the preferences and development of individuals was constantly present in Marx's critique of capitalism, its implications were postponed to a distant future when, under socialism, the productive forces would have become sufficiently developed. Accordingly, this second Marx would remain a younger brother bound—especially in the concrete experience of socialist economies—to give way to his authoritarian elder brother.

4. The Marx Brothers between Smith and Ricardo

The twofold nature of his approach enabled Marx to differentiate, in an interesting and creative manner, his theory of value from those of both Smith and Ricardo.

Smith was very clear about the subjective nature of work. In his theory of value, the disutility of labour plays a fundamental role in determining wage differences and the prices of commodities. Moreover, in the tenth chapter of the *Wealth of Nations*, Smith (1976) formulates an endogenous definition of labour which derives directly from his notion of subjective disutility. He points out that, at the beginnings of human civilization, hunting and fishing had been the main work activities of human beings; but in the more advanced civilizations they had become leisure pursuits (indeed, people paid to perform

activities which they had once done out of necessity). The subjective preferences of individuals not only made work heterogeneous; they also determined which particular activities could be defined as work.

Very differently from Smith, Ricardo and the Ricardian socialists⁴⁾ formulated a labour theory of value in which work was measured in homogeneous units regardless of workers' preferences.

Marx criticised the Ricardian position for confusing a specific circumstance of capitalism with the natural characteristics of work. As for Smith so for Marx, the subjectivity of workers was of great importance. Marx's final alternative to capitalism was a world in which all human activities, like the hunting and fishing considered by Smith, would have grown pleasurable and would entirely satisfy the subjective needs of workers. However, Marx partly accepted the Ricardian school's position because he believed that capitalism had made work homogeneous. For this reason, the labour theory of value could be applied in the specific circumstances of capitalism and also in the first phase of socialism. According to Marx, drawing on Babbage (1832) and Ure (1835), capitalists minimized their costs by applying a detailed division of labour which reduced learning time to the maximum extent possible. Workers were thus reduced to being the mere executors of repetitive tasks, among which they could not but be substantially indifferent. Their subjective preferences for different kinds of work was therefore irrelevant to the economic evaluation of them.

In short, once again co-existing in Marx were a Smithian *junior brother* and a substantially Ricardian *senior one*. *Marx II*—the “Smithian Marx”—stressed the subjectivity of workers and proposed the formation of production relations which, in contrast to the capitalist factory, would take count of the subjective preferences of workers *qua* producers, transforming and developing the most important productive force of all: the workers themselves. By contrast, *Marx I*—the “Ricardian Marx”—argued that the authoritarian world of the capitalist factory should be extended to society as a whole, and that the growth of the productive forces should be fostered by using human beings as if they were mere means of production devoid of subjectivity.

How can we reconcile such different ‘brothers’ residing in one single person?

As evinced by the following passage from the *Critique to the Gotha Programme*,

⁴⁾ I refer in particular to Bray (1839) and Gray (1831), who started from the Ricardian assumption that value could be measured in homogeneous units of value and then proposed reform of the market with introduction of a system of fair exchanges in accordance with the labour theory of value. This proposal was taken up by Proudhon but was harshly criticised by Marx (1955).

Marx believed that there was a straightforward evolutionary connection between single-firm authoritarian socialism and the libertarian democratic system in which worker subjectivity was wholly realized.

In a higher phase of communist society, after the enslaving subordination of the individual to the division of labor, and therewith also the antithesis between mental and physical labor, has vanished; after labor has become not only a means of life but life's prime want; after the productive forces have also increased with the all-around development of the individual, and all the springs of co-operative wealth flow more abundantly—only then can the narrow horizon of bourgeois right be crossed in its entirety and society inscribe on its banners: From each according to his ability, to each according to his needs! (Marx, 1978, p. 34).

In this passage, the 'Marx brothers' achieve fragile coexistence. The productive forces that would develop in the authoritarian economy proposed by the elder brother would allow realization of the subjective choices of workers as proposed by the *junior brother*. Because it is now clear that the former model leads not only to an authoritarianism worse than in capitalism, but also to a greatly inferior development of the productive forces, the tenuous bond between the two brothers is severed, and the two Marxes appear to us as they have in fact been since the outset: two very different proposals for the transformation of society whose proponents soon found themselves advocating profoundly different economic policies and, on not a few occasions, committing outright fratricide.

5. Marx and the Limitations of Neoclassical Subjectivity

The failure of *Marx I* and the nebulous ingenuousness of his *junior brother* have induced many economists to dismiss Marx entirely. But in doing so, they have failed to grasp the extraordinary richness of his contradictions and the impressive depth of his intuitions.

Moreover, numerous economists have argued that the objectivity of the Ricardian labour theory of value is analytically inferior to its subjective neoclassical counterpart. Yet even if one accepts this view, one cannot disregard the fact that the analysis by Marx as *junior brother* can be used as the basis for a diametrically opposed critique of the neoclassical theory. This critique starts from the observation that the subjectivity of individuals as envisaged by that theory is only the 'half-subjectivity' of individuals-consumers.

