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Costly Institutions as Substitutes: Novelty and Limits of the Coasian Approach

Ugo Pagano (University of Siena, pagano@unisi.it)

and

Massimiliano Vatiero (University of Lugano, vatierom@usi.ch)

ABSTRACT

One of the main contributions of Ronald H. Coase was to demonstrate how mainstream economics was based on a contradictory amalgam of costly physical inputs and free institutional resources, and to give origin to the economics of institutions: each institution is a mode of allocation and organization of economic resources that is to be investigated. In particular, none of the institutions (including the market) is a *free lunch*. The Coasian approach regards institutions as costly substitutes and provides a fundamental starting point for comparative institutional analysis. However, Coase neglected two issues deriving from the observation that institutions are not cost-free. First, when institutions are costly, one should not only consider their possible substitutes but also how complementary institutions affect their costs, as well as the costs of the possible institutional substitutes. Secondly, the economic analysis should also take into account that the transition from one institutional setup to another cannot occur in costless meta-institutions. The initial conditions may substantially affect the final institutional arrangements. Both the novelty of Coase's approach and its limits were grossly undervalued. In particular, the costly institutions assumption requires a view of economics as a historical discipline.

Keywords: Ronald Coase, transaction costs, institutions, institutional complementarities.

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«You will not float down, like a sickly fish, with the tide […]
you enjoy considerable mental vigour
and are not a passive instrument in the hands of others […]
you are more inclined to think and work for yourself»
a phrenologist to Coase, when he was 11 years old
(R.H. Coase 1992)

1. Introduction

The standard neo-classical economic problem has been how to allocate economic resources in such a way as to maximize welfare. In the simplest economy represented by the Edgeworth box, economic agents, bartering for their goods, achieve some point on the Pareto set (i.e. the *contract curve*). That is, by means of individual exchanges the market takes care of the efficient allocation process – this is an expression of the First Fundamental Theorem of Welfare Economics. The conditions on which this Theorem is based are that economic resources are costly, while the institutional allocation process – namely the market, which can achieve efficiency – is cost-free. In this respect, the standard neo-classical approach consists of a contradictory amalgam of costly physical inputs and free institutions, i.e. (good) institutions are without cost in a world in which resources are costly. The main contribution of Ronald Coase was to investigate how costly resources are allocated within likewise costly institutional arrangements. His sophisticated strategy involved two steps. The first was to show that, in a world of zero transaction costs, traditional sources of market failures, such as externalities, including economies of scales and scope (Pagano, 2012), could be overcome through costless bargaining. The second was to show that these results only hold in a world of a zero transaction costs:[1] that is, in a world where one institution may be used without consuming

[1] The concept of transaction costs was introduced in Coase's article of 1937 (in terms of "the cost of using the price mechanism", "the cost of carrying out a transaction by means of an exchange on the open market"), and it was developed in his article of 1960 with the phrase "the costs of market transactions". However, in the literature these two articles, for which Coase was awarded the Nobel Prize by the Royal Swedish Academy, have rarely been linked together in a single powerful theoretical framework, and they have sometimes even been seen as contradictory – a socialist vs. a liberal Coase. Yet Coase's two main articles represent two pieces of the same analysis (see Calabresi 1991, Pagano 2012) aimed at developing the concept of transaction costs in order "to understand the working of the economic system, to analyse many of its problems in a useful way, or to have a basis for determining policy" (Coase 1988a: 6). Because of the existence of transaction costs, economic analysis has to rely on careful study of the actual functioning of different institutions and on meticulous comparative institutional analysis. Unfortunately, this point of view, in the words of Coase (1988a: 1), "has not in general commanded assent", nor has it "for most part, been understood".

scarce resources – an unrealistic assumption at odds with the self-proclaimed methodology and ontology of the economic discipline. Unfortunately, most economists were unable to go beyond the first step of Coase's sophisticated strategy and failed to understand the unconventional implications of his rich approach to economic analysis.

In this article we will consider some ambiguities in Coase's seminal work. These ambiguities have contributed to creating the wide gap between its novelty and its reception by the economic profession. We will argue that removing the assumption of null transaction costs entails that also the Coasian substitution among different institutions must occur in a world of positive transaction costs – a point that was not adequately considered by Coase. In a world where each institution has positive transaction costs, also the substitution among costly institutions is bound to take place in a costly pre-existing environment. A world of positive transactions must necessarily be accompanied by positive transition costs incurred in the substitution of the existing institutions. Moreover, all costly inputs, including institutions, are going to be characterized not only by substitution but also by complementarity relations. Thus, their substitution possibilities are limited by the co-existence of other institutions or, in other words, by their embeddedness in a historically given institutional framework. Both transition costs and institutional complementarities require a historical/evolutionary approach to the analysis of economic systems.

