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## **The Theory of the Firm as Governance Structure: From Choice to Contract**

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**T**he propositions that organization matters and that it is susceptible to analysis were long greeted by skepticism by economists. To be sure, there were conspicuous exceptions: Alfred Marshall in *Industry and Trade* (1932), Joseph Schumpeter in *Capitalism, Socialism, and Democracy* (1942) and Friedrich Hayek (1945) in his writings on knowledge. Institutional economists like Thorstein Veblen (1904), John R. Commons (1934) and Ronald Coase (1937) and organization theorists like Robert Michels (1915 [1962]), Chester Barnard (1938), Herbert Simon (1957a), James March (March and Simon, 1958) and Richard Scott (1992) also made the case that organization deserves greater prominence.

One reason why this message took a long time to register is that it is much easier to say that organization matters than it is to show how and why.<sup>1</sup> The prevalence of the science of choice approach to economics has also been an obstacle. As developed herein, the lessons of organization theory for economics are both different and more consequential when examined through the lens of contract. This paper examines economic organization from a science of contract perspective, with special emphasis on the theory of the firm.

<sup>1</sup> *A Behavioral Theory of the Firm* (Cyert and March, 1963) was one obvious early candidate for an economic theory of organizations. It deals, however, with more fine-grained phenomena—such as predicting department store prices to the penny—than were of interest to most economists. For a discussion, see Williamson (1999b). The recent and growing interest in behavioral economics—which deals more with the theory of consumer behavior than with the theory of the firm—can be interpreted as a delayed response to the lessons of the “Carnegie school” associated with Cyert, March and Simon.

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## The Sciences of Choice and Contract

Economics throughout the twentieth century has been developed predominantly as a science of choice. As Lionel Robbins famously put it in his book, *An Essay on the Nature and Significance of Economic Science* (1932, p. 16), “Economics is the science which studies human behavior as a relationship between ends and scarce means which have alternative uses.” Choice has been developed in two parallel constructions: the theory of consumer behavior, in which consumers maximize utility, and the theory of the firm as a production function, in which firms maximize profit. Economists who work out of such setups emphasize how changes in relative prices and available resources influence quantities, a project that became the “dominant paradigm” for economics throughout the twentieth century (Reder, 1999, p. 48).

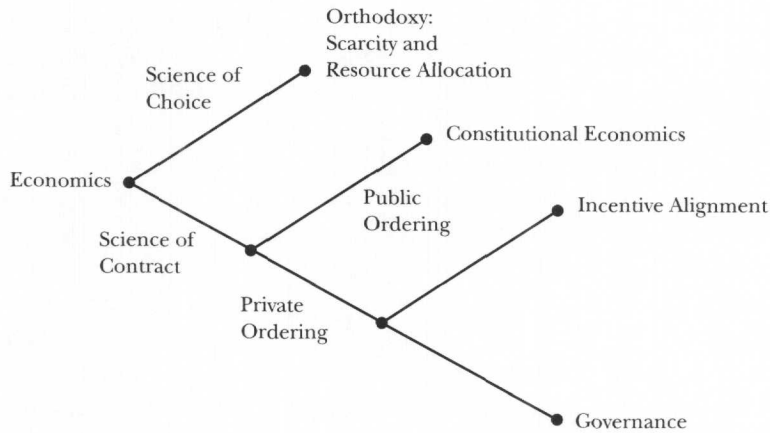
But the science of choice is not the only lens for studying complex economic phenomena, nor is it always the most instructive lens. The other main approach is what James Buchanan (1964a, b, 1975) refers to as the science of contract. Indeed, Buchanan (1975, p. 225) avers that economics as a discipline went “wrong” in its preoccupation with the science of choice and the optimization apparatus associated therewith. Wrong or not, the parallel development of a science of contract was neglected.

As perceived by Buchanan (1987, p. 296), the principal needs for a science of contract were for the field of public finance and took the form of *public ordering*: “Politics is a structure of complex exchange among individuals, a structure within which persons seek to secure collectively their own privately defined objectives that cannot be efficiently secured through simple market exchanges.” Thinking contractually in the public ordering domain leads into a focus on the rules of the game. Constitutional economics issues are posed (Buchanan and Tullock, 1962; Brennan and Buchanan, 1985).

Whatever the rules of the game, the lens of contract is also usefully brought to bear on the play of the game. This latter is what I refer to as *private ordering*, which entails efforts by the immediate parties to a transaction to align incentives and to craft governance structures that are better attuned to their exchange needs. The object of such self-help efforts is to realize better the “mutuality of advantage from voluntary exchange . . . [that is] the most fundamental of all understandings in economics” (Buchanan, 2001, p. 29), due allowance being made for the mitigation of contractual hazards. Strategic issues—to which the literatures on mechanism design, agency theory and transaction cost economics/incomplete contracting all have a bearing—that had been ignored by neoclassical economists from 1870 to 1970 now make their appearance (Makowski and Ostroy, 2001, pp. 482–483, 490–491).

Figure 1 sets out the main distinctions. The initial divide is between the science of choice (orthodoxy) and the science of contract. The latter then divides into public ordering (constitutional economics) and private ordering parts, where the second is split into two related branches. One branch concentrates on front-end

Figure 1  
The Sciences of Choice and Contract



incentive alignment (mechanism design, agency theory, the formal property rights literature), while the second branch features the governance of ongoing contractual relations (contract implementation). This paper is mainly concerned with governance, especially with reference to the theory of the firm.

### Organization Theory through the Lens of Contract

Organization theory is a huge subject. Macro and micro parts are commonly distinguished, where the former is closer to sociology and the latter to social psychology. Also, it is common to distinguish among rational, natural and open systems approaches (Scott, 1992). My concern is with macro organization theory of a rational systems kind (with special reference to the contributions of Herbert Simon).

In addition to delimiting organization theory in this way, I also examine the lessons of organization theory for economics not through the lens of choice, but through the lens of contract. Whereas those who work out of the dominant paradigm have sometimes been dismissive of organization theory (Posner, 1993; Reder, 1999, pp. 46–49), the lens of contract/private ordering discloses that lessons of organization theory for economics that the dominant paradigm obscures are sometimes fundamental.

#### Five Lessons from Organization Theory to the Economics of Contracts

A first lesson from organization theory is to describe human actors in more realistic terms. Simon (1985, p. 303) is unequivocal: "Nothing is more fundamental in setting our research agenda and informing our research methods than our view of the nature of the human beings whose behavior we are studying." Social scientists

are thus invited (challenged) to name the cognitive, self-interest and other attributes of human actors on which their analyses rest.