Neoclassical theory strictly divides the economic variables between ends and means. Some variables, like consumption goods and free leisure, constitute ends and are

included in the utility function to be maximized, while other variables, for instance work and other resources, are considered solely as means to be included in the production function. It might be objected against this dichotomous representation of neoclassical theory that the inclusion of leisure in the utility function seemingly enables account to be taken of subjective elements to do with labour disutility. The increased employment of people in production processes necessarily implies a decrease in their free time. Introducing leisure into the utility functions of individuals therefore seems to be analytically equivalent to the explicit inclusion of subjective work preferences among the factors influencing people's well-being. This impression is baseless, however: for neoclassical subjectivity is still the limited subjectivity of a half-person.

The introduction of free time into the utility function only captures the circumstance that individuals are sensitive to the greater or lesser quantity of their work; and it implies that they are instead indifferent to the particular tasks that they perform in production processes. Free time remaining equal, a change in the activities undertaken by individuals in production processes has no effect on their well-being. Introducing free time into the utility function makes labour a resource like any other, the only difference being that it can be used in a supplementary production process where one unit of labour can be transformed into one unit of free time. Otherwise, the capacities of individuals are utilized according to efficiency criteria similar to those applying to other resources. It is as if in this case, too, one can sell one's abilities and then go elsewhere without caring how they are used. Neoclassical theory assumes that only free time (and not also, directly, the type of work performed) influences the utility functions of individuals. For this reason, technological efficiency can be achieved independently of workers' subjective preferences: an increase in any output (including free time) always engenders an increase in economic efficiency. Moreover, under the hypotheses of the neoclassical theory, work should, in identical manner to every resource, be allocated equalizing its marginal productivity in every use without taking account of workers' preferences—a rule that every profit-maximizing employer will invariably apply, thus promoting an organization of work which is objectively efficient whatever the workers' subjective preferences may be.

Marx furnishes numerous instruments with which to criticise the authoritarian implications of the 'limited sovereignty' subjectivity of neoclassical theory.

Marx (and Smith) assume work preferences to be truly important. In this case, technological efficiency ceases to be a necessary precondition for economic efficiency. No logic of maximum profit can unilaterally suggest efficient forms of work

organization.⁵⁾ In principle, technologies characterized by inferior outputs may lead to superior well-being: free time remaining equal, lower productivity may be off-set by work activities more in keeping with workers' preferences. Moreover, an absence of preferences among different jobs may not be a feature inherent to the subjectivity of workers. It may instead be due to production relations characterized by the pursuit of maximum profit that have produced a division of labour so parcellized and alienating that all jobs are equally unattractive. Furthermore, the indiscriminate pursuit of profit and the inhibition of workers' 'voice' may reinforce each other. The technologies employed may make it pointless to express preferences among equally alienating forms of work. At the same time, in these conditions, the incomes obtained seem to be the only ends of the production process, while the imperatives of maximum profit, which are the ultimate causes of unsatisfactory work conditions, seem to be logically necessary to achieve those objectives.

More in general, Marx in his *junior brother* guise enables us to go beyond a dichotomic view of an economy divided into two institutions: the household, where goods and free time are consumed (and nothing is produced); and the firm, where the output from work is the only end (and the job preferences of individuals count for nothing). In general, Marx believes *à la* Smith that every work activity is at once consumption and production, and that it is potentially both an end and a means for the individual who performs it. Only on the basis of given technologies and individual preferences can we establish whether (having determined the levels at which they are performed in equilibrium) some of these activities are only means (that is, nothing but pure 'toil' or labour). In any case, one of the goals pursued by society should be to reduce jobs performed only as means and to increase those that are more gratifying. Leisure and consumption cannot be the only ends of society.

6. Marx I: a Coase *ante litteram*?

The project of *Marx I* stands in marked contradiction to that of his *junior brother*. Whilst the latter sought to give greater weight to the subjectivity of workers, the former propounded a society annulling even those preferences that workers might, partially, express through the labour market in a capitalist society. The exit option is certainly not enough to express those preferences, and voice (i.e. economic democracy) is a crucial means to do so. However, the single-firm socialism envisaged by *Marx I* as extending the organization of the capitalist factory to society as a whole, in order to increase its

⁵⁾ For formal analysis of these points see chapter 7 of Pagano (1985).

productive forces, eliminates the exit option without promoting voice. The outcome can only be—and has been—a worsening of work conditions compared with those under capitalism.

However, we should distinguish between the shortcomings of the project for systemic change of *Marx I* and the validity of his economic analysis. His still highly topical analysis of the market/form dualism anticipates Coase's (1937) study, and it also has a dynamic dimension often absent from modern neo-institutionalist theories.

