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TRANSACTION COSTS AND INSTITUTIONAL CHANGE

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Introduction

In modern economic analysis, the notion of transaction costs is used both as a technical concept in order to measure different kinds of costs related to contracting (search and information costs, contracting costs, monitoring and enforcement costs), as well as in the form of an explanatory device in order to understand economic change. Hence, according to the latter meaning, it is often presupposed by modern institutional theory that institutional change and different levels of transaction costs play a determinate role in the successive evolution of organizational modes. This evolutionary approach is clearly found in "true" institutional theory (known from the so-called "old institutionalists" and also expressed in the recent work of North), as well as in the so-called "neoclassical" institutional tradition from Coase to Williamson (see Eggertsson, 1990).

In this chapter, we will discuss the limitations of TCE in explaining institutional change and show that historical evolution is a complex process in which more than transaction cost minimization is involved. After having given some examples of TCE applications to historical changes, the problems of such applications are discussed. Path dependency turns out to be an important concept, explaining that evolution can also result in inefficient institutions. In the second part of this chapter, we discuss issues of selection and competition. In economic history, the influence of transaction cost economics can be found in a number of path breaking works of North and Thomas (1973), Rosenberg (1982), North (1990) and Chandler (1990).

The role of transaction costs in economic and regulatory change has been especially emphasized in three recent discussions dealing with the decline of the open field system during the early modern period, the transition from decentralized putting-out forms of production to factories during the 19th century and, lastly, the rise of the modern vertically and integrated firm.

Hence, it has been discussed whether or not a weak property-right structure combined with high transaction costs was a major cause behind the gradual decline of the open field system from the late medieval period onwards (Fenoaltea, 1991). Without doubt, the transition from decentralized forms of production—especially different forms of putting-out practices—to the factory was a major innovation during the late 18th and 19th centuries and signalled the triumph of the industrial system. During recent years, a technological explanation emphasizing the role of steam-driven

machinery for the rise of centralized production—the nuts and bolts explanation—has been replaced by an interpretation emphasizing the role of rising transaction costs during a period of increased demand for industrial products.¹ According to this explanation, the textile industry in Britain in particular during the latter half of the 18th century experienced a strongly growing demand which implied increasing organizational costs (including both transportation and transaction costs), which in turn laid the ground for a transition to more centralized forms of factory production. Lastly, the discussion of the rise of the modern integrated firm, inspired by Chandler's path breaking works *The Visible Hand* and *Scale and Scope*, emphasizes the role of transaction costs.² In this discussion, the main issue is the rise of the U-form and M-form organization. Through organisational innovations, due mainly to technological reasons, the market mechanism was replaced by the hierarchical firm. Especially in the case of economies of scope transaction costs played a vital role in this process (Chandler, 1977; Williamson, 1985; Nicholas, 1993).

Problems

The introduction of transaction costs aspects into the historical debates regarding the transition of different organizational modes and regulatory orders has without doubt resulted in a much fuller understanding of the historical process of change as such. It has been an especially important and vital theoretical instrument for interpreting different aspects of the industrialization process by broadening the scope of questions posed and analyzing central problems in depth. However, there are certainly also problems in applying the concept of transaction costs to the process of historical change. There are three particular problems involved—first, that the notion of transaction costs by itself can not explain real historical transitions, secondly, that actors cannot themselves ex ante measure transaction costs for different organizational forms, and, finally, the issue of natural selection and the nature of brute competition. We will deal especially with the third of these problems in this chapter.

First, rising transaction costs by itself clearly cannot explain why a transition from one organisational form to another specific form occurred. To understand such a specific choice of organizational solution the transaction cost structure must be placed within a specific institutional framework tied to a particular incentive structure (North, 1994). A clear example is the recent discussion of market and hierarchies. In this discussion it has

been shown that many firms in real historical time combine different strategies and also tend to use different forms of intermediate governance structures, e.g., networks.'