Bounded rationality is the cognitive assumption to which Simon (1957a, p. xxiv) refers, by which he has reference to behavior that is intendedly rational, but only limitedly so. In his view, the main lesson for the science of choice is to supplant maximizing by "satisficing" (1957b, p. 204)—the quest for an alternative that is "good enough."<sup>2</sup>

The study of governance also appeals to bounded rationality, but the main lesson for the science of contract is different: *All complex contracts are unavoidably incomplete*. For this reason, parties will be confronted with the need to adapt to unanticipated disturbances that arise by reason of gaps, errors and omissions in the original contract. Such adaptation needs are especially consequential if, instead of describing self-interest as "frailty of motive" (Simon, 1985, p. 303), which is a comparatively benign condition, strategic considerations are entertained, as well. If human actors are not only confronted with needs to adapt to the unforeseen (by reason of bounded rationality), but are also given to strategic behavior (by reason of opportunism), then costly contractual breakdowns (refusals of cooperation, maladaptation, demands for renegotiation) may be posed. In that event, private ordering efforts to devise supportive governance structures, thereby to mitigate prospective contractual inpasses and breakdowns, have merit.

To be sure, such efforts would be unneeded if common knowledge of payoffs and costless bargaining are assumed. Both of these conditions, however, are deeply problematic (Kreps and Wilson, 1982; Williamson, 1985). Moreover, because problems of nonverifiability are posed when bounded rationality, opportunism and idiosyncratic knowledge are joined (Williamson, 1975, pp. 31–33), dispute resolution by the courts in such cases is costly and unreliable. Private ordering—that is, efforts to craft governance structure supports for contractual relations during the contract implementation interval—thus makes its appearance.

A second lesson of organization theory is to be alert to all significant behavioral regularities whatsoever. For example, efforts by bosses to impose controls on workers have both intended *and* unintended consequences. Out of awareness that workers are not passive contractual agents, naïve efforts that focus entirely on intended effects will be supplanted by more sophisticated mechanisms where provision is made for consequences of both kinds. More generally, the awareness among sociologists that "organization has a life of its own" (Selznick, 1950, p. 10) serves to uncover a variety of behavioral regularities (of which bureaucratization is one) for which the student of governance should be alerted and thereafter factor into the organizational design calculus.

A third lesson of organization theory is that alternative modes of governance

<sup>2</sup> Although satisficing is an intuitively appealing concept, it is very hard to implement. Awaiting further developments, the satisficing approach is not broadly applicable (Aumann, 1985, p. 35). Indeed, there is an irony: neoclassical economists who use a mode of analysis (maximizing) that is easy to implement and often is good enough for the purposes at hand are analytical satisficers.

(markets, hybrids, firms, bureaus) differ in discrete structural ways (Simon, 1978, pp. 6–7). Not only do alternative modes of governance differ in kind, but each generic mode of governance is defined by an internally consistent syndrome of attributes—which is to say that each mode of governance possesses distinctive strengths and weaknesses. As discussed below, the challenge is to enunciate the relevant attributes for describing governance structures and thereafter to align different kinds of transactions with discrete modes of governance in an economizing way.

A fourth lesson of the theory of organizations is that much of the action resides in the microanalytics. Simon (1957a, p. xxx) nominated the “decision premise” as the unit of analysis, which has an obvious bearing on the microanalytics of choice (Newell and Simon, 1972). The unit of analysis proposed by John R. Commons, however, better engages the study of contract. According to Commons (1932, p. 4), “the ultimate unit of activity . . . must contain in itself the three principles of conflict, mutuality, and order. This unit is a transaction.”

Whatever the unit of analysis, operationalization turns on naming and explicating the critical dimensions with respect to which the unit varies. Three of the key dimensions of transactions that have important ramifications for governance are asset specificity (which takes a variety of forms—physical, human, site, dedicated, brand name—and is a measure of bilateral dependency), the disturbances to which transactions are subject (and to which potential maladaptations accrue) and the frequency with which transactions recur (which bears both on the efficacy of reputation effects in the market and the incentive to incur the cost of specialized internal governance). Given that transactions differ in their attributes and that governance structures differ in their costs and competencies, the aforementioned—that transactions should be aligned with appropriate governance structures—applies.

A fifth lesson of organization theory is the importance of cooperative adaptation. Interestingly, both the economist Friedrich Hayek (1945) and the organization theorist Chester Barnard (1938) were in agreement that adaptation is the central problem of economic organization. Hayek (1945, pp. 526–527) focused on the adaptations of autonomous economic actors who adjust spontaneously to changes in the market, mainly as signaled by changes in relative prices. The marvel of the market resides in “how little the individual participants need to know to be able to take the right action.” By contrast, Barnard featured coordinated adaptation among economic actors working through deep knowledge and the use of administration. In his view, the marvel of hierarchy is that coordinated adaptation is accomplished not spontaneously, but in a “conscious, deliberate, purposeful” way (p. 9).

Because a high-performance economic system will display adaptive properties of both kinds, the problem of economic organization is properly posed not as markets *or* hierarchies, but rather as markets *and* hierarchies. A predictive theory of economic organization will recognize how and why transactions differ in their

adaptive needs, whence the use of the market to supply some transactions and recourse to hierarchy for others.

### **Follow-on Insights from the Lens of Contract**

Examining economic organization through the lens of contract uncovers additional regularities to which governance ramifications accrue. Three such regularities are described here: the Fundamental Transformation, the impossibility of replication/selective intervention and the idea of contract laws (plural).

The Fundamental Transformation applies to that subset of transactions for which large numbers of qualified suppliers at the outset are transformed into what are, in effect, small numbers of actual suppliers during contract execution and at the contract renewal interval. The distinction to be made is between generic transactions where "faceless buyers and sellers . . . meet . . . for an instant to exchange standardized goods at equilibrium prices" (Ben-Porath, 1980, p. 4) and exchanges where the identities of the parties matter, in that continuity of the relation has significant cost consequences. Transactions for which a *bilateral dependency condition obtains* are those to which the Fundamental Transformation applies.

The key factor here is whether the transaction in question is supported by investments in transaction-specific assets. Such specialized investments may take the form of specialized physical assets (such as a die for stamping out distinctive metal shapes), specialized human assets (that arise from firm-specific training or learning by doing), site specificity (specialization by proximity), dedicated assets (large discrete investments made in expectation of continuing business, the premature termination of which business would result in product being sold at distress prices) or brand-name capital. Parties to transactions that are bilaterally dependent are "vulnerable," in that buyers cannot easily turn to alternative sources of supply, while suppliers can redeploy the specialized assets to their next best use or user only at a loss of productive value (Klein, Crawford and Alchian, 1978). As a result, value-preserving governance structures—to infuse order, thereby to mitigate conflict and to realize mutual gain—are sought.<sup>3</sup> Simple market exchange thus gives way to credible contracting, which includes penalties for premature termination, mechanisms for information disclosure and verification, specialized dispute settlement procedures and the like. Unified ownership (vertical integration) is predicted as bilateral dependency hazards build up.

