# 12. A New Institutional Approach to Organization

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## 1. INTRODUCTION

Modern economic theory has long neglected, even ignored, the analysis of the different modes of organization that characterize a market economy. Notwithstanding the efforts of Alfred Marshall, one of its founding fathers, in identifying the properties of "business organizations" (1920, Book IV, chap. 10 sq.), standard microeconomics relied for decades on the concept of firms as production functions, an umbrella to the technologically determined combination of inputs.

This situation has changed under the influence of the celebrated paper by Coase on "The Nature of the Firm" (1937). There are now several alternative theories of organization in economics[1], with "transaction cost economics", "agency theory", "property rights theory", and a mix of resource-based and evolutionary perspective as the leading approaches.[2] Beyond serious divergences, this diversity of approaches is striking. The development of competing explanations reflects an increasing interest for the nature of organizations. This becomes particularly obvious when looking at the resurgence of the literature on the theory of the firm, but also at the booming number of papers on other modes of organizations, e.g., strategic alliances, joint ventures, etc. However, it also suggests that we still miss an integrated theory.

This chapter reviews what we have learned and some unsolved problems about alternative modes of organization. It does so by focusing almost exclusively on contributions rooted in the new institutional approach, which is

[1] The analysis of organization actually developed initially in other disciplines, generating a field of its own (Organization Theory).

[2] The hard core of these theories can be summarized as follows. Transaction cost focuses mostly on explaining the existence and properties of alternative modes of organization and the tradeoffs among them. Agency theory primarily examines incentives, i.e., the way a principal can induce agents to behave according to his interest. The property rights paradigm, "old" or "new", centers on ownership and the related allocation of decision rights as a determinant for understanding relationship-specific investments. The resource-based–evolutionary view explores mainly how organizations develop internal characteristics, such as routines and know-how, in order to deal with their environment. Gibbons (2004) proposes a slightly different typology.



*C. Ménard and M. M. Shirley (eds.), Handbook of New Institutional Economics,* 281–318.

primarily based on transaction cost economics. Notwithstanding significant intersections, I refer to alternative explanations only marginally. My analysis centers on modes of organization understood as institutional arrangements within which a transaction or a set of related transactions are decided upon and then implemented.

Therefore, the perspective adopted is in the continuation of Coase and Williamson. I assume the existence of alternative ways of organizing relationships among economic units in order to take advantage of the division of labor while economizing on bounded rationality and safeguarding parties against contractual hazards. Coase grouped these arrangements under the expression "institutional structure of production", while Williamson speaks of "mechanisms of governance".[3] In what follows, I capture the same ideas under the generic expression "modes of organization". My analysis is grounded in the golden triangle defining New Institutional Economics (NIE): transaction costs, contracts, and property rights. Transaction costs provide an explanation to the existence of alternative modes of organization as well as tools for understanding the characteristics of these arrangements. Contracts represent a focal point in NIE because of their role in relaxing the constraints of bounded rationality, fixing schemes of references for future actions, and checking on opportunistic behavior. Lastly, relatively well-defined property rights, and institutions for implementing them, form a prerequisite for making the transfer of rights possible and the trade-off among arrangements meaningful. Property rights thus affect contractual hazards and embed transactions into specific institutional environments. However, in what follows I focus exclusively on the micro level, with no specific analysis of embedding issues.

More precisely, this chapter reviews different modes of organization, from integrated firms to hybrids and markets. A clarification is needed here. 'Market' is not a simple term and this often creates confusion. On the one hand, it delineates a mode of organizing exchanges, with spot markets as the archetypical example, as opposed to exchanges arranged, say, within a firm. On the other hand, in a market economy 'market' designates the set of institutions that embed all modes of organization since they all have to go through or be confronted to markets at some point. In this chapter I focus mainly on the first and relatively narrow sense.[4]

My presentation is organized as follows. Section 2 summarizes the fundamental story behind the new institutional approach to organization. Section 3 reviews specific characteristics of firms and more generally of integrated organizations in a transaction cost perspective. Section 4 examines characteristics of a variety of arrangements, the hybrid forms, long ignored by economic theory and now at the forefront of a substantial body of research. Section 5 turns to the analysis of markets as a mode of organization and challenges the idea that

[3] Referring to John Commons, Williamson defines governance structures as ways to implement order for facing potential conflicts that could threaten opportunities to realize mutual gains (1996, Prologue, p. 12)

[4] More on this in section 5.

markets would be a "black box" in NIE. Section 6 concludes with an overview of some unanswered questions.

## 2. A Long Story Made Short

The development of a theory that allows identifying and characterizing alternative ways to organize transactions and that provides tools for analyzing the tradeoff among these modes remains a major contribution of NIE. The model emerged through several papers, mostly from the 1970s, in which Williamson played a key role in putting the pieces together.[5]

### *Some Landmarks*

As it is now well-known, we owe to Coase (1937) the initial formulation of the problem, later summarized by Goldberg: "... which imperfect institutions should govern particular sets of transactions"? (1976, p. 46). Almost simultaneously, Chester Barnard published *The Functions of the Executive* (1938), in which he emphasized the role of "authority" as demarcating firms from markets. Simon (1951) modeled this idea in his paper on the employment relationship, while Arrow (1964) developed the role of control in hierarchies.[6]

Several publications built on these preliminaries in the 1970s, shaping the NIE approach to organization. Williamson initiated the movement with his paper from 1971, in which he put at the forefront the role of transaction costs in examining "Vertical Integration" and simultaneously pointed out contracts as a key organizational device.[7] The controversial paper by Alchian and Demsetz (1972) followed almost immediately, re-examining the Coasian approach and interpreting firms as a nexus of contracts. Arrow then pushed organizational issues higher on the agenda of economists with his *Limits of Organization* (1974). However, the publication of *Markets and Hierarchies* (1975) signaled a turning point. In this influential book, Williamson assembled disperse elements (including his previous contributions) into a coherent framework that linked transaction costs, contractual arrangements, and modes of organization, thus providing a model that remains at the core of the micro-analytical branch of NIE. Klein et al. (1978) closed the decade, focusing the attention on the role of specific investments and the risks of hold-up as the explanation to the choice of a mode of organization. A stream of research, and of controversies, was born.

[5] North took the leadership in the other branch of NIE, focused on the analysis of institutional environments.

[6] Others could be mentioned, e.g., Commons (1934), Hayek (1945), Malmgren (1961), Macaulay (1963), etc. I do not pretend to develop a historical review here, I only point out major landmarks.

[7] Amazingly, Davis and North published the book that imposed the other branch of NIE the same year.

### *The Analytical Framework: A Reminder*

The heuristic model that summarizes these contributions and that has inspired most institutional analysis derives from Williamson (1975; 1985). Its underlying logic can be decomposed in the following sequence.[8]

The entry to the model is the central problem identified by Coase: how can agents take advantage of the division of labor without loosing the potential advantages of cooperation? The division of labor implies decomposition of tasks, which raises the issue of coordination, its organizational modalities, and their costs. Cooperation has to do with the behavior of agents and relates to incentives, that is, devices that can make agents with diverse goals efficiently complementing each other. The two concepts are distinct; even when cooperation prevails, coordination issues remain.

The argument supporting the model looks for the answer in the organization of transactions: in order to specialize, agents must be able to transfer rights on goods and services that they control. Therefore, economics must analyze and compare the different modes of processing and monitoring transactions. Two important consequences result: (1) there are various ways of organizing transactions, and choosing the right way is a fundamental issue; (2) all forms of organization are costly, and their respective advantages can be assessed only comparatively. In the post-Coasian world of positive transaction costs, all devices for transferring rights consume resources. For example the elaboration, negotiation, monitoring, and enforcement of contracts involve costs (Dahlman, 1979). Sources of these costs are twofold. First, transactions relate agents, so behavior matters. The model assumes agents who have a propensity to behave opportunistically. Opportunism can generate contractual hazards: costly safeguards need to be defined and implemented. Second, transactions develop in environments plagued with uncertainties. Although probabilities can be attached to some so that reallocation of resources can be specified ex-ante in Arrow-Debreu type contracts, Knightian uncertainty cannot be discarded: significant decisions remain noncontractibles. The combination of these two sources of hazards makes all devices (including technology) needed to support transactions flawed. At the micro level, these devices take shapes in different modes of organization. At the macro level, they are embedded in complex institutions required for arranging transfers of rights at acceptable costs (North, 1981; 1990).