Instead of moving towards a historical/approach, Coase extended the domain of the neo-classical methodology formulated by Lionel Robbins. According to Robbins' definition of economics as the science of choices, economists study how consumers choose to purchase goods and services and how producers decide on what production factors to employ and what quantities of products to make and supply. These choices are expressed through a rate of substitution, i.e. the marginal rate of substitution on the consumption side and the marginal rate of substitution on the production side. Besides the choice among *physical* resources, Ronald Coase introduced into the economic investigation the choice among institutions (or *institutional* resources): "economic policy involves a *choice* among alternative social institutions" (Coase 1988a: 28, italics added)[2]. As in the case of costly physical inputs, Robbins' logic of choice could be applied to study the optimal mix of institutions.

If all institutions are costly, Robbins' a-historical approach to economic analysis is bound to run into insurmountable difficulties. The transition from one institution to another cannot happen in a costless market but must occur in a costly institutional framework characterized by numerous institutional complementarities. Assuming that the market is the costless institutional locus where this transition occurs clashes with the Coasian insight of costly institutions. It produces a hybrid theory handicapped by inconsistent hypotheses. The market cannot contradictorily be represented as a costly institution and, at the same time, as an a-historical and cost-free meta-institution within which costly institutions (including the market!) are substituted.

The article is structured as follows. In the next section, we summarize the novelty of Coase's thought in the field of institutional economics. Section 3 deals with the meaning of institutional complementarity and how it can improve and extend the Coasian approach. Section 4 shows the essential role of historical analysis in the understanding the evolution and the diversity of actual institutions. Section 5 summarizes our main points, arguing that only a historical approach can fully develop the insights of the Coasian approach and offer a solution to its contradictions.

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[2] This choice is based on the fact that every institution, as well as every physical resource, is costly. The market is not "an automatic self-regulating system" (see Coase 1937, 1972, 1988) or *locus naturalis* (Irti 1994); rather, it has costs of functioning or costs for performing a certain transaction. The "costs of discovering what the relevant prices are; [...] costs of negotiating and completing a separate contract for each market transaction" (Coase 1972: 63) are some of the typical costs of a market economy which must be compared with the cost of using other institutions such as the firm or government's regulation.

2. Costly institutions: the consistency of the Coasian contributions

The substance and the purpose of institutions consist in reducing transaction costs: "Markets are institutions that exist to facilitate exchange, that is, they exist in order to reduce the cost of carrying out exchange transactions" (Coase 1988a: 7). Subsequently, if the cost of performing the transactions in the market is higher than in firms, then firms "substitute" markets in that task.

> Within a firm […] market transactions are eliminated, and in place of the complicated market structure with exchange transactions is *substituted* the entrepreneur-co-ordinator, who directs production. It is clear that these [i.e. market and firm] are alternative methods of co-ordinating production (Coase 1937: 388, italics is added).

And again, Coase maintains that "the operation of a market costs something and that, by forming an organization and allowing some authority (an "entrepreneur") to direct the resources, certain marketing costs are saved" (Coase 1937: 392).

Thus, the main argument delivered by Coase in "The Nature of the Firm" is that firms exist because there are costs of using the price mechanism and these costs can be reduced by the use of an administrative structure. The firm's ability to substitute administrative fiat for bargaining may resolve concerns linked to dealing with transactions at a lower cost than in the market. In this respect, "The most important adaptation to the existence of transaction costs is the emergence of the firm" (Coase 1988a: 7). On the other hand, the administrative costs of firm organization may be very high, perhaps exceeding the costs of market organization. For this reason,

> a firm will tend to expand until the costs of organizing an extra transaction within the firm become equal to the cost of carrying out the same transaction by means of an exchange on the open market or the costs of organizing in another firm (Coase 1937: 395).