The impossibility of combining replication with selective intervention is the transaction cost economics answer to an ancient puzzle: What is responsible for limits to firm size? Diseconomies of large scale is the obvious answer, but wherein do these diseconomies reside? Technology is no answer, since each plant in a

<sup>3</sup> Bilateral dependency need not result from physical asset specificity if the assets are mobile, since a buyer who owns and who can repossess the assets can assign them to whichever supplier tenders the lowest bid. Also, site specific assets can sometimes be owned by a buyer and leased to a supplier. Nonetheless, such "solutions" will pose user cost problems if suppliers cannot be relied upon to exercise due care.

multiplant firm can use the least-cost technology. Might organization provide the answer? That possibility can be examined by rephrasing the question in comparative contractual terms: Why can't a large firm do everything that a collection of small suppliers can do and more?

Were it that large firms could *replicate* a collection of small firms in all circumstances where small firms do well, then large firms would never do worse. If, moreover, large firms could always *selectively intervene* by imposing (hierarchical) order on prospective conflict, but only where expected net gains could be projected, then large firms would sometimes do better. Taken together, the combination of replication with selective intervention would permit large firms to grow without limit. Accordingly, the issue of limits to firm size turns to an examination of the mechanisms for implementing replication and selective intervention.

Examining how and why both replication and selective intervention break down is a tedious, microanalytic exercise and is beyond the scope of this paper (Williamson, 1985, chapter 6). Suffice it to observe here that the move from autonomous supply (by the collection of small firms) to unified ownership (in one large firm) is *unavoidably attended by changes* in both incentive intensity (incentives are weaker in the integrated firm) and administrative controls (controls are more extensive). Because the syndromes of attributes that define markets and hierarchies have different strengths and weaknesses, some transactions will benefit from the move from market to hierarchy while others will not.

Yet another organizational dimension that distinguishes alternative modes of governance is the regime of contract laws. Whereas economic orthodoxy often implicitly assumes that there is a single, all-purpose law of contract that is costlessly enforced by well-informed courts, the private ordering approach to governance postulates instead that each generic mode of governance is defined (in part) by a distinctive contract law regime.

The contract law of (ideal) markets is that of classical contracting, according to which disputes are costlessly settled through courts by the award of money damages. Galanter (1981, pp. 1-2) takes issue with this legal centralism tradition and observes that many disputes between firms that could under current rules be brought to a court are resolved instead by avoidance, self-help and the like. That is because in "many instances the participants can devise more satisfactory solutions to their disputes than can professionals constrained to apply general rules on the basis of limited knowledge of the dispute" (p. 4). Such a view is broadly consonant with the concept of "contract as framework" advanced by Karl Llewellyn (1931, pp. 736-737), which holds that the "major importance of legal contract is to provide . . . a framework which never accurately indicates real working relations, but which affords a rough indication around which such relations vary, an occasional guide in cases of doubt, and a norm of ultimate appeal when the relations cease in fact to work." This last condition is important, in that recourse to the courts for purposes of ultimate appeal serves to delimit threat positions. The more elastic concept of contract as framework nevertheless supports a (cooperative) exchange relation over a wider range of contractual disturbances.

What is furthermore noteworthy is that some disputes cannot be brought to a court at all. Specifically, except as “fraud, illegality or conflict of interest” are shown, courts will refuse to hear disputes that arise within firms—with respect, for example, to transfer pricing, overhead, accounting, the costs to be ascribed to intrafirm delays, failures of quality and the like. In effect, the contract law of internal organization is that of *forbearance*, according to which a firm becomes its own court of ultimate appeal. Firms for this reason are able to exercise fiat that the markets cannot. This, too, influences the choice of alternative modes of governance.

Not only is each generic mode of governance defined by an internally consistent syndrome of incentive intensity, administrative controls and contract law regime (Williamson, 1991a), but different strengths and weaknesses accrue to each.

### **The Theory of the Firm as Governance Structure**

As Demsetz (1983, p. 377) observes, it is “a mistake to confuse the firm of [orthodox] economic theory with its real-world namesake. The chief mission of neoclassical economics is to understand how the price system coordinates the use of resources, not the inner workings of real firms.” Suppose instead that the assigned mission of economics is to understand the organization of economic activity. In that event, it will no longer suffice to describe the firm as a black box that transforms inputs into outputs according to the laws of technology. Instead, firms must be described in relation to other modes of governance, all of which have internal structure, which structure “must arise for some reason” (Arrow, 1999, p. vii).

The contract/private ordering/governance (hereafter governance) approach maintains that structure arises mainly in the service of economizing on transaction costs. Note in this connection that the firm as governance structure is a comparative contractual construction. The firm is conceived not as a stand-alone entity, but is always to be compared with alternative modes of governance. By contrast with mechanism design (where a menu of contracts is used to elicit private information), agency theory (where risk aversion and multitasking are featured) and the property rights theory of the firm (where everything rests on asset ownership), the governance approach appeals to law and organization theory in naming incentive intensity, administrative control and contract law regime as three critical attributes.

It will be convenient to illustrate the mechanisms of governance with reference to a specific class of transactions. Because transactions in intermediate product markets avoid some of the more serious conditions of asymmetry—of information, budget, legal talent, risk aversion and the like—that beset some transactions in final product markets, I examine the “make-or-buy” decision. Should a firm make an input itself, perhaps by acquiring a firm that makes the input, or should it purchase the input from another firm?



### **The Science of Choice Approach to the Make-or-Buy Decision**

The main way to examine the make-or-buy decision under the setup of firm as production function is with reference to bilateral monopoly.<sup>4</sup> The neoclassical analysis of bilateral monopoly reached the conclusion that while optimal quantities between the parties might be realized, the division of profits between bilateral monopolists was indeterminate (for example, Machlup and Tabor, 1960, p. 112). Vertical integration might then arise as a means by which to relieve bargaining over the indeterminacy. Alternatively, vertical integration could arise as a means by which to restore efficient factor proportions when an upstream monopolist sold intermediate product to a downstream buyer that used a variable proportions technology (McKenzie, 1951). Vertical integration has since been examined in a combined variable proportions-monopoly power context by Vernon and Graham (1971), Schmalensee (1973), Warren-Boulton (1974), Westfield (1981) and Hart and Tirole (1990).