In order to compare alternative ways of organizing transactions, the analysis focuses on the attributes of a transaction that determine variations in its

[8] This sequence reflects the Coase-Williamson approach to organization and differs from the Alchian-Demsetz story. Demsetz in particular has become increasingly critical to the framework presented here, going as far as considering the coasian approach as misleading (1988a; 2002). In his view, economies of scale, particularly those resulting from managerial knowledge, are the main explanation to why firms may overcome markets. However, he also challenges mainstream economists, arguing that they are wrong in seeing prices as a coordination mechanism: prices do not coordinate, they signal opportunities. The real trade-off would not be between markets and hierarchies, but between firms and households. With high transaction costs or without advantages to specialization, production would be carry on by households. Otherwise, firms organize production.

costs. Following Williamson (1985, chap. 3), most new institutionalists now routinely refer to three major characteristics: the specificity of assets involved, the uncertainties surrounding the transaction at stake, and the frequency of that transaction. *Specificity of assets* has been defined as the value of investments that would be lost in any alternative use. Highly specific assets create mutual dependence that opens the possibility of "hold-up", defined as the detrimental ex-post appropriation of the quasi-rent by one or some partner(s) (Klein et al., 1978; Alchian and Woodward, 1987, p. 114).[9] *Uncertainties* surrounding the organization of a transaction may also involve significant costs, whether it comes out of agents' behavior or organizational deficiencies; or from inadequate institutions or the state of nature. A third attribute, *frequency*, proved to be more difficult to enter into operation. According to Williamson, "The frequency of a transaction matters because the more often it takes place, the mode widely spread are the fixed costs establishing a non-market governance system" (1985, p. 76). However, there is little empirical research about frequency and that research show ambiguous effects on governance. Together, these three attributes determine the following relationship (signs show the predicted impact of a positive variation of each characteristic on transaction costs):

$$\begin{matrix} TC = f\,(AS, F, U) \\ \qquad\quad + \; - \; + \end{matrix} \tag{1}$$

Of course these three variables are notoriously difficult to measure, and almost all the empirical literature avoids any attempts at measuring transaction costs directly, using instead a reduced-form model in which transaction costs are assumed to be minimized (see Joskow, chap. 13, and Klein, chap. 17 in this book). Note also that all transactions involve the three variables.[10] What differentiates them are the level of each variable and their respective weight in the determination of transaction costs. It also makes the transactions complex, an important point for understanding why contracts are usually incomplete. Indeed, the more complex a transaction is, the more difficult and costly it is to encapsulate all its characteristics (ex-ante) and to predict all adaptations required (ex-post) in a contract; a simple framework may be preferable or even the only possible solution. Moreover, this complexity suggests ways to develop a dynamic approach: attributes combine differently over time, change at different speeds, and overlap with other transactions. Not much has been done in that direction yet.[11]

[9] Coase has vigorously challenged the significance of hold-up and it remains a highly controversial issue in NIE (see Klein, 1988; Coase, 1988; Coase, 2000; Klein, 2000; and Klein, 2004). More on this in section 6.

[10] In the continuity of Klein et al. (1978) and under the influence of the property rights approach, numerous studies consider appropriability as an important variable. However, there are few empirical tests available (see Whinston, 2003).

[11] One important dimension of transaction costs that may result from the variables above is the measurement problem emphasized by Barzel (1982). This is discussed in section 5, "The Costs of using market organization".

The next step in the reasoning connects transaction costs with modes of organization. If transaction costs vary with their attributes, how does this affect the choice of a mode of organization, or its comparative performance? Williamson linked the two pieces through what he called the "discrete alignment principle" (1985, Preface; and chap. 3 of this book): calculative agents operating in a competitive environment will adopt the mode of organization that fits comparatively better with the attributes of the transaction at stake. In doing so, Williamson provided a way for empirical studies to go around the difficulty of measuring directly transaction costs, making organizational form the dependent variable. If agents have incentives to reduce transaction costs so that these costs tend to be minimized, the attention then turns to the mode of organization chosen over alternatives in order to allow the development of contractual relationships that economize on bounded rationality while safeguarding transactions against opportunism.

One may also consider going further, using the transaction costs apparatus to better understand characteristics of the alternative modes of organizations and how that could explain the prevalence of one mode over others. For example, what properties of firms can make their administrative costs lower than those of a hybrid arrangement when the assets involved are highly specific? Transaction costs economics clearly overlaps with organization theory here. Not much has been developed in that direction yet, and there is even some debate about whether this is relevant or not.[12] The following sections explore these aspects further.

This short reminder summarizes the central argument of transaction costs analysis on the tradeoffs among modes of organization and their determinants. The underlying model provides the background to the rest of the chapter. In what follows, I assume the transaction cost explanation to the tradeoffs is known (see chap. 13 and 17 of this book), and I focus on the comparative properties of the different modes of organization.

## 3. Firms

The new institutional approach to firms and, more generally, to integrated "formal organizations" (Barnard, 1938) looks at them primarily as governance structures. This demarcates NIE from the neoclassical view, still prevailing in most textbooks, that represents firms as "a unitary profit-maximizing entity defined by a technologically determined production function" (Yarbrough and Yarbrough, 1988, p. 2).[13] NIE does acknowledge the role of technology in delineating the

[12] Demsetz (1988a), among others, considers transaction costs as strictly applicable to market exchanges, while internal characteristics of firms, e.g. administrative costs, would require other analytical tools. More generally the problem is that transaction costs may be orthogonal to the internal costs of the firm (hence the tradeoff).

[13] Models built on these premises assume that: (1) monitoring is costless, or can be endogenized at no cost through an adequate contract; (2) shirking can be detected and punished, which requires perfect revelation of information and no enforcement problems; and (3) employees do not accept a job, really, but a fully contingent contract.

set of feasible activities; however, it considers that the restrictive conception of firm-as-production function must be subsumed under the concept of firm-as-governance structure, which understanding is "mainly an exercise in transaction cost economics" (Williamson, 1988c, p. 356). Indeed, firms can better be represented as a complex combination of legal, economic, and social dimensions. As a legal entity, it operates and is liable as one single agent when it comes to the transfer of rights. As an economic device, it relies on a complex set of contractual arrangements coordinated by a hierarchy. And as a social unit, it defines a space in which motivations go far beyond monetary incentives.[14] In what follows, I focus on the economic dimension, emphasizing characteristics that differentiate firms from other arrangements and that provide potential explanations to why they may prevail over markets or hybrids in organizing some transactions.

### *Is Command the Key Issue?*

Coase (1937) raised the fundamental question that launched the NIE research program: why do agents give up the price system in so many circumstances? Why do firms so often supersede the price mechanism? His answer pointed at the role of "person or persons who, in a competitive system, take the place of the price mechanism in the direction of resources." And he added: "A firm, therefore, consists of the system of relationship which comes into existence when the direction of resources is dependent on an entrepreneur" (p. 393). When the cost of using the price system becomes too high, the organization of activities under a central command may become advantageous. This puts hierarchy at the core of the firm, a view challenged by many economists, including several new institutionalists (e.g., Alchian and Demsetz, 1972). It also raises another question: why do people give up part of their freedom, submitting to an authority? "Why should a private property owner voluntarily surrender his rights and be told what to do by a visible hand?"(Cheung, 1983, p. 2). I start with the second question and then come back to the first one.

#### *Preliminaries: Why do Agents Accept to Be Directed by a Visible Hand?*

Answer to this question perhaps remains one of the most controversial in NIE, and more generally in economics. The reason may be that it exhibits a tension between the representation of market economies as based on free will and voluntary agreements on the one hand, and the potential role of hierarchy and command on the other hand. Any interpretation is therefore subject to vigorous challenges. My view is that answers provided by new institutionalists go in two different and somewhat conflicting directions. One emphasizes a representation

[14] The view of firms as social entities with properties shaping and moderating members' behavior is not as widely acknowledged in economics as it is in economic sociology (see Nee and Swedberg, chap. 29 of this book). For a related interpretation, see Kogut and Zander ( 1996)

of the firm as a "team" based on a nexus of contracts, pooling specific assets owned by distinct entities, the difficulty being to explain why some entities have more power than others in directing resources. An alternative conception emphasizes the firm as a hierarchical structure grounded in an asymmetric relationship, the difficulty being to explain the source of this asymmetry. However, these diverging views meet in acknowledging the key role of the allocation of property rights.

The first explanation views firms as means for coordinating holders of different assets, the nature of these assets being central to the explanation of what a firm is. Two complementary arguments have been developed here. The "old" property rights approach focuses on the issue of the efficient coordination of assets' holders and interprets an entrepreneur as the agent who holds a specific asset, his or her competence in processing information, which he/she uses for directing resources efficiently, his or her incentives for doing so coming from his or her status as a residual claimant. Therefore, a firm could be properly characterized by "a team use of inputs and a centralized position of some party in the contractual arrangement of all other inputs" (Alchian and Demsetz, 1972, p. 778). Other 'members' of the team-firm accept this visible hand because of the expected gains from this efficient coordination. The "new" property rights approach rather puts the emphasis on incentive to invest as the core of what a firm is, with the type of rights held as the main issue. Indeed, property rights over physical assets would be distinctive because they give holders control over decisions to invest and because they give them leverage over the activity of those who do not own such assets, or who do not own enough rights to have direct leverage over their use. As stated by Holmstrom (1999, p. 76): "... ownership confers contracting rights that allow the firm to decide who should be offered the opportunity to work with particular asset and on what term".

This last expression brings us close to the alternative analysis, viewing firms as hierarchical systems, based on the key role of authority. This approach prevails in organization theory, but also predominates among those who view the employment relationship as distinctive and typical of the firm, from Barnard (1938) and Simon (1951) to Williamson (1975), Beckmann (1988), Radner (1992) and Aoki (2001). The difficulty here lies in explaining what the foundations of this accepted asymmetry are. I see two potential and likely intertwined answers, based on the idea that asymmetries in property rights may play a different role from the one described above.[15] Indeed, the interpretation of the firm as nexus-of-contracts presumes the standard neoclassical assumptions that all participants do have "survival endowments" and that the labor market works perfectly well: in the 'team' approach, all asset holders are symmetrical in that they can always leave the firm at will because they can redeploy at no significant cost and/or because they have endowments that allow them to keep full flexibility in the allocation of their assets. But what happens if it is not so? Constraints

[15] Holmstrom (1999) is probably the one who comes closer to this interpretation, although there were already indications in Simon (1951).

on their endowments and high costs of going on the labor market may provide a powerful explanation to why agents accept the direction of a Visible Hand. In doing so, they relax these constraints by securing their income. Plainly, one may need a job or need to keep a job to make a living! This does not preclude the acceptance of authority as a potential source of benefit through entrepreneurial coordination. However, it prioritizes the arguments. Symmetrically, holders of rights on physical assets accept that internal governance prevails because it can "... shield and protect the transaction and insure the full utilization of the specialized assets." (Teece, 1986)[16]

My interpretation clearly leans in this second direction, acknowledging that hierarchy matters. Beyond the convergence between the two explanations that allocation of property rights shapes the nature of the firm, I thereafter endorse the view that agents make the organization called "firm" possible because they surrender significant decision rights to a "central coordinator". As noted by Barnard (1938, chap. 12, p. 184): "Authority is another name for the willingness and capacity of individuals to submit to the necessity of cooperative systems."