One point of criticism in this regard on the transaction cost paradigm has been the earlier concentration on what Williamson (1991, p. 269) describes as "...polar forms-markets and hierarchies-to the neglect of intermediate or hybrid forms." Williamson (1979) treats the hybrid forms as governance structures of its own rights, explaining different governance structures with differences in contract law. In Williamson's view an increased degree of disturbances-one form of uncertainty-would reduce the use of the hybrid form. Since consent according to Williamson takes time, and the negotiating process will be long in the hybrid form, the hybrid will thus be "...disfavored..."⁴ Williamson seeks also in this work to further integrate the issues of institutional change within the transaction cost paradigm.

However, the most important point is that transaction costs by itself can not explain the specific choice of organizations. Certainly, such a choice is determined by such factors as the historically received information, the available institutions, the degree of radical uncertainty, etc. Here we can provide some historical illustrations. It is not at all self-evident, for example, that rising transaction costs caused by increased demand and the need to expand the putting-out network must lead to the rise of the centralized factory. It can as well be argued-which many empirical cases also illustrate- that another choice for a putting-out merchant would be to swap a costly putting-out organization for an even more decentralized one. By using the market-buying up material from more independent petty producers-it would surely be able to reduce a large part of the transaction costs. Whether or not the factory would be a better solution would depend not only on a perceived level of transaction costs, but also on technological conditions (the possibility of large economies of scale), market conditions (the existence of mass markets, the possibility of economies of scope), and institutional conditions, characterized by informal and formal constraints such as quality norms, legislation, informal norms etc.

Path Dependency

An important factor in this respect is the existence of path dependencies. This can be exemplified by a certain set of "routines" (as the concept is used by Nelson and Winter) inherited by a specific network of firms which

determine their risk assessment, incentive behavior, etc. However, these structures do not necessarily form efficient organizational modes. Instead, these path dependencies can lead to a conservation of a specific governance structure for decades. This was for example the case with the metal manufacturing and cutlery industry in Solingen. Being an extremely (of its own choice) sheltered industrial community for over a century, its industry was able to reduce the impact of radical competition from more cost-efficient technologies to a minimum until the beginning of the second world war (Magnusson, 1994).

Another stylized example to illuminate the change from one regulatory mode to another is the Swedish transport sector—namely the nationalization of the private railways in the 1930s. That example shows the importance of complementing the transaction cost analysis with other aspects in order to get a more in-depth understanding of a complicated historical process. The Swedish railway system was from the mid-19th century divided between privately owned and state owned railway companies. During the interwar period several privately owned companies faced severe economic problems. Through a process of several small steps, where the state turned out to be the rescue of the worst hit private rail roads, the Swedish parliament voted for a nationalization of all private rail roads in 1939 (Andersson-Skog, 1993; Andersson-Skog and Ottosson, 1994). However, the state-owned railway Company *Statens Järnvägar* was only interested in taking over the profitable private railways. The government and the parliament on the contrary favored the nationalization of all private railway companies. The process of gradual nationalization, developing a path dependency of its own, could perhaps have taken another direction if the private owners could have been more positive towards a private merger movement. However, several small private railway companies were against mergers, leaving only one other solution: nationalization.

Above all, this story tells us that the private hierarchical governance structure would perhaps have been a more "efficient" solution instead of a nationalization. However, institutional factors, the role of politics and the state, and path dependencies did play a significant role in turning this process in another direction, not necessarily, however, the most "efficient" (in transaction cost terms) one. This illuminates another problem with transaction cost economics when explaining the transition process between different governance structures: the missing role of the state and its policies in the analysis of this process. This issue, raised among others by North (1990) and Dugger (1993), points to the importance of examining

the policies of the state, its mode of operation, etc. in more detail. Most transaction cost analysis seems to presuppose that the state and its orders always is ready and ripe to support the most "efficient" organizational solution. However, the main conclusion to be drawn from stylized historical examples is that, first, transaction costs by itself had very little impact on the transition from one regulatory order to another, and secondly, factors such as collective action also play a pivotal role in shaping different institutional settings and, thus, different governance structures.