The Coasian tradition has highlighted those transaction costs of the market (relative to the firm) that can be observed even when demand and supply are in equilibrium: for example, the costs of discovering relevant prices, and the costs of negotiating and writing contracts. The neo-institutionalist literature inspired by Coase (1937) has evidenced other costs similarly observable in equilibrium: monitoring costs (Alchian and Demsetz, 1972; Alchian, 1987) and possible free-riding by agents, which may be especially damaging when resources are highly specific (Williamson, 1985; Alchian, 1984).

Besides these transaction costs, which have always been stressed by the neo-institutionalist literature, there are others, which Marx carefully analysed. These costs derive from the limited coordination abilities typical of both the market and the firm. Of course, the diverse costs and benefits of these two forms of coordination cannot be observed and compared in equilibrium situations, where the problem of coordinating decisions has been largely solved. In equilibrium, it is more useful to concentrate on the problem of implementing decisions, and on the costs that this entails. However, the analytical convenience of studying equilibrium situations does not gainsay the fact that the market's principal role consists precisely in coordinating demand and supply. Likewise, one may argue that firms' managers are not merely useful like police officers or judges; for they also match production needs and the resources required to satisfy them. That is to say, just like the market, they balance demand and supply within their firms.⁶⁾ In a market economy, imbalances between demand and supply give rise to substantial costs, and their elimination only comes about after a considerable waste of resources. If this were not so, the employment of managers to remedy those imbalances would certainly be a waste. And it is Marx himself who, paradoxically, points out to us that firms' managers are worth their salaries because they enable an *a priori* coordination of decisions which may be more efficient than the *a posteriori* mechanism operating in the market.

⁶⁾ This point is treated in more detail in Pagano (1992).

Table 1.

Coordination/Authority	Command	Competition
<i>A priori</i>	(a) <i>Marx I</i>	(b) Rational expectations
<i>A posteriori</i>	(c) Lange	(d) Hayek

In the Marxian approach, a coordination mechanism is *a priori* when an attempt is made to eliminate contradictions among decisions before they are implemented. A coordination mechanism is *a posteriori* when no attempt is made to eliminate such inconsistencies *a priori*, but agents react by seeking to eliminate them after they have emerged.

Marx's approach may still be of interest because it does not merely compare forms of authority in situations of demand/supply equilibrium but also examines forms of *a posteriori* and *a priori* coordination: in other words, it also analyses what we may call *disequilibrium transaction costs*. In short, Marx provides a methodology with which to compare among the organizational forms summarized in Table 1 and to pass judgement on those, in quadrant (a), which he deems optimal. Because Marx's methodology enables comparison to be made between firm and market also in disequilibrium situations, it gives valuable assistance in framing other theoretical approaches as well. It should be kept sharply distinct from the particular proposal (a) for social change put forward by *Marx I*, which instead displays evident theoretical weaknesses compared to Coase.⁷⁾

The preference for (a) of *Marx I* is due to his view that the market mechanism eliminates mismatches between demand and supply only '*a posteriori*'. This causes a severe wastage of resources, because these are used, at least temporarily, for relatively unproductive purposes. Of course, when this happens, losses occur which induce the agents of a market economy to react to the situation. They therefore have an incentive to eliminate the imbalance between demand and supply '*a posteriori*'. But this is a costly process, and in many cases it may be more convenient to undertake '*a priori*' coordination (i.e. a deliberate attempt to eliminate incompatibilities among agents' decisions before they become operational).

The response of the Austrians⁸⁾ to these theories has often been seen as consisting in a position no less extremist than Marx's, and it has been maintained that the Walrasian school sagaciously mediated between these two theoretical extremes to find the correct

⁷⁾ On these relative advantages of the Coasian approach see Pagano (1992, 2000).

⁸⁾ See in particular Mises (1920) and Hayek (1935, 1949).

answer. However, one can argue that the Walrasian school did not come up with the correct intermediate solution at all; and, moreover, that it was guilty of serious confusion when it framed the problem.

Walras described the market by using the device of the auctioneer. The workings of the market were thus approximated by a model based on *a priori* coordination and on the existence of an agent centralizing all bargaining. The existence of ‘disequilibrium transaction costs’ was therefore ignored, because the market was described in terms of a perfectly planned and controlled firm. The paradoxical outcome of this operation was that it was later necessary to answer the “Coasian question”: why do firms exist?⁹⁾

From this point of view, although *Marx I* and the Austrians were opposed in their conclusions, there was harmony in their methodological approaches to the problem, which differentiated both of them from the Walrasian school.

Hayek and Mises focused on the process by which the market eliminates disequilibrium, and they emphasised the enormous cost, or indeed the impossibility, of formulating a rational centralized plan *a priori*. The dispersion of knowledge among the minds of millions of individuals, they maintained, made the task impossible. By contrast, they viewed the market as a coordination mechanism which was optimal, but in a very different sense from that in which the Walrasian tradition deemed it efficient.