Besides market and firm, a further institutional alternative for handling transactions and reducing transaction costs is governmental regulation. Coase (1960) maintained that the government could act as a "super-firm" through its ability to allocate resources by administrative fiat. In particular, the government may impose regulations through, for instance, administrative agencies – in its activity, the government, unlike the firm, also has the monopoly of coercion (by the police) at its disposal. However, nor is the government *machine* costless. There are governmental failures due, for instance, to incomplete information on benefits and costs, as well as producer or consumer preferences. Then, when the costs of governmental regulation are higher than market costs, the transaction should come back to the market – this was the main argument in regard to broadcasting frequencies put forward by Coase in his article "The Federal Communication Commission" – or carried out within the firm.

Hence, whilst in the case of markets the movement (*trans*-action) of a resource from an agent Y to an agent X is carried out in a completely decentralized way by the price-mechanism, in the firm and in the State this movement or transaction is performed mainly by administrative decisions and hierarchical structures based on authority. Hence, Coase (1937, 1960) affirms, there are multiple (not obvious) options for dealing with transactions.[3] And in regard to the Coasian approach, the economic investigation should explicate the functioning of these different modes of allocation and organization.

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[3] However, one of the aforementioned institutional solutions should be chosen only if the net benefits which would result from the institutional rearrangement of activities is positive; otherwise, a last option is inertia, "to do nothing about the problem at all" (Coase 1960: 18).

Moreover, in 1960 Ronald Coase showed that the essential ingredient of efficient markets – as stated in the First Fundamental Theorem of Welfare Economics – is (the definition and enforcement of) property rights: in the market, the trade of resources relies on alienable rights (that is, property rights) and consists of an exchange of rights on uses deriving from these resources. Like the Old-Institutionalists[4] about ninety years ago (e.g. Commons 1924), Coase affirmed that markets require "the establishment of legal rules governing the rights and duties of those carrying out transactions in these facilities" (Coase 1988: 10) and the enforcement of these rules in order to secure the agreement of the parties to the exchange. This is the "legal Nirvana" which presupposes *clear* and enforced property rights, and it leads to the "economic Nirvana" in which the market wholly *clears* (Nicita and Pagano 2008). Furthermore, Coase (1960) demonstrates that there is no (analytical) difference between rights on piece of land and those allowing, for instance, the emission of smoke. If rights are well defined, also the market transaction of rights to smoke could lead to Pareto efficiency. Hence, more *precisely defined and easily tradable*[5] property rights may improve market exchanges and lead to a Pareto efficient allocation of resources, for every kind of economic resource.

In the Coasian approach, an externality (i.e. the effect of one agent's action on the welfare of another leading to the divergence between the private and social product of such an action) represents the absence of a market instead of the presence of a market failure. Externality has a reciprocal nature and consists essentially of interferences between rival uses of the resource, e.g. the Rancher's use of the land to herd cattle *vs.* the Farmer's use of it to grow crops. Externality problems are ultimately property rights problems and may be solved by defining property rights clearly and by facilitating the trade of resources. Each property right should specify the relevant attributes (including the enforcement) of each use of the resource and the contingencies that characterize such uses. Accordingly, externality problems do not constitute a *prima facie* case for public intervention (taxation or regulation) as affirmed by the Pigovian tradition – a policy insight that induced Coase to write, quite accidentally,[6] "The Problem of Social Cost".

In the Coasian approach the relationship between externalities and market failure is reversed. The "technical" problem of the externality is not the source of market failure. The opposite is true. The failure of an institution – in this case the market – to make individuals take into account the effects of their decisions on the others is a source of an externality. When the market does not fail (in the strong sense that transaction cost are zero) once property rights have been defined, the parties will exchange them, maximizing the joint value of activities[7].

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[4] For a critical analysis of legal relations in the economic system along with the American Old-Institutional perspective, see Fiorito and Vatiero (2011) and Vatiero (2013) on this Journal.

[5] Note that under certain conditions, dividing a legal entitlement between rivalrous users can facilitate Coasean efficient trade. (Cf. Ayres and Talley 1995).

[6] Indeed, it is probable that "The Problem of Social Cost," one of the most extensively cited articles in the whole of the modern economic literature, would never have been written if about twenty Chicagoan economists, such as Director, Friedman and Stigler, had not thought that Coase had made (what Stigler later referred to as) an "obvious mistake" and even "heresy" in his article of 1959 on "The Federal Communications Commission" (see Coase 1988, and also Medema 2009).