This literature is instructive, but it is also beset by a number of loose ends or anomalies. First, since preexisting monopoly power of a durable kind is the exception in a large economy rather than the rule, what explains vertical integration for the vast array of transactions where such power is negligible? Second, why don't firms integrate everything, since under a production function setup, an integrated firm can always replicate its unintegrated rivals and can sometimes improve on them? Third, what explains hybrid modes of contracting? More generally, if many of the problems of trading are of an intertemporal kind in which successive adaptations to uncertainty are needed, do the problems of economic organization have to be recast in a larger and different framework?

### **Coase and the Make-or-Buy Decision**

Coase's (1937) classic article opens with a basic puzzle: Why does a firm emerge at all in a specialized exchange economy? If the answer resides in entrepreneurship, why is coordination "the work of the price mechanism in one case and the entrepreneur in the other" (p. 389)? Coase appealed to transaction cost economizing as the hitherto missing factor for explaining why markets were used in some cases and hierarchy in other cases and averred (p. 391): "The main reason why it is profitable to establish a firm would seem to be that there is a cost of using the price mechanism, the most obvious . . . [being] that of discovering what the relevant prices are." This sounds plausible. But how is it that internal procurement by the firm avoids the cost of price discovery?

The "obvious" answer is that sole-source internal supply avoids the need to consult the market about prices, because internal accounting prices of a formulaic

<sup>4</sup> Although the bilateral monopoly explanation is the oldest explanation and the one emphasized in most microeconomics textbooks, three other price-theoretic frameworks have been used to explain the make-or-buy decision: price discrimination, barriers to entry and strategic purposes. For a summary of the arguments on these points, see Williamson (1987, pp. 808–809). For a more complete discussion, see Perry (1989).

kind (say, of a cost-plus kind) can be used to transfer a good or service from one internal stage to another. If, however, that is the source of the advantage of internal organization over market procurement, the obvious lesson is to apply this same practice to outside procurement. The firm simply advises its purchasing office to turn a blind eye to the market by placing orders, period by period, with a qualified sole-source external supplier who agrees to sell on cost-plus terms. In that event, firm and market are put on a parity in price discovery respects—which is to say that the price discovery burden that Coase ascribes to the market does not survive comparative institutional scrutiny.<sup>5</sup>

In the end, Coase's profoundly important challenge to orthodoxy and his insistence on introducing transactional considerations does not lead to refutable implications (Alchian and Demsetz, 1972). Operationalization of these good ideas was missing (Coase, 1992, pp. 716–718). The theory of the firm as governance structure is an effort to infuse operational content. Transaction cost economizing is the unifying concept.<sup>6</sup>

### **A Heuristic Model of Firm as Governance Structure**

Expressed in terms of the “Commons triple”—the notion that the transaction incorporates the three aspects of conflict, mutuality and order—governance is the means by which to infuse order, thereby to mitigate conflict and to realize “the most fundamental of all understandings in economics,” mutual gain from voluntary exchange. The surprise is that a concept as important as governance should have been so long neglected.

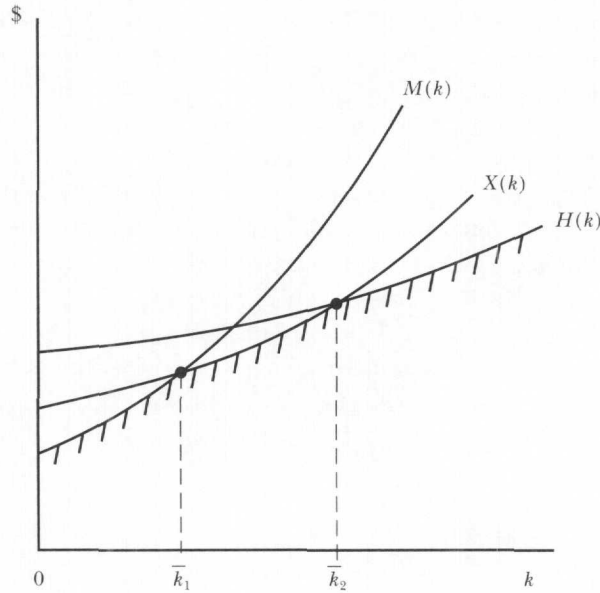
The rudiments of a model of the firm as governance structure are the attributes of transactions, the attributes of alternative modes of governance and the purposes served. Asset specificity (which gives rise to bilateral dependency) and uncertainty (which poses adaptive needs) are especially important attributes of transactions. The attributes that define a governance structure include incentive intensity, administrative control and the contract law regime. In this framework, market and hierarchy syndromes differ as follows: under hierarchy, incentive intensity is less, administrative controls are more numerous and discretionary, and internal dispute resolution supplants court ordering. Adaptation is taken to be the main purpose, where the requisite mix of autonomous adaptations and coordinated adaptations vary among transactions. Specifically, the need for coordinated adaptations builds up as asset specificity deepens.

In a heuristic way, Figure 2 shows the transaction cost consequences of organ-

<sup>5</sup> It does not suffice to argue that vigilance is unneeded for trade within firms because transfer prices are a wash. For one thing, different transfer prices will induce different factor proportions in divisionalized firms where divisions are held accountable for their bottom lines (unless fixed proportions are imposed). Also, because incentives within firms are weaker, ready access to the pass-through of costs can encourage cost excesses. The overarching point is this: to focus on transfer pricing to the neglect of discrete structural differences between firm and market is to miss the forest for the trees.

<sup>6</sup> Other purposes include choice of efficient factor proportions, specialization of labor (in both physical and cognitive respects) and knowledge acquisition and development.

Figure 2  
Comparative Costs of Governance



izing transactions in markets ( $M$ ) and hierarchies ( $H$ ) as a function of asset specificity ( $k$ ). As shown, the bureaucratic burdens of hierarchy place it at an initial disadvantage ( $k = 0$ ), but the cost differences between markets  $M(k)$  and hierarchy  $H(k)$  narrow as asset specificity builds up and eventually reverse as the need for cooperative adaptation becomes especially great ( $k \gg 0$ ). Provision can further be made for the hybrid mode of organization  $X(k)$ , where hybrids are viewed as market-preserving credible contracting modes that possess adaptive attributes located between classical markets and hierarchies. Incentive intensity and administrative control thus take on intermediate values, and Llewellyn's (1931) concept of contract as framework applies. As shown in Figure 2,  $M(0) < X(0) < H(0)$  (by reason of bureaucratic cost differences), while  $M' > X' > H'$  (which reflects the cost of coordinated adaptation).