The Austrian school considered the market to be a process whereby agents, as they compete and offer prices according to the opportunities that they perceive, inform other agents of the opportunity cost of resources and thus communicate—at a very low transmission cost—their private information. The market is therefore a process subject to imbalances and inconsistencies. It does not lead to the maximization of social welfare, which only an omniscient planner can achieve. The market is therefore not optimal in the sense with which the term was used in the Walrasian tradition, where it accomplished an efficient configuration of resources allocation. It has simply the merit of setting in motion a process of inter-agent knowledge transmission.

At the same time, the market was optimal for the Austrian school in a stronger sense than the meaning with which the term was used by the Walrasian tradition. According to the latter, severally equally optimal mechanisms (including planning) were possible, whereas for the Austrian school the market was optimal in a very strong sense: it was the *only* mechanism by which the information scattered among agents could influence their

⁹⁾ It is paradoxical that the Walrasian auctioneer should be placed in quadrant (a) of Table 1, even if it has been widely viewed as an only approximate description of the market mechanism. The role of the auctioneer in Walras’s fascinating utopia is examined in the sixth chapter of Pagano (1985).

decisions and render them rational.

Despite the historical opposition between the Marxian and Austrian traditions, a synthesis between them would be very fruitful. In fact, the former is unable to explain the shortcomings of firms (which render the single-firm economy proposed by *Marx I* inefficient), while the latter is unable to explain the shortcomings of the market (which render an economy without large firms inefficient). In other words, the problem that the two traditions are unable to address separately is the co-existence of market and firm. I shall return to this point shortly. First, however, I must consider the two other possible combinations in Table 1: that between *a posteriori* coordination and command authority (c), and that between *a priori* coordination and the authority of competition (b).

Combination (c) was proposed by Lange (1936). Lange envisaged a price-setting planning office which intervened *a posteriori* in the real economy to correct mismatches between demand and supply. The confusion typical of the Walrasian tradition is again apparent in this version of the auctioneer-planner. The Walrasian auctioneer, which supposedly approximates the market, is ‘even more a planner’ than Lange’s auctioneer-planner in that, unlike the latter, it intervenes *a priori* in the market!

Lange’s intention was to demonstrate the substantial equivalence between the market and planning. Besides failing to do so, he ended up by proposing a model which substantially differed from both market and planning and which was characterized by a concomitance of *a posteriori* intervention and command authority. It is true that some prices administered both within and without firms are, broadly speaking, regulated in accordance with Lange’s criteria. In general, however, Lange’s model is an unfortunate example of a ‘third way’ which combines more the advantages than the advantages of traditional markets and centralized administrative structures.

The second combination (b), between competition authority and *a priori* coordination, can be straightforwardly attributed to the theoreticians of rational expectations. According to this school, not only are *a priori* coordination and competition authority compatible but, in certain sense, the former necessarily entails the latter. Competition authority implies that all opportunities for profit, including those deriving from processing information, are adequately exploited. Hence, agents will form rational expectations about future prices which will make their decisions compatible.¹⁰⁾ Like Marx, the Austrians and Lange, the theoreticians of rational expectations propose their

¹⁰⁾ This is the point raised in the famous article by Muth (1963) which provided the template for the rational expectations school. The arguments in this section are developed more thoroughly in Pagano (1992).

own vision of an optimal world. In their case, too, the purity of the models propounded not only conflicts with the experience of all real economies but also has obvious analytical limitations.

An absolute coherence of decisions obtained by following the suggestions of the rational expectations school would paradoxically be more susceptible to Hayek's criticisms of central planning than central planning itself. This is not surprising, however, because in the case of this school the advantage of the market economy is not that, as Hayek pointed out, every agent decides on the basis of current prices but rather that each agent is compelled by competition to behave like a central planner (in the sense that it develops an *a priori* complete model of the economy). If this organizational model is extended to the entire economy, therefore, it exhibits difficulties and costs similar to those of central planning.¹¹⁾

Every difficulty encountered by a central planner in gathering information is amplified by the fact that, in the case of rational expectations, every agent must carry the costs of collecting the information required to calculate the equilibrium solution. Moreover, calculation of the equilibrium solution is conceptually more difficult than it is in central planning because it involves several agents, and these may use heterogeneous models to interpret reality. But even if all agents used the same model, the heterogeneity of the information and the numerousness of the agents deciding would create an 'expectations about expectations' problem of the 'beauty contest' type described by Keynes, where the problem is not deciding which face is most beautiful, but which is the most beautiful for the majority of the population. Finally, even when all agents process the same information on the basis of the same model, and this circumstance is known to all agents, there still arises the classic problem of the convergence of learning processes: the errors committed while learning alter reality, and therefore alter what is to be learned.

All four of the forms of organization set out in Table 1 coexist in reality, and given that each of them has different costs and benefits in different situations, there seems to be no reason to prefer the presumed optimality of each of these models to reality's lack of purity.¹²⁾

Like the other authors considered, *Marx I* succumbed to the attractions of theoretical purity, which in his case induced him dogmatically to assert the advantages of

¹¹⁾ On these points see the essays in Frydman and Phelps (eds) (1983), and especially the essay by Frydman himself. Also Pesaran (1978) is very useful.