[7] Thus, the First Fundamental Theorem of Welfare Economics holds, almost tautologically, only in a world of zero transaction costs. Moreover, in such a world, "the ultimate result (which maximizes the value of production) is independent of the legal position if the pricing system is assumed to work without cost" (Coase 1960: 104). These two theses, the so-called efficiency and invariance thesis respectively, compose the Coase theorem. As well known, Ronald Coase himself declined to use the label "Coase theorem". The reformulation of Coase's argument in the form of a theorem is attributed to George Stigler (Coase 1988a, 1988b) as follows: under perfect competition, private

> In the absence of transaction costs, it does not matter what the law is, since people can always negotiate without cost to acquire, subdivide, and combine rights whenever this would increase the value of production. (Coase 1988a: 14).

The market would be substituted by other institutions, such as the firm or state-regulation, when one of these institution is the cheapest way to internalize the externality (and the benefits of internalizing the externality with the cheapest institution outweigh its institutional costs). Thus, as Coase clarified, in the introduction to his essays (1988, p.14), his contributions to the understanding of the nature of the firm and the nature of social costs are parts of the same complex but unitary vision:

> I showed in "The Nature of the firm" that in the absence of transaction costs, there is no basis for the existence of the firm. What I showed in the "Problem of Social Cost" was that, in the absence of transaction costs, it does not matter what the law is, since people can always negotiate without cost to acquire, subdivide and combine rights whenever this would increase the value of production. In such a world the institutions which make up the economic system have neither substance nor purpose.

Similarly to markets and to state-regulation, the firm is another way to deal with what most economists had treated as a technical externality problem but Coase re-framed as a problem of comparative institutional analysis.

> It is clear that an alternative form of economic organization that could achieve the same result at less cost that would be incurred by using the market would enable the value of production to be raised. As I explained many years ago, the firm represents such an alternative to organizing market transactions (Coase 1960, p. 115).

From the Coasian point of view, economies of scope and scale can be seen as particular types of externalities arising whenever some agents are not rewarded (or not penalized) for the benefits (damages) that the production of some output has on outputs produced by other agents. When these effects take place among qualitatively different units of output, these externalities identify the case of economies of scope. In the case in which the same effects occur among identical units of output, these externalities can be classified as economies of scale. In a costless market, both economies of scope and of scale would be internalized by complete contracts such that everyone would be fully rewarded (or penalized) for the effects that her production activities have on the other individuals. In this case, the economies of scale and scope would be fully exploited by the market economy, and firms' size would not contribute to reaping the fruits of increasing returns. By contrast, if markets are incomplete, large organizations are likely to be necessary to enjoy the advantages of internalizing the effects that the production of one output has on the other. Similarly to (and indeed as a particular case of) externalities a consistent Coasian approach must invert the link between market failure and scope-scale economies, changing the issue from a purely technical problem to one including a rich institutional comparative analysis.[8]

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and social costs will be equal. Other formulations, before and shortly after Stigler's are by Buchanan and Tullock (1962), Demsetz (1967) and Calabresi (1968): for Buchanan and Tullock (1962: 47-48), "if the costs of organizing decisions should be zero, all externalities would be eliminated by voluntary private behaviour regardless of the initial structure of property rights"; Demsetz (1967: 349) asserts that "in a world of zero transaction costs […] the output mix that results when the exchange of property rights is allowed is efficient and the mix is independent of who is assigned ownership"; finally, for Calabresi (1968: 68), "if one assumes rationality, no transaction costs, and no legal impediments to bargaining, all misallocations of resources would be fully cured in the market by bargains". Subsequently, the Coase theorem has been stated in numerous further ways (see Medema and Zerbe 1999), and also by Coase himself: "under null transaction costs, private and social costs will be equal" (Coase 1988b: 158).

[8] In a world of zero transaction costs, similarly to the case of other externalities, the market failures associated with economies of scale and scope can be traced to the incompleteness of the property rights system. Pagano (2012,

Coase's strategy involved two steps. The first was to show that, in a world of zero transaction costs, the traditional sources of market failures, such as externalities (including economies of scope and economies of scale), could not exist. The second was to show that the analysis of these phenomena required a new economic approach where costly resources were allocated in a world of costly institutions.