*What can make Firms more Efficient than Markets?*

Although he later mitigated his view on this issue (1991 [1988] chap. 5, p. 64), Coase initially emphasized that the comparative advantage of firms does not result from market failures or externalities, but rather from their capacity to organize transactions through command rather than by using the price system when the latter becomes too costly. "If a workman moves from department Y to department X, he does not so because of a change in relative prices but because he is advised to do so" (1937, p. 387). At about the same time, Barnard defined formal organizations as "... a system of consciously coordinated personal activities or forces" (1938, p. 72; his emphasis), the efficiency of which depends on: (i) communication; (ii) willingness to serve; and (iii) shared purposes. In his view, supervisors in charge of implementing this system form the core of the firm and their role characterizes employment relationship. In other terms command, understood as a relationship in which an agent who performs a job has to report to the person who is in charge and who can be held accountable for the performance of the job thus assigned, forms the distinctive characteristic of hierarchy (Barnard, 1938, chap. 12; Beckmann, 1988, p. 3). With some nuances, Williamson concurs when he emphasizes that what distinguishes commercial and employment contracts is that in the latter employees "must obey first, then seek recourse" (1985, p. 249).[17] The very title of his book from 1975, *Markets and Hierarchies*, already suggested this view. His later emphasis on 'forbearance law' (1996 [1991], pp. 97–100) understood as the reluctance of courts to

[16] Therefore, we are far from the risk adverse story, an interpretation not very popular among the new institutional crowd, which is a significant difference with agency theory.

[17] Masten (1988) substantiated this difference through a study of the American jurisprudence on contracts.

intervene in intra-firm disputes, reinforces the concept of hierarchy as distinctive.

What comparative advantages can be expected from that hierarchical relationship? Again, this remains an open question, subject to vigorous controversies. In what follows I develop three sets of arguments. First, the capacity of supervisors to reallocate human resources without negotiation reduces transaction costs and provides a powerful tool for dealing with uncertainty (Simon, 1951; Beckmann, 1988, chap. 1 and 2). Second, internalizing transactions provides means for extending the domain of rationality, thus improving decisions, thanks to "the division of cognitive labor" that hierarchies make possible (Aoki, 2001; chap. 5). Third, the communication system developed and coordinated by the "entrepreneur" is a potential gain when information provided by markets is costly and difficult to process (Alchian and Woodward, 1987, p. 112).

In sum, I remain of the view that command constitutes the central adaptation mode of firms (Williamson, 1996, p. 31). It provides supervisors with the capacity to choose among possibilities delineated by contracts. This capacity relies on many different tools: allocating tasks, pairing human capabilities with physical assets, monitoring agents, checking the adequacy of actions to orders, according rewards, etc. (Radner, 1992; Miller, Chap. 14 of this book).

## *How Command Works*

In order to provide a credible alternative to markets as an adaptation device when tight coordination is needed, command requires a complex combination of control, cooperation, and communication. The potential advantage of formal organizations lies in this combination; however, it also generates "administrative" or "bureaucratic" costs.

### *Control*

Control makes command credible. It provides means for implementing orders, for evaluating the adequacy of actions chosen, and for checking on members tempted to renege their commitments (Williamson 1985, chaps. 9 and 10; Beckmann, 1988, chap. 3; Demsetz, 1995, first and third commentaries). It determines a major function of managers within the firm, and it substantiates the role of corporate governance in finding "ways to govern the manager in the use of assets entrusted to the firm" (Aoki, 2001, chap. 10, section 1). It also provides important indications for understanding why firms have limits, a problem already discussed by Coase (1937, p. 394–395) and developed by Williamson in his pioneering paper on the loss of control (1967).

There is an extensive literature on the issue of control over employees as well as over managers in managerial sciences. However, as noted by Radner (1992, p. 1383), economics seemed little concerned until recently. One set of contributions comes from agency theory (Miller, Chap. 14 of this book). It mostly focuses on incentives issues, trying to find contractual solutions to two

problems: How to prevent employees from shirking? and how to keep managers align with the interests of property rights holders? These are relevant questions in a new institutional perspective, although they provide a very restrictive view of the role of managers and of the "[many] control problems [that] plague complex organizations" (Demsetz, 1995, p. 42; also Roe, chap. 15 of this book).

What might distinguish the NIE approach is its emphasis on the advantages control can provide over the use of prices as a device to coordinate and adapt when specificity of assets makes mutual dependence unavoidable. First, control provides some flexibility in giving supervisors the capacity to evaluate the adequacy of action to orders and the right to reallocate tasks accordingly, without renegotiating contracts and using the price system. In that respect, central coordination can be faster than decentralized adaptation (Bolton and Farrell, 1990). Second, control provides powerful tools for constraining opportunism through interactions among levels of management, although this may also give senior managers the possibility to appropriate gains from subgroups (Tirole, 1986). Third, and more positively, some authors have recently suggested that central control may allow performing "controlled experiments" to learn how to organize assets more effectively (Foss et al., 2002). Fourth, control allows settling disputes without the time and costs that arbitration by third parties would require (Williamson, 1975, p. 29; Dow, 1987). Fifth, internal control such as auditing might often be superior to external control (e.g., by courts) with respect to the capacity of collecting and processing the relevant information and to the rapidity in making required adaptations (Williamson, 1975, pp. 146–147).

However, the NIE literature has also emphasized that control is subject to rigidities and costs, which severely limits the efficiency of command. In the continuity of the property rights perspective, Demsetz has analyzed the costs of excluding non-owners from the use of resources as a major limitation to control in large corporations (1988b, 1995, and 2002). Similarly, Hansmann (1988) has emphasized that owners of physical assets are actually as much concerned by controlling the use of their assets as by controlling residual profits.[18] The resulting costs represent a major limitation to the advantages of firms over markets. Another limit to control was pointed out by Williamson (1985, chap. 6, pp. 135–138): it originates in the non-replicativity (the impossibility of "selective intervention" in his terminology) within the firm of market devices that could alleviate control costs. If firms could replicate the powerful incentives provided by markets, the comparative disadvantage of administrative costs with respect to the cost of trading on markets could be overcome. The search for labor contracts that would allow perfect revelation of information represents an illusory effort in that direction. A third limit comes from influence activities among managers (Milgrom and Roberts, 1990, pp. 78 sq.). A last and related limit, discussed later, results from the loss of information along transmission lines that characterizes control in a hierarchical organization.

[18] This aspect partially relates to the metering activity of entrepreneurs (Alchian and Demsetz, 1972), although command can hardly be reduced to metering.

*Cooperation*

However, cooperation might partially relax these limits. Cooperation necessarily complements command in an efficient firm. No formal organization could rely exclusively on command and control (Simon, 1991). New institutional economists go further, emphasizing the important role of cooperation in understanding how firms can subsume markets and in understanding the positive role of managers. Cooperation remains a difficult concept to define if one wants to go beyond purely self-interested behavior (Dow, 1987; Ménard, 1994b). Here I understand cooperation as the willingness of agents to pool resources even when they cannot assess ex-ante the benefits expected or if there are benefits at all to be expected in doing so.

In their 1972 paper, Alchian and Demsetz in defining firm as a team already raised the measurement issue. More recently, Alchian emphasized that a firm is not "an output-generating 'black box' [but] a contractually related collection of resources of various cooperative owners"; and a corporation is "the organization of cooperative joint production" (1987, p. 1031). Williamson went further in analyzing the role of cooperation in formal organizations, noting particularly the importance of "atmosphere" as a source of efficiency. Following Commons' valuation of mutuality (1934, p. 2) and Arrow's emphasis on the economic value of social interactions (1974, chap. 1), *Markets and Hierarchies* (particularly chap. 2, sections 2 and 4; also chap. 3) examined how cooperation can limit the costs of control. "Attitudinal interactions" make formal organizations less prone to conflicts and more apt at settling disputes. Four advantages can result from a cooperative "atmosphere": (1) scale economies in the acquisition of information; (2) risk-bearing among the group when facing unanticipated contingencies; (3) mitigation of adverse selection and moral hazard; and (4) increased productivity due to a more developed "sense of responsibility" (see also Arrow, 1974, chap. 4). However, there are also limits and costs to cooperation, resulting from: (a) free riding strategies through selection of members (ex-ante) and malingering behavior once selected (ex-post); (b) collective decision-making that may hamper the advantages of command; (c) incentives to collude and develop side-payments; and (d) the high cost of processing information and communicating in a team-oriented organization.[19] Williamson did not pursue the analysis of cooperation in subsequent books. Other institutionalists have tried to go further, notably Aoki (1988, chap. 3 and 8; 1990; and 2001, chap. 11).[20]

*Information and Communication*

The examination of control and cooperation and of their limits, as reported above, systematically exhibits the important role of information. New institutional

[19] Puterman (1986) and Dow (1987) criticized Williamson for having based his evaluation of cooperation exclusively on peer groups, thus ignoring other modes of cooperation, while Granovetter (1985) argued that Williamson shares with neo-classicists an under-socialization approach to agents.

[20] See also Ménard (1994a, 1994b, 1997); Vazquez-Vicente (2002).

economists played a pioneering role here (Malmgren, 1961; Williamson, 1967; Alchian and Demsetz, 1972), partly because they had to deal with Hayek's statement about markets as particularly efficient information processors (Hayek, 1945). On the one hand, if firms can overcome markets in organizing certain transactions, there must be some informational advantages to integration. On the other hand, information noises in firms may provide a rationale for defining the boundaries of firms. Both dimensions have been explored.