Measuring Transaction Costs

A second set of problems deals with the issue of measurement. A problem often mentioned in this context is certainly how and to what extent real historical actors are able to measure and acknowledge the comparative efficiency of organisations over time. As several contributions in this volume point out, it is difficult for real historical agents to determine *ex ante* the relative (transaction) costs as well as the relative efficiency of two or even more organizational and regulatory solutions, Hodgson (1993a, p. 86) argues that considering the "...bounded rationality, it is impossible for any entrepreneurial agent to perform the cost calculations to identify the lower transaction costs /.../ Both uncertainty and limited computational capacity prevent such an assessment." As these actors are socially shaped there is a clear case that path-dependency will bias measurements and therefore makes the transition to more efficient forms of organizations questionable. If we take the nowadays very often used notion of path-dependency seriously, this is surely a most important weakness when using transaction costs as a means to explain real historical processes (North, 1990, 1994).

However, it could be argued that a transaction cost explanation can be applied without bringing in the path dependent real historical actor.⁵ Then reference is made to some kind of selection principle. Hence it is often supposed that through some kind of Darwinian struggle the most cost efficient solution will win.

In the rest of this chapter we will discuss to what extent such a solution is applicable in our case. We will argue that the selection principle cannot be used since it does not give an accurate picture of the market process. The reason for this is that the market and the process of competition are as institutionalized as the actors themselves.

Natural Selection and the Nature of Brute Competition

Already in early institutionalist works, like Veblen's *Why is Economics not an Evolutionary Science* (1898), there is a plea for a biologically informed evolutionary economics. In this work the reference to Darwin is made explicit. Later on, in the 1940s and 1950s, the survival-of-the-fittest argument was used to defend neoclassicism by Alchian and by Friedman. The general argument put forward by Alchian and Friedman is wellknown: we can infer that whatever the strategy and motive might be for a singular firm, the competitive process will see to it that "as if" maximizing behavior occurs. Only by practicing such behavior will an individual firm be able to survive.

During recent years it has been a matter of debate whether Alchian's and Friedman's approach is really Darwinian or not. It is argued that procreation and adaptability in any form of biological evolution is crucial over time. In a given population of firms perhaps the "best" or fitter survives. However, no mechanism is specified by Friedman or Alchian to show how such "fit" behavior is passed over and inherited by other firms over time.

Important aspects of this debate have also been covered by Nelson and Winter (1982). They argue that over time firms equipped with the routines most adaptive to market and environmental change survive and grow, while others are discarded. Since the routines of the firm are seen as analogous to genes, the selection process is above all guided by different profit levels. Well-adapted routines will thus survive. As Hodgson (1993b, p. 138) suggests, Nelson and Winter also provide us an analogue with mutation. Firms with routines which are not well adapted are "...forced to search for a new technology." Evolutionary theories of the Nelson and Winter kind rely clearly on a notion of the survival of the fittest which stems from Lamarck, Darwin, and Malthus."

In the context of the present discussion, one line of thought within evolutionary theory, which closely follows Hayek and von Mises, tends to look upon the market process as a realm of "brute force." According to this view, agents face markets as pure "environment" to which they must adapt or die. In the long run a survival of the fittest occurs.

If the metaphor of natural selection is applied to economics, Hodgson (1993b) among others points out that three basic conditions must be fulfilled. First, there must exist some degree of stability in the institutions and in the selection process itself. Second, this selection process must operate over a sufficiently long period of time. And third, for any search process it

must be recognized that there is no absolute best solution. Since an evolutionary process needs stability, the Williamson discussion of an uncertain environment and the role of competition as the key mechanism becomes contradictory. Thus, the notion of brute competition and its role in the selection process needs a reevaluation: in a dynamic environment which confronts a search and selection process on the firm-level, an analogy with Darwin's notion of mutations or perhaps with Lamarckian theory seems more appropriate (Ramstad, 1994).