Most economists ignored the second step of his analysis. They were instead fascinated by the world of zero transaction costs to which the Coase theorem applies. According to Coase (1988: 15), this was "the world of modern economic analysis" – a strange institution-free world where we have "firms without organization, and even exchange without markets" (Coase 1988a: 3)

The first step of Coase's inquiry confused with an analysis of the real world. This misunderstanding transformed most economics into a set of useless exercises:

> while consideration of what would happen in a world of zero transaction costs can give us valuable insights, these insights are, in my view, without value except as steps on the way to the analysis of the real world of positive transaction costs. We do not do well to devote ourselves to a detailed study of the world of zero transaction costs, like augurs divining the future by the minute inspection of the entrails of a goose (Coase 1981: 187)

The central issue of economic analysis should instead have been

> the costs of carrying out transactions on the market and the costs of organizing the same operations within the firm [or other institutional arrangements] which can perform this task at the lowest cost (Coase 1972: 64)

Paraphrasing Milton Friedman's popular slogan *There is no such thing as a free lunch,* meaning that there is no socially relevant human need whose satisfaction is free, the Coasian message is that the issue of institutional substitution arises because no institution is a "free lunch". This insight marked a dramatic and fertile change in the focus of economic analysis. However, it could not be limited to an extension of Robbins' logic of substitution among costly production inputs. Costly lunches do not only involve the substitution of the items on the menu but also their complementarities. One item on the menu may be (or not be) substituted by another if the complementary ingredients are available (or lacking). One cannot ignore the historical set-up and the interlocking complementarities where institutional substitution takes place. Otherwise, one is forced to assume the existence of costless meta-institutions. In this case "institutional free-lunches" are not really removed. They are simply moved to a higher level Nirvana. To avoid higher-level Nirvana fallacies, one must make an historical analysis of the complementary institutional factors framing a particular institutional substitution choice. As implied by the title of Hodgson's (2001) book, extending the analysis to costly institutions entails that *economics cannot forget history*.

3. Beyond Coase: institutional complementarities.

In his pivotal book *Markets and Hierarchies*, Oliver Williamson succinctly summarized the Transaction Cost Economics generated by Coase's argument as follows:

> (1) Markets and firms are *alternative* instruments for competing a related set of transactions; (2) where a set of transactions ought to be executed across markets *or* within a firm depends on the relatively efficiency of each mode" (Williamson 1975: 8, italics is added).

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section 4) shows that defining a new set productions rights allows the internalization of these externalities and implies the existence of constant returns also in a regime of technical (dis)economies to scale.

These two statements recapitulate the novelty of the Coasian view: namely that economic analysis should include the study of substitution among costly institutions; but they also indicate its limitations: the exclusion of institutional complementarities and history from economic analysis. Indeed, the fact that institutions are costly implies not only that institutional arrangements are substitutes intended to reduce transaction costs, but also that a certain degree of complementarity (or *bundling*) among institutions may be needed.[9]

When the "performance" of one institution is conditioned by and benefits from the presence of another institutions and vice-versa, we speak of institutional complementarity[10]; when, instead, the presence of one institution undermines the functioning of another, we speak of institutional *crowding out*.[11] For instance, the more a market of production factors clears, the more efficiently a firm produces; the more efficiently a firm produces, the more tax-revenue the State may collect and use to provide better courts for the protection of rights; and the more property rights are protected, the more the market clears; and so on (see Vatiero 2009, ch. 4). Put briefly, private ownership, competitive markets and the rule of law often implement highly efficient solutions to allocation problems, but only if all three components are present (see Bowles 2004: 12).

The notion of institutional complementarity (Milgrom and Roberts 1990, Pagano and Rowthorn 1994, Aoki 2001) relies on the idea that, in a given institutional framework, economic agents operate in different institutional domains. As a consequence, choices in one domain act as exogenous parameters in other domains and constitute the *institutional environment* in which institutional choices are made. According to Aoki (2001), institutional complementarities are situations of *synchronic interdependence* across distinct institutional domains. In this setting "one type of institution rather than another becomes viable in one domain, when a fitting institution is present in another domain and vice-versa" (Aoki 2001: 225).

The term "fitting" used by Aoki invokes an evolutionary approach to institutional contexts. Accordingly, a growing body of literature shows that the evolution of economic systems may share some of the complicated intellectual challenges that characterize the Darwinian evolution of natural species in biology[12] (Hodgson 1993). As long as institutional complementarities are deep and strong, they can affect, or conceivably determine, the best-fitting institutional arrangements, and that system will differ depending on which local complement dominates.