Formal organizations have ways to gain advantages in processing information. First, they can develop routines that make codification possible, thus reducing internal costs. Second, the development of a common language, e.g., corporate culture, provides efficient supports for sharing knowledge. Third, hierarchies introduce "filters" that reduce the number of messages circulating. Fourth, the combination of human resources extends the capacity of individuals to absorb information while the reallocation of tasks through command provides means for processing information and transforming it into action rapidly. Williamson (1975, chap. 2), Aoki (1986; 2001, chap. 5) and Demsetz (1988a, 1988b, and 1995) have played a particularly important role in exploring these factors and their consequences. These informational advantages also relate to the role of 'entrepreneur' or 'business manager', an aspect already emphasized by early contributors (Coase, 1937; Williamson, 1967; Alchian and Demsetz, 1972) who viewed these figures essentially as efficient information processors. As strongly put by Demsetz (1988a), the fundamental reason that makes management meaningful is their superior capacity to make sense of the signals provided by markets in a world of incomplete knowledge. They may also possess 'decisive information', partially due to their specialization in processing signals. Others have adopted a more structural approach, emphasizing how the internal mode of organization may allow efficiency gains and economies of scale in processing information (Williamson, 1975, chap. 2 and 8; 1985, chap. 10 and 11; Aoki, 1986) and, more generally, in making decisions (Demsetz, 1988a). These aspects open a bridge towards the evolutionary perspective on firms as set of competencies processing information efficiently (Witt, 1998; Jacobides and Winter, 2003).

On the other hand, the complexity of internal coordination generates noises, and therefore uncertainties of its own, making firms prone to loss of control. Williamson (1967) provides a pioneering reference, with the examination of how a small noise in the transmission of signals in a multi-layered hierarchy ends up imposing limits on the size of the firm. Demsetz (1988b, 1995) has explored the "decreasing returns" in the capabilities of business managers to monitor information, while Aoki (1986; 1990) has exhibited the trade-off in processing information between a centralized organization, which accumulates noises along the multiple layers of the hierarchical system; and a decentralized organization that confronts dispersion of information, a challenge to the advantages of integration. In other terms, different internal structures carry distinct administrative costs. Unfortunately we still do not know much about the costs involved, a limit that NIE shares with other approaches.

More generally, the analysis of the internal characteristics of formal organizations and of their related costs remains an underdeveloped area. Since it is so crucial for better understanding the comparative advantages and disadvantages of these arrangements over other modes of organization, particularly the use of markets, one can expect significant developments in this direction in the future. Whether or not the transaction cost apparatus can help in doing internal investigations remains debatable. Some neo-institutionalists argue that transaction costs concern exclusively market exchanges, so that the analysis of the internal costs of firms requires other tools (Demsetz, 1988a; 2002). Others consider that beyond semantics, efforts are needed for better identifying the administrative costs that are involved in the "make-or-buy" trade-off and, more generally, in the trade-off among different organizational arrangements (Masten et al., 1991; Joskow, chap. 13 of this book). In doing so, we can expect more interactions between NIE, evolutionary economics, and some mainstream economists.

## 4. Hybrid Arrangements[21]

Having focused on integration as an alternative to markets, NIE initially paid little attention to other modes of organizations, which were considered unstable and transitory. This situation began to change two decades ago. In 1985 (p. 83), Williamson acknowledged that: "Whereas I was earlier of the view that transactions of the middle kind were very difficult to organize and hence were unstable, [ . . . ], I am now persuaded that transactions in the middle range are much more common." However, the expression "middle-range" maintained some ambiguity, suggesting modes of organization with no specific content. Williamson later (1991) called these arrangements "hybrids", a more appropriate although not entirely satisfying term.

This section is about these forms, understood as alternative to firms as well as to markets. Firms integrate property rights, thus subsuming in last resort all transaction costs related to the production of a set of goods and/or services; hybrid arrangements cover only a subset of the transactions in which participating firms are involved. Traders making independent decisions commonly characterize markets; hybrids pool some resources, and share a subset of decisions in their domain of choice. A very preliminary notion of hybrids thus includes all forms of inter-firm collaboration in which property rights remain distinct while joint decisions are made, requiring specific modes of coordination. The emphasis is on the commitment of distinct property rights holders, operating distinct legal entities, but organizing some transactions through governance forms mutually agreed upon.

[21] This section borrows from the more extensive analysis developed in Ménard (2004a).

### *What are Hybrids?*

The rapidly expanding literature on these "non-standard" organizational arrangements signals an increasing interest among economists for the issues at stake. Until the mid-eighties only a handful of exploratory papers were available on inter-firm contracts (Klein et al., 1978; Ouchi, 1980; Eccles, 1981; Cheung, 1983), franchising (Rubin, 1978), or "non-standard contracting" (Williamson, 1975; Palay, 1984; Masten, 1984; Joskow, 1985). The real takeoff dates from the 1990s, initially with a majority of contributions in non-economic journals. However, the concepts as well as the vocabulary of these analyses remain approximate. Hybrids, clusters, networks, symbiotic arrangements, and chain systems are used quite indifferently. The forms encapsulated by these fluctuating terms seem also heterogeneous. They include subcontracting, networks, alliances, franchising, collective trademarks, partnership, and even forms of cooperative.[22] However, they are connected by the underlying idea that they participate to the same "family" of agreements among autonomous entities doing business together, mutually adjusting with little help from the price system, and sharing or exchanging technologies, capital, products, and services without a unified ownership.

Beyond the heterogeneity of cases and the fluctuating vocabulary, studies progressively revealed regularities that make hybrids distinctive. The first one is the importance of *pooled resources*. Whatever the form they take, hybrids systematically organize joint activities based on inter-firm coordination. Hybrids develop because markets are perceived as unable to adequately bundle the relevant resources and capabilities (Teece and Pisano, 1994), while integration would reduce flexibility, create irreversibility, and weaken incentives. Sharing some resources and coordinating some decisions in order to generate rents represents the fundamental motivation behind hybrids. However, it may also be a source of conflicts: distributing rents involves discretionary choices that can easily destabilize an agreement. On the other hand, pooling resources does not make sense without some continuity in the relationship, which requires cooperation. Legally distinct entities must accept to loose part of the autonomy that markets would provide without benefiting from the capacity to control that hierarchies have. Hence a first problem for hybrids: how can they secure cooperation in order to achieve coordination without losing the advantages of decentralized decisions?

The existence of *relational contracting* is a second characteristic shared by hybrids. Of course contracts play a role in other modes of organization. But what

[22] Some significant references are: (1) on subcontracting: Eccles, 1981; Aoki, 1988, chap. 6; and Bajari and Tadelis, 2001; (2) on networks: Thorelli, 1986; Powell, 1990; Podolny and Page, 1998; (3) on alliances: Oxley, 1999; Baker et al., 2003; (4) on franchising: Rubin, 1978; Williamson, 1985; Lafontaine and Slade, 1997; (5) on collective trademarks: Dwyer and Oh, 1988; Ménard, 1996; Sauvée, 2002; (6) on partnership: Farrell and Scotchmer, 1988; Powell, 1996; and (7) on cooperatives: Cook, 1995; Cook and Iliopoulos, 2000.

distinguishes hybrids is that their contracts link activities and resources among partners who simultaneously operate unconnected transactions. These contracts intend to secure the relationship and, because the identity of partners matters, they create a framework for "transactional reciprocity" (Park, 1996). The relational aspect is grounded in the advantages and risks of sharing resources among independent partners (Goldberg, 1980; Williamson, 1985; Baker et al., 2002). Advantages can be expected from increased market shares, transfer of competencies, and access to scarce resources (e.g., finance). However, risks are also at stake. Partners coordinate only part of their decisions, subject to unforeseeable revisions, particularly when specific investments support highly uncertain process or products, or target volatile demand (e.g., R & D alliances). Typical transaction cost problems result. Contracts tend to be incomplete, providing a simple and uniform framework[23]. Hence the importance of the relational dimension, and the need for modes of governance that can fill blanks left in contracts, monitor partners, and solve conflicts without repeated renegotiation. Thus a second problem: how can hybrids secure relational contracts while minimizing renegotiations?

A third characteristic of hybrids is their relation to *competition*. Of course, competition exists among agents in a firm, e.g., job-promotion tournaments, or among firms on markets. The difference in the case of hybrids lays in the combination of interdependence and autonomy, partners remaining residual claimants in charge of their own decisions in last resort. In that context, competitive pressures have two dimensions. (a) Although they cooperate on some issues, partners also compete against each other. Even bilateral agreements with long-term contracts can be subject to internal competition since strategies of partners remain distinct (Coase, 2000). Moreover, the agreement can be designed to make parties recurrently competing, as in subcontracting (Eccles, 1981; Dyer, 1997). Activities may overlap with partners trying to attract customers from the same subset, notwithstanding restrictive clauses (Raynaud, 1997). Parties may also cooperate on some activities and compete on others, as in joint R & D projects (Baker et al., 2003). (b) Hybrids usually compete with other arrangements, including other hybrids. Indeed, they develop on highly competitive markets in which pooling resource is a way to deal with uncertainties and to survive. However, if investments are moderately specific, partners may be tempted to switch among arrangements, making them highly unstable. Hence a third problem for hybrids: what is the best mechanism for delineating joint decisions, disciplining partners, and solving conflicts while preventing free riding?