This rudimentary setup yields refutable implications that are broadly corroborated by the data. It can be extended to include differential production costs between modes of governance, which mainly preserves the basic argument that hierarchy is favored as asset specificity builds up, *ceteris paribus* (Riordan and Williamson, 1985). The foregoing relations among governance structures and transactions can also be replicated with a simple stochastic model where the needs for adaptation vary with the transaction and the efficacy of adaptations of autonomous and cooperative kinds vary with the governance structures. Shift parameters can also be introduced in such a model (Williamson, 1991a). More fully formal treatments of contracting that are broadly congruent with this setup are in progress.

Whereas most theories of vertical integration do not invite empirical testing, the transaction cost theory of vertical integration invites and has been the subject of considerable empirical analysis. Empirical research in the field of industrial organization is especially noteworthy because the field has been criticized for the absence of such work. Not only did Coase once describe his 1937 article as “much cited and little used” (1972, p. 67), but others have since commented upon the paucity of empirical work on the theory of the firm (Holmstrom and Tirole, 1989, p. 126) and in the field of industrial organization (Peltzman, 1991). By contrast, empirical transaction cost economics has grown exponentially during the past 20 years. For surveys, see Shelanski and Klein (1995), Lyons (1996), Crocker and Masten (1996), Rindfleisch and Heide (1997), Masten and Saussier (2000) and Boerner and Macher (2001).<sup>7</sup> Added to this are numerous applications to public policy, especially antitrust and regulation, but also to economics more generally (Dixit, 1996) and to the contiguous social sciences (especially political science). The upshot is that the theory of the firm as governance structure has become a much used construction.

### Variations on a Theme

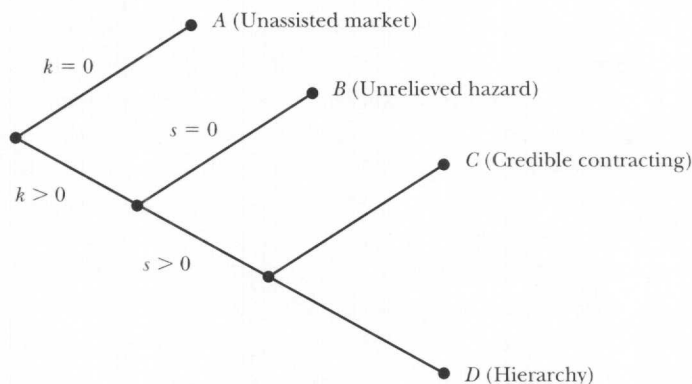
Vertical integration turns out to be a paradigm. Although many of the empirical tests and public policy applications have reference to the make-or-buy decision and vertical market restrictions, this same framework has application to contracting more generally. Specifically, the contractual relation between the firm and its “stakeholders”—customers, suppliers and workers along with financial investors—can be interpreted as variations on a theme.

#### The Contractual Schema

Assume that a firm can make or buy a component, and assume further that the component can be supplied by either a general purpose technology or a special purpose technology. Again, let  $k$  be a measure of asset specificity. The transactions in Figure 3 that use the general purpose technology are ones for which  $k = 0$ . In this case, no specific assets are involved, and the parties are essentially faceless. If

<sup>7</sup> I would note parenthetically that the GM-Fisher Body example (Klein, Crawford and Alchian, 1978) that is widely used to illustrate the contractual strains that attend bilateral dependency has come under criticism (see the exchange in the April 2000 issue of the *Journal of Law and Economics*). My responses are two. First and foremost, even if the GM-Fisher Body anecdote is factually flawed, transaction cost economics remains an empirical success story (see text and Whinston, 2001). Second, the main purpose of an anecdote is pedagogical, to provide intuition. That is what the confectioner and physician cases do for externalities (Coase, 1959), what QWERTY does for path dependency (David, 1985), what the market for lemons does for asymmetric information (Akerlof, 1970) and what the tragedy of the commons does for collective organization (Hardin, 1968). It is better, to be sure, if anecdotes are factually correct. Unless, however, the phenomenon described by the anecdote is trivial or bogus (which conditions may not be evident until an empirical research program is undertaken), an anecdote that helps to bring an abstract condition to life has served its intended purpose.

Figure 3  
Simple Contracting Schema



instead, transactions use the special purpose technology,  $k > 0$ . As hitherto discussed, bilaterally dependent parties have incentives to promote continuity and safeguard their specific investments. Let  $s$  denote the magnitude of any such safeguards, which include penalties, information disclosure and verification procedures, specialized dispute resolution (such as arbitration) and, in the limit, integration of the two stages under unified ownership. An  $s = 0$  condition is one for which no safeguards are provided; a decision to provide safeguards is reflected by an  $s > 0$  result.

Node *A* in Figure 3 corresponds to the ideal transaction in law and economics: there being an absence of dependency, governance is accomplished through competitive market prices and, in the event of disputes, by court-awarded damages. Node *B* poses unrelieved contractual hazards, in that specialized investments are exposed ( $k > 0$ ) for which no safeguards ( $s = 0$ ) have been provided. Such hazards will be recognized by farsighted players, who will price out the implied risks.

Added contractual supports ( $s > 0$ ) are provided at nodes *C* and *D*. At node *C*, these contractual supports take the form of interfirm contractual safeguards. Should, however, costly breakdowns continue in the face of best bilateral efforts to craft safeguards at node *C*, the transaction may be taken out of the market and organized under unified ownership (vertical integration) instead. Because added bureaucratic costs accrue upon taking a transaction out of the market and organizing it internally, internal organization is usefully thought of as the organization form of last resort. That is, try markets, try hybrids and have recourse to the firm only when all else fails. Node *D*, the unified firm, thus comes in only as higher degrees of asset specificity and added uncertainty pose greater needs for cooperative adaptation.

Note that the price that a supplier will bid to supply under node *C* conditions will be less than the price that will be bid at node *B*. That is because the added security features serve to reduce the risk at node *C*, as compared with node *B*, so

the contractual hazard premium will be reduced. One implication is that suppliers do not need to petition buyers to provide safeguards. Because buyers will receive product on better terms (lower price) when added security is provided, buyers have the incentive to offer credible commitments. Thus, although such commitments are sometimes thought of as a user-friendly way to contract, the analytical action resides in the hard-headed use of credibility to support those transactions where asset specificity and contractual hazards are an issue. Such supports are without purpose for transactions where the general purpose production technology is employed.