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[9] In some passages, also Coase seems to suggest the idea of complementarity/bundlimg among different institutional tools. For instance he argues that "for anything approaching perfect competition to exists, an intricate system of rules and regulations would be normally be needed […] regulation may play in widening the market" (Coase 1988a: 9), and that "the interrelationships which govern the mix of market and hierarchy […] are extremely complex" (Coase 1992: 718). These arguments imply that if the market is to achieve efficiency, it needs *also* complementary institutions such as hierarchical structures and governmental regulations.

[10] Complementarity is a recurrent and somewhat contentious topic of study for economic analysis. For instance, while Paul Samuelson in 1947 affirmed that "in my opinion, the problem of complementarity has received more attention than is merited by its intrinsic importance" (Samuelson 1947: 183), he later corrected himself in 1974, by asserting that "the time is ripe for a fresh, modern look at the concept of complementarity" (Samuelson 1974: 1255). On the notion of complementarity, see also Vatiero (2009).

[11] See Bowles (2004). One of the most frequently quoted examples of institutional crowding out is offered by Gneezy and Rustichini (2000): the use of a market mechanism (the fine as a price) seems to have undermined parents' sense of obligation to avoid inconveniencing teachers by taking their children on time to school.

[12] Coase believes that a more accurate depiction of human behavior can be found in biology, where human nature is seen as an outcome of a long-term evolutionary process in which genetic influences play an important role (Coase 1978: 244-245). However, Coase does nothing to develop these ideas.

Analytically, suppose two institutional domains, σ and φ, with sets of agents, m and n, that do not directly interact. Assume that the agents in domain σ face the choice between a rule from either σ^A or σ^B, while agents in domain φ face the choice of a rule from φ^A and φ^B. Supposing a payoff function u, let us suppose the following conditions, for all agents in m and n:

$$u(\sigma^A, \varphi^A) - u(\sigma^B, \varphi^A) \geq u(\sigma^A, \varphi^B) - u(\sigma^B, \varphi^B) \quad [1]$$

$$u(\varphi^A, \sigma^A) - u(\varphi^B, \sigma^A) \geq u(\varphi^A, \sigma^B) - u(\varphi^B, \sigma^B) \quad [2]$$

The condition [1] implies that the "incremental" benefit for the agents in σ from choosing σ^A rather than σ^B increases as their institutional environment in φ is φ^A rather than φ^B; the condition [2] implies that the "incremental" benefit for the agents in φ from choosing φ^A rather than φ^B increases as their institutional environment in σ is σ^A rather than σ^B. These two conditions express the idea of complementarity between two different domains. It can be proved that the two strategy profiles (σ^A, φ^A) and (σ^B, φ^B) may be Nash equilibrium profiles (Aoki 2001, see also Milgrom and Roberts 1990). When these two equilibria exist, σ^A and φ^A as well as σ^B and φ^B are called 'institutional complements'. Note that these two equilibria may be ranked in terms of efficiency: for instance, equilibrium (σ^A, φ^A) may be Pareto superior to (σ^B, φ^B). Hence, institutional complementarities may engender, not a tendency towards systemic efficiency, but the emergence of different and (in)efficient economic equilibria.

Moreover, the emergence of multiple equilibria, namely (σ^A, φ^A) and (σ^B, φ^B), means that the convergence towards a certain Pareto-efficient equilibrium will be more complicated in both theory and practice than a simple smooth and expectable change. Indeed, institutional interdependences lead to patterns that Gunnar Myrdal and institutionalists such as William K. Kapp termed "circular and cumulative causation" and are now called "path-dependency". Because of institutional complementarities, small changes may have durable consequences on "hybrid" situations, e.g. disequilibrium among institutional complements such as (σ^A, φ^B) and (σ^B, φ^A). They may set off a circular and cumulative causation process leading rapidly to an equilibrium. On the other hand, big changes may not produce institutional or economic readjustments because of the costs of switching from one equilibrium to another; in this case the initial condition may have persistent "lock-in" effects[13] – this is one of the (unfortunately implicit and untested) conditions of the so-called legal origins theory (e.g. La Porta et al. 1999).

Institutional complementarity entails that economics, similarly to evolutionary biology, is a historical discipline. When institutions are costly, one should consider not only their possible substitutes but also how complementary institutions affect their costs and the costs of the possible institutional substitutes. Whereas in the Coasian approach optimal institutional substitution implies the existence and the convergence to a single optimal equilibrium, institutional complementarities entail that multiple (and possibly inefficient or non-comparable) equilibria can well exist.[14]

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[13] Biologists use the term *punctuated equilibrium* to refer to this alternating pattern of rapid stasis change (Eldredge and Gould 1972).