Therefore, significant regularities underlie the heterogeneous set of hybrids. Aspects of these regularities exist in markets and hierarchies. What distinguishes (and plagues) hybrids is the grounding of these regularities in a mix of competition and cooperation that subordinate the key role played by prices on markets

[23] For example, studies on franchising show that contrarily to what agency theory predicts, contracts are not tailored to suit characteristics of transactors or transactions (Lafontaine and Slade, 1997; Ménard, 2004a).

and by command in hierarchies (Jorde and Teece, 1989; Grandori and Soda, 1995; Ménard, 1997). Because they cannot or can only weakly rely on prices or on hierarchy to discipline partners, hybrids depend on specific mechanisms of governance for their survival.

### *Why Choose a Hybrid Arrangement?*

Considering the difficulties involved, one may wonder why there are hybrid organizations at all. Williamson (1991) provides a convincing explanation, based on the model initially developed for understanding the "make-or-buy" tradeoff. The underlying idea is that when investments among partners are specific enough to generate substantial contractual hazards without justifying integration and its burdens, and when uncertainties are consequential enough to require tighter coordination than what markets can provide, parties have an incentive to choose hybrids. Empirical studies have begun substantiating this approach (Ménard, 2004a, section 3). I develop these two aspects successively.

#### *Investing in Mutual Dependence*

A fundamental determinant already noted comes from the incentive for partners to create durable mutual dependence while keeping property and decision rights distinct. Two investment strategies can be adopted, with distinct consequences. Each party may invest in specific assets, creating a network based on complementarities; or partners may pool resources, making joint investments for part of their activities. The first strategy was analyzed early by transaction cost economists, who highlighted the role of the duration of agreements. Most initial studies focused on bilateral contracts of that type (Masten, 1984; Palay, 1985; Joskow, 1985). The second strategy, requiring joint investments, typically develops with agreements for transferring products among organizations with different minimum efficiency scales, or involving technology transfers (Hennart, 1988; Teece, 1992; Gulati, 1998; Oxley, 1999).

These examples refer to investments in physical assets. Indeed, most empirical studies of the impact of specific investments on the choice of inter-firm agreements, particularly econometric tests, took inspiration from the paradigmatic analysis of vertical integration, with its emphasis on physical capital (site specificity, physical specificity, dedicated assets). Without ignoring this aspect, a significant contribution of the literature on hybrids is its concern with human assets (Loasby, 1994). This comes out quite naturally from the centrality of agents in charge of coordinating legally autonomous decision makers while checking their propensity to free ride. In franchising, success depends largely on the capacity of the franchisor to select and monitor adequately franchisees (Dnes, 1996; Raynaud, 1997; Lafontaine and Shaw, 1999). Specific human assets are also crucial in other hybrid forms, e.g., mutual investments in human resources among biotechnology firms (Powell, 1996) or transfer of competencies in networks confronted to rapidly changing technologies (Teece, 1992).

The very existence of interdependent physical assets requires substantial investments in managers that can monitor the arrangement. As already pointed out by Palay (1985), acquiring inter-firm specific knowledge takes time and efforts, so that "go-betweens" are highly regarded as problem-solvers, contributing to the continuity of the relationship.

Another form of specific investments that creates incentives to choose a hybrid arrangement is brand name capital. The abundant managerial literature on distribution channels inspired by transaction cost economics emphasizes the strategic issue of what governance can control partners and maintain reputation (e.g., Brown, 1984; Dwyer and Oh, 1988; John and Weitz, 1988; Fein and Anderson, 1997; Fearne, 1998). Similarly, studies on collective trademarks show the importance of devices designed for guaranteeing quality and preventing opportunistic behavior. When the reputation of a collective brand depends on the quality of products highly correlated to human assets, training and network-specific competences represent a key value (Ménard, 1996; Raynaud, 1997).

Hence, hybrids develop because of the advantages expected from mutual dependence. However, the level and forms of the specific investments required determine the significance of contractual hazards and the nature of safeguards needed for securing the agreement.

### *Monitoring Uncertainty*

This brings in the issue of uncertainty, the second determinant of hybrids forms. Transaction cost theory suggests that the degree of uncertainty surrounding the transactions that hybrids organize also contributes to shaping the form adopted. Uncertainty is secondary to specific investments in that without some mutual dependence in assets, there would be no hybrid; parties would trade through markets. But once investment-specific relationships develop, uncertainty impregnates decisions about the level of resources pooled and their monitoring. Hybrids operate as a "buffer": the more consequential the uncertainty is, the more centralized the coordination tends to be (Ménard, 1996, 1997; Nooteboom, 1999).

Internal as well as external factors of uncertainties among partners are relatively well identified. Internal uncertainty outgrows from problems with inputs, outputs, or the transformation process. Problems with inputs may come from non-observabilities in resources or services traded, as in supply chain systems (Fearne, 1998); from difficulties in the coordination of inputs, as in the construction industry (Eccles, 1981); or from outside suppliers with no specific commitment to the arrangement, as in the food industry (Mazé, 2002). Uncertainties about outputs can result from difficulties in controlling that deliverables meet the standards agreed upon: from maladjustments to consumers' preferences; or from lack of flexibility in adapting to a changing demand. (Anderson and Schmittlein, 1984; John and Weitz, 1988). The transformation process itself may generate uncertainties: hybrids pool resources that may overlap with activities excluded from the agreement thus making control and planning uncertain,

and complex technologies and human skills may be involved, as with joint R & D projects. Defining rules for the distribution of rents or for supporting unexpected costs then becomes a potential source of conflicts (Ghosh and John, 1999, p. 131).

The role of the institutional environment as an external source of uncertainty, influencing the choice of one form of hybrid rather than another is often mentioned, although not often analyzed. North (1981, 1990, 1991) has repeatedly insisted on the importance of the rules of the game for understanding how actors play that game. Williamson (1991) went a step further, suggesting how shifts in parameters could explain changes in the modes of governance. Fortunately recent studies on hybrid forms have initiated a more systematic exploration of this issue (e.g., Khanna, 1998; Oxley, 1999).

But what really matters for understanding the choice and the form of hybrids is whether these uncertainties are consequential or not. Confronted to consequential uncertainty, hybrids must combine adaptation, in order to provide flexible adjustments; control, in order to reduce discrepancies among inputs, outputs, or quality in the process itself; and safeguards, in order to prevent opportunistic behavior that uncertainties make difficult to detect. The intensity of adaptation, control, and safeguards needed provides a good predictor of the degree of centralization in the governance of hybrids.

In sum, hybrids develop when specific investments can be spread over partners without losing the advantages of autonomy, while uncertainties are consequential enough to make pooling a valuable alternative to markets. It is the combination of these two dimensions that matters. If only one attribute is present, the governance leans towards contract-based arrangements. When the two attributes combine, the governance becomes more authoritarian. Therefore, it is the combination of opportunism, or the risk of opportunism, and of miscoordination, or the risk of miscoordination, which determines the governance characterizing hybrid organizations.

### *What Governance for the Hybrids?*

There are basically two channels through which monitor hybrids: through contracts and/or through formal governing bodies. Both aspects have been explored by new institutional economists, although the literature on the former is much more abundant so far.

#### *Contractual Safeguards*

Indeed, most studies on hybrids in a transaction cost perspective emphasize the role of contracts as safeguards against the high risk of opportunistic behavior that threatens these arrangements, but also show their limits (Masten, 1996; Ménard, 2004b, vol. 3). For example, selecting partners is of utmost importance in hybrids because of what it could cost redeploying mutually dependent assets. However, competition as a selection process, e.g., through bidding, is used

sparsely, mostly to "test the market" occasionally (Eccles, 1981; Ménard, 1996) and to discipline partners (Knoeber, 1989; Dyer, 1997). Similarly, provisions for constraining opportunism often remain at a very general level, likely because comprehensive-binding contracts would be far too complex and/or too costly to design and implement. This likely explains the highly relational dimension of contracts in hybrids, a regularity noted above.

Notwithstanding these limits, there are different ways through which contracts help coordinating, and new institutional economists have substantially contributed to the analysis of these aspects. Contracts may specify criteria for selecting partners and even fix their number.[24] Choosing duration of the contract also provides means for testing willingness to commit and for guaranteeing some continuity in the relationship. As a consequence, formal duration of contracts does not necessarily correspond to the actual duration of the relationship (Joskow, 1985; Ménard, 1996; Dyer, 1997). Clauses determining quality standards, often complemented by annexes, also contribute thus making commitments as observable as possible (Ménard, 1996; Gaucher, 2002).[25] Adaptation clauses, e.g., index clauses or clauses delegating adaptation to identifiable managers or arbitrators, can prove a framework that smoothens relationships among partners (Rubin, chap. 9 of this book). Safeguard clauses help to overcome the incompleteness of contracts (Hadfield, 1990), whether safeguards are formal (e.g., financial hostages a la Klein, 1980; mutual commitments guaranteed by specific investments a la Williamson, 1983) or informal, based on relations or reputation (Macaulay, 1963; Garvey, 1995; Baker et al., 2002).

The combination of these characteristics provides tools for governing hybrids. It also generates complexity and costs, which define a central issue: how to economize on the costs of extensive contracting among autonomous partners in order to maintain some advantages in comparison to the cost of administering a broader range of assets within one single firm (Klein et al., 1978)? The answer may well be that contracts provide only a framework, which must be completed by other mechanisms of governance.

### *Private Order: Forms of Governance*

Indeed, empirical studies reveal an array of mechanisms developed by hybrids for economizing on transaction costs while smoothing relations among partners. The issue of rent sharing, not discussed here, is particularly important in that respect (Ménard, 2004a). However, these studies still lack a theoretical framework that could unify the analysis. What follows offers only a partial and provisory view.