The idea that the competition process will meter out the most efficient organization is surely insufficient. It presupposes *first*, that the best solution wins. It has been explained that many inefficient organizational structures survive, while other, more efficient structures will not be chosen. Moreover, survival of the fittest only exists in a given set of conditions; it is futile to discuss the notion of the fittest in terms of an absolute standard. This notion is only valid in a relative sense, regarding a specific environment (Hodgson, 1993 b, pp. 22-227).

Second, the natural-selection view of the market process relies on a vision of the market process which certainly is not indisputable from the point of modern theories of the firm (Ramstad, 1994). Economists interested in evolutionary economics have started to criticize this evolutionary model of competition, arguing that there are other possible reasons for economic survival than mere competition, for example pooling of resources, networking, etc.⁷ This is also acknowledged by Williamson in his discussion of hybrid forms. Firms in networks will both compete and cooperate, since they sometimes have common interests and sometimes enter into conflict with each other. Also different forms of regulations, such as consumer interest groups, quality norms imposed by, e.g., branch organizations, cartels, different kind of network arrangements, strategic alliances, and other forms of legal constraints, make up the market place.

The concept of "markets as networks" can therefore be seen as a different view on how firms behave. This gives a new perspective on the role of competition, leading us to conclude that the process of change and the mechanisms determining which firms survive is more complex than the competition model wants us to believe. History plays an especially important role in these processes, since the actors invest in long-term relationships.

It could of course be argued that network agreements are cost efficient and thus rational if firms which cooperate survive and isolated firms disappear from the market in an evolutionary process. However, *first*, it is ex

ante impossible for actors to predict the outcome of these arrangements and thus calculate different levels of transaction costs associated with different cooperative options. *Second*, the basic idea of the market constituted by isolated actors in fierce and brute competition contradicts observed behavior of firms in networks. *Last*, the basic assumption underpinning the argument of cost efficient solutions suggests that organizations are rational. Instead, we emphasise the possibility of "irrational" institutional arrangements. Indeed, the cooperative behavior of firms does not necessarily mean that this is a rational solution, since relations between firms also are affected by different institutional settings. Due to actors' bounded rationality and environmental uncertainty, also irrational institutional arrangements, deeply settled by path dependent patterns, may exist for a long period of time, as argued earlier with the case of the metal manufacturing and cutlery industry. Competition thus constitutes not the only selection instrument in this process of change.

In modern evolutionary theory another line of thought emphasizes the market as a social institution made up by norms and behavior which have historically evolved over time. Thus, according to this institutionalist view, the market structure is a force which actively shapes the competitive process rather than just being a blind outcome of that process. Moreover, the market is the result of social evolution and is both materialized in judicial systems of property rights, etc., as well as in cognitive structures. Perhaps North (1990, pp. 43-44) has made one of the best formulated acknowledgements of these informal constraints:

It is simply impossible to make sense out of history (or contemporary economies) without recognizing the central role that subjective preferences play in the context of formal institutional constraints that enable us to express our convictions at zero or very little cost. Ideas, organised ideologies, and even religious zealotry play major roles in shaping societies and economies.

Rather than as "brute environment" the market can thus be regarded as an institution made up by social norms, behavior, judicial procedures, and values. This is for example acknowledged in Commons' institutional theory of transactions, according to which a transaction always includes a "fifth" partaker which might be defined as the collective or society. (It is also present in his theory of collective power.) The specificity of different markets-for example the labour market-is the outcome of a long historical process of evolving collective power (Commons, 1964, p. 65). Moreover, Polyani (1944) also emphasised how the 19th century *laissez-faire*

market was in reality a complex social institution created to respond to the social and economic upheavals of the first industrial revolution.