The foregoing schema can be applied to virtually all transactions for which the firm is in a position to own as well as to contract with an adjacent stage—backward into raw materials, laterally into components, forward into distribution.<sup>8</sup> But for some activities, ownership is either impossible or very rare. For example, firms cannot own their workers nor their final customers (although worker cooperatives and consumer cooperatives can be thought of in ownership terms). Also, firms rarely own their suppliers of finance. Node *D* drops out of the schema in cases where ownership is either prohibited by law or is otherwise rare. I begin with forward integration into distribution, after which relationships with other stakeholders of the firm, including labor, finance and public utility regulation, are successively considered.

#### **Forward Integration into Distribution**

I will set aside the case where mass marketers integrate backward into manufacturing and focus on forward integration into distribution by manufacturers of products or owners of brands. Specifically, consider the contractual relation between a manufacturer and large numbers of wholesalers or, especially, of retailers for the good or service in question.

Many such transactions are of a generic kind. Although branded goods and services are more specific, some require only shelf space, since advertising, promotion and any warranties are done by the manufacturer. Since the obvious way to trade with intermediaries for such transactions is through the market, in a node *A* fashion, what is to be inferred when such transactions are made subject to vertical market restrictions such as customer and territorial restrictions, service restrictions, tied sales and the like?

Price discrimination, to which allocative efficiency benefits were ascribed, was the usual resource allocation (science of choice) explanation for such restrictions. Such benefits, however, were problematic once the transaction costs of discovering customer valuations and deterring arbitrage were taken into account (Williamson, 1975, pp. 11–13). Moreover, price discrimination does not exhaust the possibilities.

Viewed through the lens of contract, vertical market restrictions often have the

<sup>8</sup> Closely complementary activities are commonly relegated to the “core technology” (Thompson, 1967, pp. 19–23) and are effectively exempt from comparative institutional analysis, it being “obvious” that these are done within the firm.

purpose and effect of infusing order into a transaction where the interests of the system and the interests of the parts are in conflict. For example, the Schwinn bicycle company imposed non-resale restrictions upon franchisees. The concern was that the integrity of the brand, which was a system asset, would be compromised by franchisees who perceived local opportunities to realize individual gain by selling to discounters, who would then sell a "bike in a box" without service or support (Williamson, 1985, pp. 183–189). More generally, the argument is this: In circumstances where market power is small, where simple market exchange (at node *A*) would compromise the integrity of differentiated products and where forward integration into distribution (at node *D*) would be especially costly, the use of vertical market restrictions to effect credible commitments (at node *C*) has much to recommend it.

### **Relationship with Labor**

Because the firm is unable to own its labor, node *D* is irrelevant and the comparison comes down to nodes *A*, *B* and *C*. Node *A* corresponds to the case where labor is easily redeployed to other uses or users without loss of productive value ( $k = 0$ ). Thus, although such labor may be highly skilled (as with many professionals), the lack of firm specificity means that, transition costs aside, neither worker nor firm has an interest in crafting penalties for unwanted quits/terminations or otherwise creating costly internal labor markets (ports of entry, promotion ladders), costly information disclosure and verification procedures, and costly firm-specific dispute settlement machinery. The mutual benefits do not warrant the costs.

Conditions change when  $k > 0$ , since workers who acquire firm-specific skills will lose value if prematurely terminated (and firms will incur added training costs if such employees quit). Here, as elsewhere, unrelieved hazards (as at node *B*) will result in demands by workers for a hazard premium, and recurrent contractual impasses, by reason of conflict, will result in inefficiency. Because continuity has value to both firm and worker, governance features that deter termination (severance pay) and quits (nonvested benefits) and that address and settle disputes in an orderly way (grievance systems) to which the parties ascribe confidence have a lot to recommend them. These can, but need not, take the form of "unions." Whatever the name, the object is to craft a collective organizational structure (at node *C*) in which the parties have mutual confidence and that enhances efficiency (Baron and Kreps, 1999, pp. 130–138; Williamson, 1975, pp. 27–80, 1985, pp. 250–262).<sup>9</sup>

<sup>9</sup> The emphasis on collective organization as a governance response is to be distinguished from the earlier work of Gary Becker, where human asset specificity is responsible for upward-sloping age-earnings profiles (Becker, 1962). Becker's treatment is more in the science of choice tradition, whereas mine views asset specificity through the lens of contract. These two are not mutually exclusive. They do, however, point to different empirical research agenda.

### Relationship with Sources of Finance

Viewed through the lens of contract, the board of directors is interpreted as a security feature that arises in support of the contract for equity finance (Williamson, 1988). More generally, debt and equity are not merely alternative modes of finance, which is the law and economics construction (Easterbrook and Fischel, 1986; Posner, 1986), but are also alternative modes of governance.

Suppose that a firm is seeking cost-effective finance for the following series of projects: general purpose mobile equipment, a general purpose office building located in a population center, a general purpose plant located in a manufacturing center, distribution facilities located somewhat more remotely, special purpose equipment, market and product development expenses and the like. Suppose further that debt is a governance structure that works almost entirely out of a set of rules: 1) stipulated interest payments will be made at regular intervals; 2) the business will continuously meet certain liquidity tests; 3) principal will be repaid at the loan-expiration date; and 4) in the event of default, the debtholders will exercise preemptive claims against the assets in question. In short, debt is unforgiving if things go poorly.

Such rules-based governance is well suited to investments of a generic kind ( $k = 0$ ), since the lender can redeploy these to alternative uses and users with little loss of productive value. Debt thus corresponds to market governance at node *A*. But what about investment projects of more specific (less redeployable) kinds?

Because the value of holding a preemptive claim declines as the degree of asset specificity deepens, rule-based finance of the kind described above will be made on more adverse terms. In effect, using debt to finance such projects would locate the parties at node *B*, where a hazard premium must be charged. The firm in these circumstances has two choices: sacrifice some of the specialized investment features in favor of greater redeployability (move back to node *A*), or embed the specialized investment in a governance structure to which better terms of finance will be ascribed. What would the latter entail?

Suppose that a financial instrument called equity is invented, and assume that equity has the following governance properties: 1) it bears a residual claimant status to the firm in both earnings and asset liquidation respects; 2) it contracts for the duration of the life of the firm; and 3) a board of directors is created and awarded to equity that a) is elected by the pro-rata votes of those who hold tradable shares, b) has the power to replace the management, c) decides on management compensation, d) has access to internal performance measures on a timely basis, e) can authorize audits in depth for special follow-up purposes, f) is apprised of important investment and operating proposals before they are implemented, and g) in other respects bears a decision-review and monitoring relation to the firm's management (Fama and Jensen, 1983). So construed, the board of directors is awarded to the holders of equity so as to reduce the cost of capital by providing safeguards for projects that have limited redeployability (by moving them from node *B* to node *C*).