[24] A difficult tradeoff concerns the choice, when possible, between bilateral or multilateral agreements. The former is easier to monitor but involves higher dependency; the latter makes monitoring more complex but allows comparisons and benchmarking, a powerful tool for constraining opportunism. Most hybrid arrangements are of the second type. One suspects it is because it better captures positive properties of markets.

[25] Studies on contracts, particularly econometric tests, ignore annexes, in which the essence often lies.

Building on indications provided by Klein et al. (1978) and Williamson (1985, chap. 3; 1991), Ménard (1994a, 1996, 1997, 2004a) has developed evidence of the presence of regulating devices (or "authorities", distinct from "hierarchies") as a core element in the architecture of hybrids. These devices all share one common characteristic: they depend on the transfer by partners of subclasses of decisions to entities coordinating their action, while property and decision rights remain distinct. Thus, they rely on *intentionality and mutuality*, maintaining a formal symmetry that distinguishes hybrids from hierarchies.

Available studies mostly based on cases or on sector samples suggest that the degree of centralization adopted depends on the degree of mutual dependence among partners and on the complexity and turbulence of the environment (Dwyer and Oh, 1988; Ménard, 1996; Park, 1996). An illustration is provided in Raynaud (1997), who analyzed a brand name for high quality bread developed by a group of French millers. In order to prevent opportunism, the partners created a distinct legal entity holding the brand name and defining and implementing standards of quality; they also created a private "court" with peers elected as judges, who are in charge of solving conflicts. An amazing element of this arrangement is the power delegated to these judges to penalize and even expel a partner free-riding "excessively". The group has grown successfully for the last 25 years. Sauvée (2002) examined another pattern, implemented by a firm holding a brand name of canned vegetables of high quality. Inputs come from a diversified set of growers operating under contracts. The formal side of the contract is quite standard, in line with characteristics described above. The interesting point though is that the success of the firm rapidly translated in the high transaction costs of monitoring all these contracts. In order to reduce these costs and secure the arrangement, growers have been structured in several groups with delegates for negotiating contracts and adjustments. A joint committee, with four representatives from the producers and two from the firm, is in charge of solving conflicts, deciding changes, and distributing the quasi-rents.

More generally, empirical studies show a highly variable degree of formalism and power embodied in governing entities adopted by hybrids, which likely reflects the significance of contractual hazards and the resulting transaction costs. I have suggested elsewhere that four forms deserve particular attention (Ménard, 2004a; see also Oxley, 1997). At one end of the spectrum, close to market arrangements, hybrids rely primarily on *trust*: decisions are decentralized and coordination relies on mutual "influence" and reciprocity. At the other end, hybrids come close to integration, with tight coordination through quasi-autonomous *governing bodies* or "bureaus" sharing some attributes of a hierarchy (e.g., the millers). Between these polar cases, mild forms of "authority" develop, based on relational networks or on leadership. Relational *networks* have attracted a lot of attention in organization studies (Powell, 1990; Hakansson and Johanson, 1993; Grandori and Soda, 1995). They rely on tighter coordination than trust, with formal rules and conventions based on long-term relationships, on complementary competences, and/or on social "connivance" (Powell et al., 1996). By contrast, hybrids coordinated by a *leader* leave little room for autonomy although some

formal symmetry can be maintained (as in the case of the canned vegetables firm). Subcontracting, particularly with long-term contractual relationships, or alliances related to R & D projects are often of that mode (Eccles, 1981; Pisano, 1990; Powell, 1996).

The long ignored hybrid modes of organization have attracted increasing attention. They provide unique opportunities for theoretical investigation on enforcement mechanisms, on diverse forms of authority for coordinating autonomous partners, on decision processes involved in multi-partnership, etc. They also call for studies about what determines the type of arrangement adopted, the contractual provisions implemented, the incentives selected, and the dispute-solving mechanisms developed. NIE is a major contributor to that research program.

## 5. Markets

It has been suggested that markets would be the "black box" of transaction cost economics (Holmstrom and Roberts, 1998, p. 77). The underlying argument seems to be that the benchmark to which NIE refers when discussing market issues is the neoclassical model: supply, demand, and the price mechanism form the hard core of markets, as exemplified by spot markets. In this section I would like to show briefly that the picture offered is definitely more complex.

In order to do so, a preliminary clarification is necessary.[26] As suggested in the introduction of this chapter, considering its extensive use in economic theory as well as in daily life, the very concept of "market" is not as simple as one would think. I have emphasized elsewhere that it is actually quite a protean concept, and its definition, even by the most prominent economists, tends to fluctuate (Ménard, 1995). The main ambiguity with respect to the central goal of this chapter comes from the fact that market can designate: (a) either a mode of organizing transactions, with substitutes such as firms or hybrid arrangements, as when carmakers buy parts from suppliers on competitive markets rather than producing these parts in-house; or (b) the general set of arrangements that characterize a market economy, in which markets represent the central economic institution in last resort in that at some point all modes of organizations intersect with and/or are embedded in markets, e.g. firms and hybrids obtain resources through voluntary exchanges, compete in capital and labor markets, etc. Because this chapter focuses on alternative ways of organizing transactions, I essentially refer to the first meaning. The problem is that there are many areas where the two dimensions intersect. Future research in NIE will surely need to better articulate the study of markets as an alternative way to organize exchange with the analysis of market structures and the regulatory environment within which different modes of organization interact. Plainly, we need better integration between the economics of organization, industrial organization, and institutional analysis. In what follows, I only review elements relevant to the analysis of markets

[26] I am particularly indebted to an anonymous referee who raised this issue and provided several insights.

as ways to organize exchange distinct from how firms or hybrids proceed in doing so.

### *Why are There Markets?*

In a certain sense, markets thus understood have been at the center of NIE from the very beginning. The initial question raised by Coase (1937) about the nature of the firm can indeed be rephrased as: Why is it that markets do not do it all, all the time? The answer to this question requires a thorough examination of the cost of using the price mechanism. A substantial part of the literature from new institutionalists is just about that: it either explores the institutions required for markets to exist, to develop, and to be efficient, in the continuation of the research program initiated by North; or it examines why going through markets for trading rights and for enforcing contracts may be so costly that other arrangements are preferred, following the perspective opened by Ronald Coase and Oliver Williamson. My approach here focuses essentially on this second aspect.

As with the analysis of firms and hybrids, the starting point is the assumption that, due to the presence of positive transaction costs, alternative modes of organization do exist. Markets represent a subset of the many institutional arrangements that have developed over time for transferring rights. The fundamental characteristic of this subset is that it specializes in the exchange of property rights through mechanisms that require the mutual consent of parties involved (markets don't give "orders") and that coordinate the decentralized decisions made by agents using the information provided through the price system (Coase, this book, chap. 2). In fully acknowledging the role of prices, new institutional economists do give credit to the contributions of mainstream economists analyzing how the price system works. But they take distance with that literature in four aspects: (1) They consider that markets cannot be fully understood as pure structures but must be analyzed in taking into account the institutional factors that shape them. (2) As emphasized by Demsetz (1988a, 1988b), prices do not coordinate, but rather they send signals to those coordinating. A consequence is that markets and their structures result from the activities of households, firms, and inter-firm relationships. (3) Moreover, prices are not signals to which agents adapt passively. Again, Demsetz among others has exhibited how entrepreneurs and business managers actively affect products and prices, guiding and directing the allocation of resources with strategies of their rivals in mind (see also Anderson and Gatignon, chap. 16 of this book). (4) Therefore, markets need to be studied in relation to the alternative modes of organization with which they interact. Several consequences result from this approach. I examine only a few here, in order to facilitate the comparison with the other arrangements.

### *Markets as Mode of Organization*

One key feature of markets in a transaction costs perspective is that they are organized, a point emphasized by Furubotn and Richter in their synthesis of NIE

(1997, chap. 7, p. 284). This is a non-trivial observation. It means that markets are embedded in institutions that shape them. Hence markets can take a variety of forms depending on the "rules of the game".

*First*, markets require institutional supports to exist and develop. We know from an already abundant literature that these supports combine complex legal, political, and social factors, with enforcement of agreements among parties as a key issue (North, 1981; 1990; and several chapters of this book; also White, 1981). The evolution of different market arrangements in the past as well as the difficult transition from a planned economy to a market economy provide dramatic examples of the complexity of institutions required.[27] A major contribution of new institutional economists (e.g., Alston, Libecap and Mueller, 1997) and of social scientists endorsing their perspective (e.g., Ensminger, 1992) has been to exhibit the particularly important and complex role of the definition and implementation of property rights. One basic assumption in standard models of market equilibrium is that all goods and services are "owned" by agents at no costs and that transfers of these rights are costless as well. NIE has gone the other way, exhibiting the complexity of the rules of the game needed for organizing these transfers, the economic and social costs of implementing these rules, and the difficulties of establishing adequate prices. Ensminger (1997), for example, has shown the importance of norms and customs in the definition of property rights and in the usage of prices for transferring these rights, while Libecap (1989) and Alston and Mueller (chap. 22 of this book) have analyzed the severe problems encountered in defining adequate supports for property rights (e.g., defining and enforcing land titles) and, above all, in implementing them.