This implies that the institutions of the market-or transactions—cannot be separated from value or even moral judgements. Thus the market process is part of a system of social property rights which specifically defines cultural and moral institutions like “trust,” “fairness,” etc., as well as what is believed to be “external” and “internal” to the market and the economic process as such.

In short, the market process cannot be regarded as “brute environment” outside norms, routinized behavior, etc. Hence, by necessity what happens in the market place cannot be understood outside a context which also involves a conscious evaluation process carried out by purposeful human agents. Since the market process must be seen in a social context, an important question refers to how social norms change and effect institutional change. North (1990, p. 87) argues that factors like “...accidents, learning and natural selection all play a part.” He concludes that theory is not able to explain the evolution of social norms, but he seems to rely heavily on evolutionary theory.

Most important in this context is to acknowledge that such interpretations of the market and the market process imply far-reaching consequences which differ strongly from a Darwinian notion of the survival of the fittest. Hence, the competitive process is much more embedded in values, norms, social relations and routinized behavior than we might believe (Grabber, 1993). It is still open to discussion how such norms, values, etc. which govern for example the market process are created historically over time. Certainly, it is possible to argue that one allocation principle is more efficient than others. However, to explain the modern and very complex market economy merely in terms of selection of the fitter would come close to a tautology.

Conclusions

We have in this chapter discussed to what extent transaction costs can be used as a explanatory device in order to explain real historical change. According to our view, this is questionable for at least three reasons. First, comparative transaction costs cannot by itself explain the specific transition of different regulatory modes. Second, we argued, it is impossible for real historical agents *ex ante* to measure transaction costs for different organizational solutions. Third, it is not possible to avoid these difficulties

by arguing that some kind of natural selection process will see to that the most cost efficient solution will win. The main reason is that this relies on an inadequate view of the market process and the role of competition.

We have argued that it is futile to discuss the competition process in terms of “brute competition.” Markets are institutionally embedded and are structured after the actions of the most powerful actors. These will try to avoid radical competition, and build barriers of entry and cooperate with competitors. Markets are organized in several ways.

These formal and informal constraints pose the question of the relation between the actor and the institutions. Clearly, the actors will try to influence the institutional arrangements according to their self-interest. On the other hand, the actors are also bounded by their institutional environment. The implication of path dependency together with a more realistic view on the market process is that this dynamic process may lead to suboptimal conditions during a long period of time in the economy. We argue that economic history will have an important function to fulfil in illuminating empirical aspects of these matters. In this respect, we have argued that transaction cost has been most valuable in developing economic history, but its use as an explanatory factor in itself is highly questionable.

Notes

1. Most recent follower of the nuts and bolt argument is Landes; see Magnusson (1994).
2. Chandler (1977, 1990). For an overview of critics of the application of transaction costs economics in business history, see Schmitz (1993, pp. 72-73).
3. An evolutionary view of governance structures from an historical perspective was developed by Campbell and Lindberg (1991). They studied how five different factors— economic efficiency, technology development, power and control, culture and state policy— interplayed with the interaction between the actor and the structure in the evolution of governance structures in different sectors in the American economy. They especially discussed evolutionary processes which characterized sectors and companies moving between market, the network and the hierarchy. For a recent discussion of networks, see Lundgren (1991), Mattson and Johanson (1992), Nohria and Eccles (1992), Grabher (1993), and Loasby (1993).
4. Williamson (1991, p. 292, figure 3).
5. See the well-known arguments of Friedman (1953).
6. On interesting new information on the relationship between Malthus and Darwin, see Desmond and Moore (1991), p. 272.
7. Gowdy (1992) argues that the process of economic change can be seen as a hierarchical process, and that the higher levels of this hierarchy are not interrelated with the actor's struggle for survival on lower levels.
8. For one example of networks formed by interlocking directorates, see Ottosson (1992, 1993).

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