### **Regulation and Natural Monopoly**

The market-oriented approach to natural monopoly is to auction off the franchise to the highest bidder (Demsetz, 1968; Posner, 1972). But whether this works well or poorly depends on the nature of the transaction and the particulars of governance. Whereas some of those who work out of the science of choice setup believe that to “expound the details of particular regulations and proposals . . . would serve only to obscure the basic issues” (Posner, 1972, p. 98), the governance structure approach counsels that much of the action resides in the details.

Going beyond the initial bidding competition (“competition for the market”), the governance approach insists upon including the contract implementation stage. Transactions to which the Fundamental Transformation applies—namely, those requiring significant investments in specific assets and that are subject to considerable market and technological uncertainty—are ones for which the efficacy of simple franchise bidding is problematic.

This is not to say that franchise bidding never works. Neither is it to suggest that decisions to regulate ought not to be revisited—as witness the successful deregulation of trucking (which never should have been regulated to begin with) and more recent efforts to deregulate “network industries” (Peltzman and Whinston, 2000). I would nevertheless urge that examining deregulation through the lens of contracting is instructive for both—as it is for assessing efforts to deregulate electricity in California, where too much deference was given to the (assumed) efficacy of smoothly functioning markets and insufficient attention to potential investment and contractual hazards and appropriate governance responses thereto. As Joskow (2000, p. 51) observes: “Many policy makers and fellow travelers have been surprised by how difficult it has been to create wholesale electricity markets . . . Had policy makers viewed the restructuring challenge using a TCE [transaction cost economics] framework, these potential problems are more likely to have been identified and mechanisms adopted *ex ante* to fix them.”

Here as elsewhere, the lesson is to think contractually: Look ahead, recognize potential hazards and fold these back into the design calculus. Paraphrasing Robert Michels (1915 [1962], p. 370) on oligarchy, nothing but a serene and frank examination of the contractual hazards of deregulation will enable us to mitigate these hazards.

### **Recent Criticisms**

Many skeptics of orthodoxy have also been critics of transaction cost economics—including organization theorists (especially Simon, 1991, 1997), sociologists (for a recent survey, see Richter, 2001) and the resource-based/core competence/dynamic capabilities perspective. Having responded to these arguments

elsewhere.<sup>10</sup> I focus here on critiques from within economics—especially those that deal with issues concerning the boundary of the firms.<sup>11</sup>

### **Property Rights Theory**

The property rights theory of firm and market organization is unarguably a path-breaking contribution (Grossman and Hart, 1986; Hart and Moore, 1990; Hart, 1995). Prior to this work, the very idea that incomplete contracts could be formally modeled was scorned. That has all changed.

The accomplishments of the property rights theory notwithstanding, I nevertheless take exception in two related respects. First, the view that the property rights theory “builds on and formalizes the intuitions of transaction cost economics, as created by Coase and Williamson” (Salanié, 1997, p. 176) is only partly correct. To be sure, property rights theory does build on (or at least tracks) transaction cost economics in certain respects: complex contracts are incomplete (by reason of bounded rationality), contract as mere promise is not self-enforcing (by reason of opportunism), court ordering of conflicts is limited (by reason of nonverifiability) and the parties are bilaterally dependent (by reason of transaction-specific investments). But whereas transaction cost economics locates the main analytical action in the governance of ongoing contractual relations, property rights theory of the firm annihilates governance issues by assuming common knowledge of payoffs and costless bargaining. As a consequence, all of the analytical action is concentrated at the incentive alignment stage of contracting. Since the assumptions of common knowledge of payoffs (Kreps and Wilson, 1982) and costless bargaining are deeply problematic, my interpretation of property rights theory is that it is “imperfectly suited to the subject matter . . . [because it] obscures the key interactions instead of spotlighting them” (Solow, 2001, p. 112).

Second, I take exception with the allegation of property rights theory that transaction cost economics offers no explanation why a bilaterally dependent transaction is subject to “less haggling and hold-up behavior in a merged firm.” Hart (1995, p. 28), writes that “[t]ransaction cost theory, as it stands, does not provide the answer,” evidently in the belief that property rights theory does.

Since property rights theory rests only on asset ownership, what Hart and others of this persuasion could say is that they dispute the logic of replication/selective intervention and each of the associated regularities on which transaction cost economics relies to describe why firms and markets differ in discrete structural ways. Specifically, property rights theory disputes all four of the following propositions of transaction cost economics: 1) that firms enjoy advantages over markets

<sup>10</sup> On my response to Simon, see Williamson (2002); on sociology, see Williamson (1981, 1993, 1996); on core competence, see Williamson (1999b).

<sup>11</sup> Other criticisms include those of Fudenberg, Holmstrom and Milgrom (1990, p. 21, emphasis omitted) who contend: “If there is an optimal long-term contract, then there is a sequentially optimal contract, which can be implemented via a sequence of short-term contracts.” My response is that the proof is elegant, but rests on very strong and implausible assumptions that fail the test of feasible implementation (Williamson, 1991b).

in cooperative adaptation respects (it being the case under property rights theory that all ownership configurations costlessly adapt in the contract implementation interval); 2) that incentive intensity is unavoidably compromised by internal organization; 3) that administrative controls are more numerous and more nuanced in firms;<sup>12</sup> and 4) that the implicit contract law of internal organization is that of forbearance, whence the firm is its own court for resolving disputes. Inasmuch as all four of these differences can be examined empirically, the veridicality of property rights theory in relation to transaction cost economics can be established by appealing to the data. What cannot be said is that transaction cost economics is silent or inexplicit on why firms and markets differ.

As it stands, property rights theory makes limited appeal to data, because it yields very few refutable implications and is indeed very nearly untestable (Whinston, 2001). Transaction cost economics, by contrast, yields numerous refutable implications and invites empirical testing.

### **Boundaries of the Firm**

Holmstrom and Roberts (1998, p. 91) contend, and I agree, that “the theory of the firm . . . has become too narrowly focused on the hold-up problem and the role of asset specificity.” Contractual complications of other (possibly related) kinds need to be admitted and the ramifications for governance worked out. But while I agree that more than asset specificity is involved, I hasten to add that asset specificity is an operational and encompassing concept.

Asset specificity is operational in that it serves to breathe content into the idea of transactional “complexity.” Thus, although it is intuitively obvious that complex governance structures should be reserved for complex transactions, wherein do the contractual complexities reside? Identifying the critical dimensions with respect to which transactions differ, of which asset specificity is especially important, has been crucial for explicating contractual complexity (Williamson, 1971, 1979, p. 239)—which is not to suggest that it is exhaustive.