*Second*, not all markets are alike. Since markets are institutionally embedded and shaped by varying rules of the game, they differ according to the arrangements that support them. The organization of the New York Stock Exchange differs from the Frankfurt Stock Exchange, and even more from the market for diamonds. A perfect illustration of this diversity and its determination by the surrounding institutions is provided by the implementation of markets for the production and distribution of electricity in Europe (Glachant, 2002). This diversity does not mean that markets escape theory and could only be described. Markets do share some common properties that have partially been captured by standard microeconomics through the analytics of supply and demand (Ménard, 1995). However, the point made by new institutionalists is that the varied institutional supports on which they are built have a significant impact on the comparative costs and benefits of using them. The institutional design defining the North Pool of electricity does not have the same costs than the NETA (New Electricity Trade Agreement) covering England and Wales. On some markets, personal relations play a key role in determining what transactions will be possible at what price (Ben Porath, 1980). Other markets remain highly impersonal,

[27] Milgrom et al. (1989) and Greif (1993; and chap. 28 of this book) provide good examples on the historical side. Murrell (chap. 26) covers transition issues, while Engerman and Sokoloff (chap. 25) propose a stimulating comparison of the divergent evolution of American countries.

as with auctions monitored through Internet. We still know little about the costs and benefits of these different institutional arrangements.[28]

*Third*, this diversity in the ways markets are organized reflects in the variety of mechanisms involved in the formation of prices: posted prices, prices determined by auction, the different types of auctions, prices formed through negotiations, etc. These mechanisms repose on distinct processes, requiring different supports, arrangements and rules, and they likely translate in different transaction costs. Here again we do not have a clear picture of the procedures involved, the underlying logic and, above all, the comparative costs that result.

*Fourth*, market organization critically depends on enforcement mechanisms. New institutionalists have developed an extensive body of research on different enforcement mechanisms, from very informal ones, rooted in the beliefs and shared values of traders (Greif, 1993 and chap. 28 of this book; North, 2004) to more formal mechanisms of enforcement. North has played an important role in that respect, pointing out the crucial role of both formal and informal constraints for shaping markets.[29] Among the formal mechanisms, two dimensions have been particularly explored that partially overlap: the role of legal regimes in establishing property rights (e.g., Alston, Libecap, and Schneider, 1996; Alston, Libecap and Mueller, 1997, pp. 145 sq.); and the role of the State as an enforcer of property rights on markets (Libecap and Wiggins, 1985; Barzel, 1999 and 2000).

### *The Costs of Using Market Organization*

The neoclassical view of markets assumes these mechanisms as given and/or implementable at no costs. For example, notwithstanding their role in designing alternative solutions, which is the source of heated academic debates, mainstream economists have proposed no analysis that I know comparing the costs of the different institutional arrangements chosen for creating electricity markets, or the comparative costs of the different arrangements required by the distinct types of auctions used for selling licenses in the telecommunication sector. As a result, the mainstream approach misses substantial aspects of the importance and significance of the diversity of market organizations and the central role that supporting institutions play in their functioning, development, and success or failure. In the continuation of Coase (1937, 1960), NIE has clearly opened the way to the analysis of these underlying and indispensable mechanisms and to the examination of their costs.[30] Here again the literature is considerable, and I touch only the tip of the iceberg.

[28] The tentative evaluation of transaction costs on the NYSE by Demsetz (1968) did not generate the flow of research one would have expected.

[29] For a synthesis of his ideas on this issue, see North, 1990, chaps. 5, 6, and 7.

[30] See for example Levy and Spiller (1994) and Joskow (1991; 1997) Although not always with due recognition of their debt to new institutionalists, mainstream economists are increasingly acknowledging the role of these institutions (e.g., La Porta et al., 1998).

As a mean for organizing transactions, markets serve coordination: agents collect information about the characteristics of goods and services through the price system in order to decide which rights to transfer one way or the other. Dahlman (1979) is among the first to have explored systematically the different costs involved in that activity which is at the core of market transactions. Two dimensions deserve particular attention.

The first one concerns the costs related to the collection of information about goods or services to be traded. Hayek noted in a now famous contribution (1945) the role of prices in carrying that information. However, besides the pioneering paper by Stigler (1961), it took a long time before attention was paid to the problems involved and to the institutional devices that their solution may require. Information became a fashionable issue among neoclassical economists in the late 1970s and the 1980s, but it focused mostly on the problem of asymmetries in the information held by different parties, with almost no attention to the supports needed for carrying information and their impact on the quality and costs of information. In a new institutional perspective, Barzel (1982; 1989) has made a significant contribution in that respect raising a central issue of price systems, which is the measurement of goods or services to be traded. The evaluation of goods apparently as simple as oranges can be tricky and requires complex arrangements. Sellers may develop specific devices for alleviating the burden of buyers and gaining their loyalty. Intermediaries may proliferate as agents specializing in measurement, thus reducing transaction costs for the trading parties. Public rules and institutions for implementing them may be adopted for homogenizing measures and making evaluation less costly. Recent empirical researches support this analysis. For example, Leffler et al. (2000) have shown the complexity of the arrangements implemented by sellers through presale measurement in the timber industry, in order to reduce uncertainties of transactions. One difficult issue that needs to be mentioned here is that in a transaction cost perspective, evaluating the costs of these different arrangements requires a comparative approach, often a comparison between the costs of existing arrangements and potential alternatives. Masten et al. (1991) have discussed nicely a problem of that nature in transaction costs economics, although in a different context.[31]

Beyond the cost of measurement associated to the collection and processing of information that make prices meaningful, a second dimension of particular significance in evaluating what it costs to run markets relates to the devices required for identifying and matching potential buyers and sellers. North raised the issue in the early 1980s (1981, chap. 4; 1984), and illustrated it nicely in a model with Milgrom and Weingast (1989) about the role of private institutions for matching and disciplining parties participating to Champagne fairs in the Middle Age. More generally, parties operating on extensive markets need elaborated systems for identifying whom they want to deal with. Technical supports are required, from the relatively simple organization of local markets to

[31] Their discussion is about the difficulties in assessing the comparative advantages of one mode of organization. Joskow (Chap. 13 of this book) provides a useful summary of their contribution.

the complex arrangements associated to Internet. Costly devices allow these markets to exist and develop. Contracts are one of them.

### *Market contracting: Is There any Specificity?*

Indeed, contracts represent an important arrangement for organizing market transactions. Of course, as shown in the previous sections, contracts play also a significant role in other modes of organization. However, their centrality may be specific to markets, besides and in connection with the price system. Firms rely mostly on the role of hierarchy for coordinating, while hybrids use contracts as a framework completed by complex institutional arrangements for planning their joint activities. In market transactions, there is not much besides contracts that parties can rely upon.

The question of whether or not market contracts are of the same nature than that characterizing firms or hybrids has generated controversies, following the provocative paper by Alchian and Demsetz (1972). In simplifying, two polar conceptions have developed. At one end of the spectrum, Benjamin Klein has continuously maintained that all contractual relationships are market relationships. In 1983, he stated: "The question what is the essential characteristic of a firm now appears to be unimportant. Thinking of all organizations as group of explicit and implicit contracts among owners of factors of production represents a fundamental advance" And again, in 2000 (p. 138): "... it is useful to think of all arrangements, including vertical integration, as forms of markets contracts chosen by transactors to supplement self enforcement when transactors have limited reputational capital". In that respect, contracts on spot markets would represent the essence of all modes of organization. Williamson has adopted a distinctively different perspective on this issue. Coming from the Carnegie tradition (Williamson, 1996, chap. 1), for which firms matter, he has consistently emphasized the existence and role of discrete mechanisms of governance, with distinct forms of contracts for the different modes of governance. Referring to Macneil (1978), he has put at the forefront the specificity of the "classical contract law" that would characterize market contracts. "The emphasis [is] on legal rules, formal documents, and self-liquidating transactions" (1985, p. 69). As a result "... the specific identity of the parties is of negligible importance; substantive content is determined by reference to formal terms of the contract, and legal rules apply. Market alternatives are mainly what protect each party against opportunism by his opposite. Litigation is strictly for settling claims; concentrated efforts to sustain the relation are not made, because the relation is not independently valued" (id. p. 74). This characterization contrasts nicely markets contracts with arrangements prevailing in firms or in hybrids, and it is the view I have adopted in this chapter.

One important consequence of market contracts as arrangements in which the identity of parties does not matter, concerns the role of safeguards for protecting parties and of *credible commitments* for markets to operate efficiently. At least two different mechanisms are involved. One is market pressure: the existence of substitutes, which is essential to the existence of markets, disciplines parties. But

because markets are not perfect, this is usually not enough to procure adequate safeguards. Hence the role of specific contractual clauses developed for protecting traders. "Hostage" clauses intend to reinforce credibility (Williamson, 1985, chaps. 7 and 8 [1983]). Third parties such as courts (Schwartz, 1992) and arbitrators (Rubin, this book, chap. 9), and informal mechanisms such as reputation or trust contribute to the respect of market contracts, suspending a sword over the head of undisciplined parties.[32] Once more we are back to the necessity of looking at institutions needed for markets to operate.

To summarize, the main lesson learned from the extensive new institutional literature on markets is that they are all but "black boxes". (1) Markets can take many different forms, a neglected issue that requires further investigation. (2) They share fundamental characteristics only partially summarized by the price system.[33] (3) They are costly to use. (4) They require a dense web of institutions in order to develop. In that respect, and like the other modes of organization, they have flaws of their own, which makes them part of the continuous tradeoff among institutional arrangements that characterize a complex market economy.

## 6. Some Unsolved Problems

The previous sections summarize a fraction of the contributions of NIE to the analysis of the different modes of organization supporting transactions in a market economy. Notwithstanding its limitations, this survey illustrates how substantial these contributions are. Progress made has also exhibited grey areas and domains of divergence that are likely to generate new research. I conclude this chapter by a short review of some of these issues.

### *The Contractual Divide*

The role of contracts in the analysis of organization emerges as a central theme in recent literature, and new institutionalists have played a pioneering role here (Brousseau and Glachant, 2002). However, and without overemphasizing the divergences, several problems persist regarding the nature and status of contracts. First, the question of their importance with respect to other devices remains open. The answer may be partially semantic depending on how extensively one defines contracts.[34] However, it has also a crucial analytical implication: Do contracts tell us the essentials of what we need to know about organizations? Alchian,

[32] The role of trust remains controversial. For two opposite views, see Zucker, 1986 and Williamson, 1993.