[14] Multiple equilibria stemming from institutional complementarities can offer explanations for institutional arrangements in several contexts. For instance, they can aid understanding of why some markets work differently than others (e.g. Aoki 2001, Bowles 1998, Bowles and Gintis 1993), why some firms are organized differently from others (e.g. Aoki 2001, Pagano 2011, Pagano and Rowthorn 1994), why some societies are structured differently from others (e.g. Heinrich et al. 2001), and above all why different varieties of capitalism emerge and persist (Amable 2003, Belloc and Pagano 2013, Hall and Gingerich 2009, Hall and Soskice 2001, Roe 2003).

4. The market as a meta-institution: difficulties of the Coasian approach.

Also in this section a quotation from Oliver Williamson provides a useful starting point. In his book *Markets and Hierarchies*, Williamson writes: "I assume, for expositional convenience, that 'in the beginning there was the market'" (Williamson 1975: 20). As this statement shows, a recurrent condition of transaction costs economics is that the market, like a product of *Immaculate Conception* (Dugger 1992: 89), is assumed to pre-exist other institutional substitutes (see also Hodgson 1988: 177-182). This assumption that *in the beginning there was the market* limits the analysis of the consequences of costly institutions and involves the puzzling idea that costless meta-markets are available to select other institutions, including ordinary markets. (Meta)-markets are vested with the contradictory status of being both among the costly institutions to be selected and, and same time, the only costless institutions by which all the institutions are selected. The assumption that *in the beginning there was the market* means losing large part of the analysis stemming from Coase's insight of costly markets[15] and, in general, of *non-free-lunch institutions*.

These limitations are particularly evident in the case of institutional rearrangements deriving from technological shocks. In 1937 Coase maintained that technological innovation can change the institutional context; "[c]hanges like the telephone and the telegraph, which tend to reduce the cost of organising spatially, will tend to increase the size of the firm" (Coase 1937: 397). The idea is that "[i]nventions which tend to bring factors of production nearer together, by lessening spatial distribution", that is, by exploiting economies of scale, "tend to increase the size of the firm" (Coase 1937: 397). Furthermore, in a footnote he also underlined that:

> It should be noted that most inventions will change both the cost of organising and the costs of using the price system. In such cases, whether the invention tends to make firms large or smaller will depend on the relative effect of these two sets of costs. For instance, if the telephone reduces the costs of using the price mechanism more than it reduces the costs of organising, then it will have the effect of reducing the size of the firm (Coase 1937: 397, ft. 3).

In other words, the optimal institutional bundle, consisting of features from different institutions, is *recalculated* and *implemented* each time that the technological data change.[16] However, such an institutional rearrangement seems to be cost-free, as if some costless meta-markets take care of the transition from markets and firms (and vice-versa). The *transition* from a market price-mechanism to a hierarchy such as the firm, due to the development of new technologies, occurs without significant costs. Thus, Coasian markets seem to have a double role in the reaction to technological innovations: on the one hand, they represent one of the possible costly institutional substitutes; on the other, they serve as a cost-free meta-institution within which the other institutions are efficiently substituted. The functioning costs of markets limit the size of markets and explain the emergence of firms. At the same time, (meta-)markets justify the emergence

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[15] It is worthy to underline that the Law and Economics literature developed by Guido Calabresi (1991) and related to Coasean argument, shows, on the contrary, that given transaction costs, (i) the initial conditions matter because each transaction determines disadvantage at least someone (hence making distributional considerations unavoidable) and (ii) there is no justification for the primacy of markets, because market and non-market structures represent symmetric forms of organization with positive costs of functioning and possible benefits. Also according to Posner (1987), judge-made law is required to set the initial conditions for market exchanges.

[16] However, the reverse causation may also hold: the institutional bundle may affect the choice of technology (see Braverman 1974, Pagano and Rowthorn 1994).

of an efficient mix of markets and firms. Their functioning costs do not affect the achievement of an efficient institutional bundle, and they do not constrain the transition, required by technological change, from one organization to the other.