¹²⁾ This obviously does not mean that reality cannot be changed and improved. It only means that the 'pure' models used to do so are inadequate.

coordination by the firm over coordination by the market, and to propose the extension of this type of organization to society as a whole. In this regard, his theory is analytically inferior to Coase's. Unlike Marx, Coase understood that—because all forms of coordination are costly and produce costs which differ according to the processes to be coordinated—the impurity of reality may well be a virtue with respect to the abstract models of the neoclassical economists (on the “impurity principle” see Hodgson, 1988, ch. 7) The purity of these models is a major theoretical shortcoming which, when considered carefully, contradicts the fundamental assumptions of the neoclassical theory itself, with its contention that all human activities (and therefore also those necessary for the creation and operation of institutions) are necessarily available only in limited quantity and quality. These constraints entail that every institution, including the market and the firm, is necessarily imperfect and incomplete, and that the most suitable mix of institutions changes according to the real situations to be dealt with. The Coasian approach is therefore much superior to that of *Marx I*, which commits the reverse error to that of the neoclassical theory. The ‘Nirvana fallacy’ in which the neoclassical theory typically lapses with its notion of the market as a perfect institution, is committed by *Marx I* in regard to the firm: he ignores the latter's costs of internal organization and their possible explosion when this type of organization is extended to society as a whole.

Nevertheless, the methodology applied by Marx still today holds an interest that extends well beyond the particular solution offered by *Marx I*. In Marx, production institutions are compared in light of a different criterion: their capacity to coordinate and to eliminate disequilibrium. In this particular respect, Marx's approach is more general than Coase's, and also more general than that of the subsequent neo-institutionalist school. For this reason, Marx's analytical contribution survives its erroneous prediction that development of the productive forces would necessarily lead to an authoritarian society organized as a single firm; and it also survives the even worse suggestion that the task of revolutionary forces was to accelerate this inevitable process.

7. Marx II: an Ante-litteram Critique of Neo-institutional Economics?

I have distinguished (with hindsight) between two Marxes: a senior brother *Marx I* who emphasised the influence exerted by the nature of productive forces on rights (tied to ‘single-firm socialism’ viewed as the purely quantitative result of the development of the productive forces) and a *junior brother Marx II*, who stressed the influence exerted by rights on the nature of the productive forces employed (which led to Marx's proposal of alternatives to capitalism involving a qualitatively different development of the

productive forces).

The relation of these ‘two Marxes’ with orthodox economic theory can be better understood if we consider that the ‘Marx brothers’ jointly imply a twofold ‘non-neutrality’. For *Marx I* the productive forces are not neutral because they influence the nature of property rights; for *Marx II* people’s rights on productive resources are not neutral because they influence the quality of the productive forces employed.

Neoclassical theory a-critically assumes this double neutrality. As a consequence, the theory becomes a-historical in that the historical links between property rights and productive forces are severed. A famous dictum by Samuelson (1957, p. 894) states this dual neutrality of the neoclassical theory very clearly: “In a competitive economy it really doesn’t matter who hires whom”. Samuelson thus asserts the irrelevance of firm ownership in so far as it does not matter whether it is the owner of the machines who hires the workers, or whether instead it is the workers who hire the machines. Neutrality thus holds in a twofold sense: whilst the various technologies and productive forces have no influence on the efficiency of the various kinds of ownership, the various kinds of ownership (for example control of the firm by workers or capitalists) have no influence on the nature of the productive forces and the type of technology used.

The orthodox theory assumes a market with nil transaction costs and complete and perfectly enforceable contracts. Therefore, workers can always clarify their conditions of employment with maximum precision and not feel disadvantaged because they do not control the firm. A market characterized by zero transaction costs and complete contracts will protect agents whether or not they have property rights over the means of production. From this point of view, the characteristics of the productive forces are not important: a competitive equilibrium with complete contracts will in any case entail the efficient organization of production, both when the capitalist employs the workers, and when the contract provides for the workers to rent the means of production from the owner. The types of resources and technologies used will have no effect on the efficiency of the controlling actor. It will always be possible to stipulate contracts guaranteeing productive efficiency with other individuals in possession of physical and human capital. The nature of the productive forces does not tend to favour particular property rights, and accordingly are neutral.

In a world of complete contracts (in which other individuals are completely protected by those contracts), the firm’s owners will not be able to alter the nature of the productive forces in their favour. They will find that they can only formally manage a production process, which in reality is exclusively organized by the constraints imposed

by the enforcement of complete contracts. Upon realization that they are completely protected by their contracts, workers who have no rights to the means of production will not invest any less in human capital. For the same reason, the owners of the means of production will feel themselves equally protected if they rent their means of production to others rather than utilize them directly. In other words, the ownership form does not influence the types of resources and the nature of the technologies employed. The ownership structure, therefore, does not tend to favour particular productive forces, and consequently it too is neutral.