[33] As firmly stated by Demsetz (1988a, p. 159): "What parades as perfect competition is a model that has much to say about the price system, but little to say about competition or the organization of firms. [ . . . ] What is modeled is not competition, but extreme decentralization".

[34] Personally, I endorse the definition provided by Macaulay (1963, p. 31): "Contract, . . . , involves two distinct elements: (a) rational planning of the transaction with careful provision for as many future contingencies as can be foreseen; and (b) the existence or use of actual or potential sanctions to induce performance of the exchange or to compensate for non-performance."

Demsetz, Klein, among others, argue that contracts provide the fundamental characteristic of all trading activities in a market economy, with firms or hybrids viewed as subsumed markets. The concept of the firm as a nexus-of-contract illustrates, with no role for authority. Williamson has adopted a more nuanced position, more in line with the organization theory perspective: contracts permeate all forms of organizations, but they tell only part of the story. I have clearly endorsed this position here, emphasizing the incompleteness of contracts and the existence of complementary devices. But the question remains open.

Second, there is the problem of determining if contracts differ across modes of organization. This chapter adopted the view that there exist discrete organizational structures, with properties of their own. If so, one expects contracts to exhibit substantial differences according to the type of arrangement in which they are embedded. Several neo-institutionalists (as well as mainstream economists) disagree. Once more, the contrast in the initial positions adopted by Alchian and Demsetz (1972) and Williamson (1979) is illustrative: the former defended the idea that all contracts share the same fundamental properties,[35] while the later endorsed the typology proposed by Macneil (1974), differentiating contracts along modes of organization. Further developments, in theory and in empirical studies, are needed, to make the decision.

Third, the question of the incompleteness of contracts remains controversial. This issue particularly concerns the relationship between new institutionalists and mainstream economists. The former share quite unanimously the view that contracts are "unavoidably incomplete", with non-contractible decisions both ex-ante and ex-post (Williamson, 1993, section 5). This question is crucial. If complete contracts provide the adequate unit of analysis, all relevant actions concentrate in the ex-ante incentive alignment, making ex-post governance largely irrelevant. Therefore, the study of contracts would be what matters while studying the "structural properties" of different modes of organization would at best be a minor issue. In a NIE perspective, the challenge is to model behavioral assumptions in order to provide microfoundations to incompleteness.

### *The Role of Specific Assets*

Another controversial issue concerns the attributes of transactions that determine their costs and the weight of these attributes in the choice and/or fitness of a mode of organization. A series of papers on the paradigmatic case of the relationship between Fisher Body and General Motors in the 1920s recently reignited the debate. I do not intend to summarize this controversy.[36] I simply want to point out its importance for the analysis of organizations.

[35] Hence the provocative statement by B. Klein (1983, p. 373): "The question what is the essential characteristic of a firm now appears to be unimportant. Thinking of all organizations as group of explicit and implicit contracts among owners of factors of production represents a fundamental advance."

[36] The main elements of the debate are exposed in the April 2001 issue of the *Journal of Law and Economics*. Several chapters in this Handbook refer to the GM-FB case (e.g., Joskow, chap. 13; Klein, chap. 17)

In his 1937 paper, Coase linked the decision to integrate and the effort to economize on costs that the price system may impose on transactions. When the idea caught up, in the 1970s, two interpretations developed. Williamson (1975; 1979) established the well-known model identifying the three major attributes that would determine transaction costs: asset specificity, uncertainty, and frequency (see my section 2). At about the same time, Klein et al. (1978) argued that the main explanation to vertical integration was the risk of hold up from opportunistic partners once specific investments have been made. They illustrated with the decision of General Motors to integrate Fisher Body in 1926, which ended a long contractual relationship. This example has become a paradigmatic case, referenced in innumerable papers (Bolton and Scharfstein, 1998). The view developed in Klein et al. converged with Williamson's emphasis on the role played by contractual hazards in the tradeoffs among modes of organization, and with the development of empirical studies and econometric tests that largely focused on specific assets as the main source of these hazards.[37] This is what Coase has repeatedly challenged, since 1988 (1991, chap. 5), using the Fisher Body-General Motors case to defend the role of uncertainties and, above all, of human assets (in this case, the Fisher brothers) for explaining the decision to integrate.

This debate raises important issues for the theory of organization. One points the need for more extensive analyses and more sophisticated models of the determinants of transaction costs, and how they affect the choice and performance of different modes of organizations. Uncertainty and the role of human assets deserve particular attention in that respect. Second, we need more empirical studies, identifying and measuring relevant proxies in order to assess the role of these variables and their impact. As noted by Masten et al. (1991) and Joskow (Chap. 13, this book), most tests so far have focused on the role of specific investments, at the sector level. Looking at other variables and digging into data at the firm level or at the level of inter-firm agreements involve difficulties that need to be dealt with.

### *Digging Deeper in Organizational Arrangements*

The initial research program in the micro-analytical branch of NIE focused on the tradeoff between markets and hierarchies. History explains this agenda: in arguing that there are situations in which firms may efficiently prevail over markets in organizing transactions, Coase challenged the conventional wisdom about the superiority of markets. For those convinced by the argument, making it operational and testing it was a legitimate priority. However, it has become increasingly clear that a satisfying explanation of *why* and *under what circumstance* one mode of organization overcomes another one requires investigating the internal characteristics of these arrangements. Some key issues are summarized hereafter.

[37] Beside theoretical problems, practical factors explain these developments, e.g., available data, easiness in defining proxies, etc. Joskow (chap. 13) discusses some of these issues.

First, we need more studies on how the internal organization of labor within a firm might affect "administrative costs" in comparison to the costs of taking advantage of specialization through markets. Although Williamson (1975, chap. 4 and 5; 1985, chap. 9) raised the issue, few studies followed that would use transaction costs lenses.[38]

Second, with the exception of Williamson and Demsetz, few new institutionalists have paid attention to the classical problem of the separation of ownership and management.[39] However, the varied institutions of corporate governance likely have an impact on the internal costs of organizing transactions. Demsetz (1995, commentaries 2,3 and 6) suggested that if operating in properly designed institutions, managers may save on transaction costs by their capacity to combine and develop dispersed knowledge. Further studies are needed here.

Third, a transaction cost approach to financial issues within firms and among hybrids remains to be developed. Alchian and Woodward (1987) briefly discussed the trade-off between debt and equity, noting that when risks of hold-up are high, users will have an incentive to own rather than to rent more exposed resources and will rather finance through equity than debt. Williamson (1988a; 1988 b) proposed a similar analysis, linking the choice between debt and equity to the redeployability of assets to be financed. However, few developments have followed these intuitions.

A fourth dimension that requires further exploration involves how transaction costs affect the selection of incentive mechanisms. Empirical evidences suggest that contracts for aligning interests of agents and principals are relatively simple and complemented by other motivational devices. Most new institutionalists share with mainstream economists the view that formal organizations have lower incentives than markets, since on markets agents can cash directly the results of their efforts (Williamson, 1996, p. 105). However, if the replication of market incentives ("selective intervention" in Williamson's terminology) is not possible, what factors allow firms to overcome costs of control and perform better than markets under some circumstances? The answer likely lies in the combination of organizational incentives, e.g., bonuses, job design, work rules, tasks assignments, strategic plans, delegation of power, information channels, corporate culture, and so on (Aoki, 1988, chap. 3 and 8; Holmstrom, 1999). Clearly, an institutional approach can improve our understanding of these issues.

One last problem, which attracted the attention in NIE earlier but has been neglected later on, concerns the emergence of new organizational forms, the evolution of existing ones, and their interaction with institutional changes. As early as 1975 (chap. 8), Williamson reinterpreted Chandler's view on large

[38] For example the suggestion (Williamson, 1988; Alchian and Woodward, 1987, p. 120; Aoki, 1988, chap. 5; and Ménard, 1997, pp. 40 sq.) that highly specific human assets are more exposed to contractual hazards so that they are likely to look for safeguards such as representation on the Board presumably have a significant impact on the internal organization and its costs. But we know almost nothing about this.

[39] The classic reference for this problem is Berle and Means (1934). This relative disinterest is particularly surprising if one notes a comment by Demsetz, according to which "... ownership of even the largest U.S. corporations is more concentrated than Berle and Means' discussion of the separation issue would lead one to believe" (1995, p. 63).

corporations with a transactional perspective. The first econometric tests in NIE were on this issue (e.g., Armour and Teece, 1978). Teece later combined transaction costs and evolutionary factors to go further (e.g., Teece et al., 1994), while Aoki (1990) extended the model. But Alchian and Woodward (1988, section 5) rightly noted that efforts to link organizational forms, and more generally organizational innovation, to asset specificity remain in a very preliminary stage.[40] Links with evolutionary economics may be fruitful on these issues.

These unsolved problems pay a tribute to the development of NIE. They suggest that the initial explanations to the existence of alternative modes of organization and the tradeoffs among them have opened the way to new questions. Innumerable empirical studies and econometric tests have substantiated the initial intuitions but also complicated them. It supports the idea that New Institutional Economics remains a progressive research program. New questions require to be investigated and a toolbox exists for exploring them.

## ACKNOWLEDGEMENTS

I am particularly grateful to Mary M. Shirley and two anonymous referees for their very helpful comments on previous versions of this chapter. The chapter was finalized while I was visiting MIT. I greatly benefited from discussions with Robert Gibbons, Luis Garicano, Mathias Dewatripont, and participants to MIT workshops, as well as from discussions with Victor Nee and Richard Swedberg at Cornell. The usual disclaimer fully applies.

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[40] A preliminary exploration was proposed in Ménard, 1994c.

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