If we take serious account of Coase's intuition that neither markets nor firms can be *first best* solutions (in the sense that they are both constrained by their own costs of functioning), then the transition from market-type to firm-type organization (and vice-versa) must also be grounded on the analysis of transaction costs. Costly institutions have to be substituted in a costly institutional context. The existence of transaction costs implies the existence of transition costs: in a world of positive transaction costs, transition, or institutional switching, costs must also be positive. With significant transition costs, the institutional bundle may not simply tend to optimally correspond to the level of technological development, but must be heavily influenced by the pre-existing institutional structure of the economy. In other words, high costs of transition may inhibit or reduce potential (efficient) institutional rearrangements even in the presence of significant technological shocks. For this reason, the assumption that *in the beginning there was the market* neglects the fact that the substitution of institutions may not occur because of transition costs. It fails to understand that each transition occurs in a pre-existing institutional context, which is often characterized by numerous interlocking complementarities.

If one wants to avoid the "Nirvana fallacy" of a zero transaction world, one has to specify the relations of the initial institutional set-up and the costs of the potential institutional changes. In other words, one must move towards a history-dependent economics. A consistent Coasian approach must necessarily lead to some form of "evolutionary" economics where the initial institutional features are necessarily relevant to the explanation and the prediction of the final outcomes. Unfortunately, Coase did not consider these logical consequences of his analysis and failed to consider economics as a historical discipline.

A historical perspective should start from the fact that *costly* institutions (including the market), where *costly* resources are allocated, must evolve in a *costly* manner. Institutional substitution is not determined in a meta-market Nirvana but it occurs within a pre-existing institutional bundle constraining the set and the costs of institutional substitution. New technologies such as the telephone (analysed by Coase in his 1937 article) cannot be the only factors determining the future institutional bundle. Each transition (as well as each stasis of an economic system) is always influenced also by the past mix of institutions and by their interlocking complementarities. As a result, the development of markets and of other institutions is a historical outcome influenced by other complementary domains such as the legal context and politics. A further consequence is that "institutions are not necessarily or even usually created to be socially efficient, rather they, or at least the formal rules, are created to serve the interests of those with the bargaining power to devise new rules" (North 1990:16)[17].

Linking institutions and institutional change only to economic performance and technological changes sets serious limitations on economic analysis. One should analyse institutions with respect to the establishment and evolution of social and political compromises. Institutional change is often the outcome of strategies aimed at improving the situation of some or all components of the dominant elite. Mancur Olson's early contribution *The Rise and the Decline of Nations* and Daron Acemoglu's recent book (with J.A. Robinson) *Why Nations Fail* consider numerous historical examples of how the logic of groups' collective behavior may favour or damage the growth of nations by changing the institutions of society. The main result of this stream of literature is that *historical specificity* matters because "past institutional choices open up some paths and foreclose others for future institutional development" (Ostrom, 1990: 202).

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[17] Similarly, Amable (2003) defines institutions as political economy equilibria in the sense that they correspond to a compromise between conflicting social actors. Institutions derive from past and present struggles between factions with diverging interests.

5. Conclusion

Using "the beautiful simple prose of the accomplished English essayist" (Posner 1993: 205)[18], Coase demonstrated how mainstream economics was based on a contradictory amalgam of costly physical inputs and free institutional resources. Ronald Coase removed the assumption of free institutions and extended the logic of "efficient" substitution to costly economic institutions.

According to Robbins's classical definition, economics is the science of human choice, i.e. substitution among amounts of consumer goods and production factors. In many respects, Coase's contribution was a logical extension of this choices/substitution approach to institutional contexts: if all institutions (including the market) are costly, we have *a higher order substitution problem* regarding the institutions within which physical resources are substituted. Also institutions are costly alternative modes of allocation of costly resources.

In doing so, on the one hand, while advocating a comparative analysis of institutions, Coase considered them only as substitutes and ignored their complementarities. On the other hand, Coase was faced with a related problem of logical infinite regress: also the costly institutions have to be substituted in a costly institutional context.

Coase truncated, or better ignored, these problems by implicitly assuming the existence of costless meta-markets – an assumption that, unfortunately, has become the explicit assumption of much of the subsequent transaction cost analysis and is well captured by the already cited statement that "*in the beginning there was the market"* (Williamson 1975: 20). In this article, we have argued that there is only one way out of the sterile logical regress involving the Nirvana fallacy of (meta…)-meta-institutions: accepting that economics is a historical science and that each institutional substitution has be examined within a certain historical context characterized by numerous institutional complementarities.

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[18] According to Oliver Williamson (1989: 229), Coase's reluctance to formalize his argumentation slowed his influence, in particular in the case of the theory (on the nature) of the firm.

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