Within the neoclassical framework, all the problems connected with the relations between productive forces and property rights disappear. So too do the disputes produced by the tension between the ‘*Marx brothers*’, and between ‘technological determinists’ (for whom types of ownership derive exclusively from the technology used) and ‘romantic voluntarists’ (for whom alternative types of ownership can always bend technologies and productive forces to the exigencies of the producers). Although there is no need to mourn the demise of these elements in the Marxist construct, their euthanasia by neoclassical theory exhibits numerous analytical deficiencies. Consequently, one should not be surprised to find the same problems resurfacing (perhaps implicitly and in different terms) in contemporary economic theory.

Discarding the hypothesis of nil transaction costs has profound effects on the neoclassical edifice. It eliminates the twofold neutrality of rights with respect to technologies, and of technologies with respect to rights. One notes in recent neoclassical theories, and in those of the so-called ‘radical economists’, the re-emergence of numerous fragments of the Marxian view of history, and with them the reappearance of some of the contradictions and ambiguities of the *two Marxes*. Apparent in neo-institutionalist theories are mechanisms whereby the nature of the productive forces influences forms of ownership. Vice versa, apparent in the theories of the radical economists are mechanisms whereby types of ownership influence the nature of the productive forces.

The mechanisms identified by neo-institutionalists—Oliver Williamson (1985) for example—have cast serious doubt on the hypothesis that technologies are neutral in regard to the nature of property rights and types of control over firms.

When it is impossible to write complete contracts, the characteristics of the productive forces influence the attribution of control rights. In the presence of contractual incompleteness, those in possession of relatively specific resources (i.e. resources which cannot be put to other uses without losing some of their value) find themselves in a very

difficult situation.

The fact that resources are specific does not constitute a problem in the neoclassical world of zero transaction costs and complete contracts. In this case, when a resource is specific (and therefore does not have uses alternative to its current one), it is always possible to protect oneself against opportunism by the counterparties with a complete contract.

The specificity of resources becomes a problem if it is not possible to obtain adequate guarantees by means of a sufficiently complete contract. In this case, those with control over the firm have greater guarantees than do other individuals. In these circumstances, because those who invest in specific resources are made vulnerable by the absence of alternative uses, they will seek to obtain such guarantees. Samuelson's proposition no longer holds, because in this situation "who hires whom" becomes important. When the technologies change, the specificity characteristics of resources change as well, and so do the kinds of property and control rights that are efficient to use. There thus again arises the idea that changes in the productive forces influence production relations and property rights. In other words, some sort of unconscious 'reincarnation' of *Marx I* paradoxically explains why, according to NIE, most institutions of capitalism are efficient.

However, the reasoning can be reversed, so that the junior brother Marx is 'reborn' in opposition to *Marx I*. Though it is true that those who possess resources specific to a firm seek to acquire control over it, the opposite is the case as well: in situations of contractual incompleteness, those with control rights over a firm have relatively fewer inhibitions about developing resources specific to that organization.¹³⁾ Because rights influence the specificity characteristics of resources, they also influence the nature of the productive forces employed. The second aspect of neutrality in neoclassical theory disappears as a consequence. Thus, whilst in a certain sense *Marx I* presaged the neo-institutionalist critique of neoclassical theory, *Marx II* demonstrates the one-sidedness of that critique.

The same reasoning applies to information asymmetries. By virtue of the latter, some agents may possess hidden private information, which makes complete contracts impossible to stipulate. If some agents possess concealed information their monitoring becomes difficult, or even impossible; and this distances us considerably from a world of

¹³⁾ Initially developed by Marx in the first book of *Capital*, this point has been taken up by numerous 'radical economists': for instance Braverman (1974), Marglin (1974) and Rowthorn (1974), Edwards (1979), Bowles and Gintis (1999).

complete contracts.

In this situation, because the technologies employed determine the distribution of information among agents, certain attributions of property rights tend to prevail because of their greater efficiency (relatively to the technologies employed). In particular, of greater efficiency will be the rights attribution that allocates the rights deriving from ownership to agents difficult to control (and/or controllable at very high costs) because they possess a greater amount of concealed private information.¹⁴⁾ Also this neo-institutionalist argument induces us to reject the neutrality of technologies with respect to rights—which brings us back to *Marx I* and his thesis that the productive forces influence property rights: changes in the technological characteristics of the productive forces alter the nature of the information asymmetries and distribution of information among agents, thereby influencing the nature and attribution of property rights.

In the case of information asymmetries, too, *Marx II* aids understanding of the limitations in this ‘efficiency’ view of the development of the institutions. The argument can be again reversed, and made to follow the reasoning of the radical economists. Those who own or control organizations will not perceive their accumulation of private information as problematic (because some of their characteristics and actions cannot be monitored by other agents). Indeed, they will endeavour to ensure that their concealed information is not used against them. But these actors will perceive an increase in the concealed information possessed by other agents as disadvantageous, for this inevitably increases the costs of monitoring them. The attribution of rights to a certain agent will therefore tend to shift information asymmetries in that agent’s favour. Once again, the attribution of rights is by no means neutral, and it influences the nature of the productive forces employed.

8. Institutional-technological Complementarities and the Multiplicity of the Modes of Production

To be noted is that the neo-institutionalist reasoning and its radical reverse are not at all irreconcilable: in fact, they give rise to self-reinforcement effects. Rights reinforce themselves through the technologies that they select; and these technologies reinforce themselves through the rights that they favour. Those exercising control rights over an organization tend to become specific, and they seek to shift information asymmetries in their favour. This reinforces the convenience of their control, and once again gives rise to

¹⁴⁾ This point was first made by Alchian and Demsetz (1972). See also Alchian (1987).

technological choices, which further increase the degree of specificity and the accumulation of private information.

Perhaps an example is useful at this point. I provide one which has the advantage of being historically well-known, albeit now to some extent outdated. Taylorism has often been opposed to Toyotism because of the different technologies that the former uses, and because of the different rights that it attributes to workers (Barca *et al.*, 1999). Both neo-institutionalist and radical economists would agree that Taylorist techniques entail that jobs have scant specific content, and that they distribute information asymmetries in order that the workers can be easily monitored by other agents. Moreover, the two schools would also agree that Taylorism is associated with much less extensive workers' rights over the firm than those envisaged by Toyotism, where workers are closely protected against dismissal and often have jobs for life.

This agreement on matters of fact notwithstanding, radical and neo-institutionalist economists conflict in their views on the relations between rights and technologies in the Taylorist and Toyotist production systems. According to the neo-institutionalists, it is the two systems' different natures in terms of specificities and information asymmetries that explain their differing attributions of rights. According to the radical economists, by contrast, it is the two systems' differing attributions of rights that explain the specificity of human capital and the characteristics of their private information.

However, the two views can be reconciled by pointing out that different processes of cumulative causation may be at work in each production system.

In the case of Taylorism, the tenuous rights of workers inhibit the accumulation of specific skills and of information not observable by other agents. At the same time, these characteristics of the technology used make attributing rights to workers increasingly less convenient.

In the case of Toyotism, by contrast, the rights enjoyed by workers over the organization favour their specific investments and the accumulation of private information, which, in its turn, makes it more convenient to incentivise workers by granting them strong rights over the organization.

Toyotism and Taylorism are therefore two modes of production in which productive forces and property rights reinforce each other. Once the 'dual neoclassical neutrality' has been abandoned, and the neo-institutionalist and radical mechanisms are used jointly,

it can be formally demonstrated that different *organizational equilibria*¹⁵⁾ arise from the multiple interactions between property rights and the technologies used. When the *junior Marx brother* is given the same importance as his senior brother, a multiplicity of historical outcomes may arise and Marxism loses its ability to predict a single overarching course of history. But it becomes able to contribute to the explanation of the numerous historical paths that have characterized the capitalist societies.

This multiplicity of historical outcomes can be made even more evident by re-stating the relationship between productive forces in terms of complementarities (Aoki, 2001). Assume that Tx is a technological path which uses more intensively specific and difficult-to-monitor productive forces x than Ty (using more intensively specific and difficult-to-monitor resources y). Moreover, assume that Ix is an institutional path where control rights are assigned to the owners of assets x and Iy is an institutional path where resources are assigned to the owners of y.

The Marx I and NIE arguments can be then re-stated by saying that the selection of Tx (instead of Ty) in the technological domain favours Ix relatively to Iy in the institutional domain, or:

$$u(Ix, Tx) - u(Iy, Tx) = u(Ix, Ty) - u(Iy, Ty) \quad (1)$$

The Marx II argument can be re-stated by saying that the selection of Iy (instead of Ix) in the institutional domain favours the adoption of Ty instead of Tx in the technological domain. Marx I and NIE, or:

$$v(Ty, Iy) - v(Tx, Iy) = v(Ty, Ix) - v(Tx, Ix) \quad (2)$$

Taken together, (1) and (2) can be used to pinpoint the technological-institutional complementarities which define different modes of production. When multiple equilibria exist, we can say that there are two different sets of technological-institutional complements. The first is characterized by the co-evolution of Ix and Tx. The second is characterized by the co-evolution of Iy and Ty. Each couple of complements defines a different mode of production or, using our terminology,¹⁶⁾ different “organizational

¹⁵⁾ For a formal analysis of organizational equilibria see Pagano (1993) and Pagano and Rowthorn (1994) which show the conditions under which the interactions between technologies and property rights bring about a multiplicity of equilibria. The (relative) strength of these relations has been estimated in Earle *et al.* (2006). The concept of organizational equilibrium is substantially equivalent to institutional complementarity (Aoki, 2001) between rights and the technologies used. On institutional complementarities see also (Pagano, 2007b, c).

¹⁶⁾ See Pagano (1993) and Pagano and Rowthorn (1994).

equilibria”.

A self-reinforcing cumulative causation is likely to characterize the relation between relations of productions and productive forces, and it may give rise to a multiplicity of technological-institutional development paths. This multiplicity of development paths may well weaken the predictive power of Marx’s theory. However, his approach may gain more from an enhanced ability to understand the rich variety of capitalist societies¹⁷⁾ than what it is bound to lose in terms of its teleological predictive power stemming from a technologically deterministic conception of history.

9. Conclusion

We may therefore integrate the *two Marxes* by adopting a perspective which Albert Hirschman (1981) has called ‘*micro-Marxism*’. This approach provides the means with which to analyse the numerous modes of production that simultaneously exist both in different capitalist societies and within a single society. Thus abandoned are the theoretical claims of a universalist history in which all production systems must follow the same line of development. Favoured instead is careful analysis of the multiplicity of forms that organizations may assume. *Micro-Marxism* does not only require abandonment of a unilinear view of history; it also helps clarify the features of the often highly diverse organizational forms that coexist within what is now a global history. It is precisely the mechanisms of mutual reinforcement between productive forces and ownership types that impede the elimination of diversity among countries.

Of course, globalization is also cultural standardization and economic and financial integration, and in certain respects it diminishes diversity among the institutions and traditions of countries. Many would see these processes as confirming a *macro-Marxist* account highlighting certain general tendencies in capitalism. In a famous passage in the *Manifesto* Marx praised the bourgeoisie for having given “a cosmopolitan character to

¹⁷⁾ Both the works of Antonio Gramsci in Italy and of Kozo Uno in Japan can be seen as early contributions to the “Varieties of Capitalism” literature. Gramsci (1975) emphasized the importance of the political conditions that were behind the novelty of Taylorism and of the Fordist American variety of capitalism. The creative Marxian Japanese tradition was immediately confronted with the evident peculiarities of the Japanese variety of capitalism and generated many interesting and lively debates (Hoston, 1986). In particular, Kozo Uno, with his different stages theory of capitalist development and with his three levels of economic research, (Hoston, 1986, pp. 284–287), opened up an interesting route to reconcile the Marxian theory with the real life diversity of capitalist models.

production and consumption in every country".¹⁸⁾

The enforcement of intellectual property rights is another general tendency in capitalism which Marx precociously identified. These rights are only efficacious if they are applied globally. They represent one of the most important aspects of the type of globalization that has arisen in the ten years since the TRIPS agreement (which permits the imposition of commercial sanctions on countries which breach intellectual property rights). This growing commodification of human knowledge means that an increasingly large part of firms' capital consists of private rights on knowledge. As a consequence, in every part of the world, a significant amount of human knowledge cannot be freely used by those bereft of those rights. Deprivation of the right to use knowledge is much more damaging than exclusion from material means of production: whilst all individuals have the liberty to replicate the production of physical goods belonging to others, they cannot replicate knowledge to which others possess the intellectual property rights. The frequent consequence is a worldwide monopoly exercised by those owners. Marx in his time identified this growing monopolization of knowledge as one of the fundamental dynamics of capitalism.

It is a result of the division of labour in manufactures, that the labourer is brought face to face with the intellectual potencies of the material process of production, as the property of another, and as a ruling power. This separation begins in simple co-operation, where the capitalist represents to the single workman, the oneness and the will of the associated labour. It is developed in manufacture which cuts down the labourer into a detail labourer. It is completed in modern industry, which makes science a productive force distinct from labour and presses it into the service of capital (Marx, 1967, ch. 14, section 5).

However, a global history characterized by an increasingly integrated world by no means implies that there is a single universal history. Globalization may instead induce countries to specialize in particular production sectors in order fully to exploit their 'comparative institutional advantages'.¹⁹⁾ Such specialization may heighten the diversity of production processes and institutions among countries. Globalization is therefore a

¹⁸⁾ "To the great chagrin of reactionaries," Marx added, "it has drawn from under the feet of industry the national ground on which it stood" (Marx, 1848, p. 6).

¹⁹⁾ Some modes of production may even fall victim in the long run to a productive specialization dictated by their comparative institutional advantages. And their development may be hampered by vicious circles of self-reinforcement between ownership types and productive forces. Unfortunately, an example of this type of vicious circle is provided by the present situation in Italy (Pagano, 2004). On the theory of comparative institutional advantages see Hall and Soskice (2001) and Pagano (2008).

complex phenomenon involving not only processes of convergence, such as cultural standardization and the imposition of certain rights (for example intellectual property rights), but also growing diversification of the relations between property rights and productive forces of countries. Both *senior Marx* and *junior Marx* can greatly help us in understanding these common trends and these growing diversities. Even if another famous Marx brother refused to join any club that would accept someone like him as a member, we do need their full membership in the contemporary revival of institutional economics.

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