As for asset specificity being an encompassing concept, consider the Holmstrom and Roberts (1998, p. 87) complaint that multi-unit retail businesses (such as franchising) cannot be explained in terms of asset specificity. This complaint ignores brand name capital (Klein, 1980) as a form of asset specificity, the integrity

<sup>12</sup> Grossman and Hart (1986, p. 695), for example, assume that “any audits that an employer can have done of his [wholly] owned subsidiary are also feasible when the subsidiary is a separate company.” Not only does transaction cost economics hold otherwise (Williamson, 1985, pp. 154–155), but transaction cost economics also recognizes that accounting is not fully objective but can be used as a strategic instrument (chapter 6). Furthermore, accounting *will* be used as a strategic instrument if integration is as prescribed by property rights theory (directional) rather than as prescribed by transaction cost economics (unified). The upshot is that the high-powered incentives that property rights theory associates with directional integration will be compromised—in that control over accounting by the acquiring stage will be exercised to redistribute profits in its favor by manipulating transfer prices, user-cost charges, overhead rates, depreciation, amortization, inventory rules and the like. Although Hart (1995, pp. 64–66) appears to concede these effects, the basic model of the property rights theory (chapter 2) disallows them.

of which can be compromised (as discussed in relation to the Schwinn case, above). Also, asset specificity would be less "overused" if other would-be explanations for complex economic organization (such as technological nonseparability or the idea that agents have different levels of risk aversion) either had wider reach and/or were not contradicted by the data. I would furthermore observe that many of the Holmstrom and Roberts (1998, p. 75) arguments and illustrations for "taking a much broader view of the firm and the determination of its boundaries" are ones with which transaction cost economics not only concurs but has actively discussed, even featured, previously.

I am puzzled, for example, by their claim (1998, p. 77) that "[i]n transaction cost economics, the functioning market is as much a black box as is the firm in neoclassical economic theory." Plainly, node *C* in the earlier Figure 3 is a market governance mode supported by conscious efforts by the parties to craft intertemporal contractual safeguards for transactions where identity matters and continuity is important. Node *C* is a black box only for those who refuse to take a look at the mechanisms through which hybrid governance works. Also, moving beyond the one-size-fits-all view of contract law to ascertain that contract law regimes differ systematically across modes of governance—in that contract as legal rules, contract as framework and forbearance law are the contract laws of market, hybrid and hierarchy, respectively—is not and should not be construed as a black box construction.

Holmstrom and Roberts (1998, p. 81) offer the case of Japanese subcontracting as "directly at odds with transaction cost theory." Relying in part upon the research of Banri Asanuma (1989, 1992), Holmstrom and Roberts (pp. 80–82) report that Japanese subcontracting uses "long-term close relations with a limited number of independent suppliers that mix elements of market and hierarchy . . . [to protect] specific assets." These close relations are supported by careful monitoring, a two-supplier system (as at Toyota), rich information sharing and, so as to deter automakers from behaving opportunistically, a "supplier association, which facilitates communication . . . and [strengthens] reputation [effects]."

As it turns out, Professor Asanuma and I visited several large Japanese auto firms (Toyota included) in the spring of 1983, and I reported on all of the above previously (Williamson, 1985, pp. 120–123, 1996, pp. 317–318). Interestingly, Baron and Kreps (1999, pp. 542–543) also interpret Toyota contracting practices as consistent with the transaction cost economics perspective.

I would nevertheless concede that the roles of organizational knowledge and learning mentioned by Holmstrom and Roberts (1998, pp. 90–91) are ones with which transaction cost economics deals with in only a limited way. This does not, however, mean that transaction cost economics does not or cannot relate to these issues. I would observe in this connection that transaction cost economics made early provision for firm-specific learning by doing and for tacit knowledge (Williamson, 1971, 1975) and that the organization of "knowledge projects" that differ in their needs for coordination are even now being examined in governance

structure respects (Nickerson and Zenger, 2001). Still, the study of these and other issues to which Holmstrom and Roberts refer are usefully examined from several lenses, of which the lens of transaction cost economics is only one.

## **Conclusion**

The application of the lens of contract/private ordering/governance leads naturally into the reconceptualization of the firm not as a production function in the science of choice tradition, but instead as a governance structure. The shift from choice to contract is attended by three crucial moves. First, human actors are described in more veridical ways with respect to both cognitive traits and self-interestedness. Second, organization matters. The governance of contractual relations takes seriously the conceptual challenge posed by the "Commons triple" of dealing with issues of conflict, mutuality and order. Third, organization is susceptible to analysis. This last move is accomplished by naming the transaction as the basic unit of analysis, identifying governance structures (which differ in discrete structural ways) as the means by which to manage transactions, and joining these two. Specifically, transactions, which differ in their attributes, are aligned with governance structures, which differ in their cost and competencies, in an economizing way. Implementing this entails working out of the logic of efficient alignment.

Not only does the resulting theory of the firm differ significantly from the neoclassical theory of the firm, but the governance branch of contract also differs from the incentive branch, where more formal mechanism design, agency and property rights theories are located. These latter theories all concentrate the analytical action on the incentive alignment stage of contracting. Differences among governance structures with respect to adaptation in the contract implementation interval are thus suppressed. Intertemporal regularities to which organization theorists call our attention (and to which I selectively appeal) as well as the added contractual complications that I describe—the Fundamental Transformation, the impossibility of replication/selective intervention and contract law regimes—have little or no place in any of these incentive alignment literatures.

Parsimony being a virtue, such added complications need to be justified. I contend that a different and, for many purposes, richer and better understanding of firm and market organization results. Not only does the transaction cost economics theory of firm and market organization afford different interpretations of nonstandard and unfamiliar forms of contract and organization, but it yields many refutable implications. A large and growing empirical research agenda and selective reshaping of public policy toward business have resulted from supplanting the black box conception of the firm by the theory of the firm as governance structure. Dixit (1996), moreover, ascribes public policy benefits to the use of transaction cost

reasoning to open up the black box of public policymaking and explain how decisions are actually made.<sup>13</sup>

Pluralism has much to recommend it in an area like economic organization that is beset with bewildering complexity. Such pluralism notwithstanding, the governance approach has been a productive and liberating way by which to examine economic organization. It has been productive in all of the conceptual and public policy ways described above, with more insights in prospect. It has been liberating in that it has breathed life into the science of contract and, in the process, has served to stimulate other work—part rival, part complementary. A recurrent theme is that recourse to the lens of contract, as against the lens of choice, frequently deepens our understanding of complex economic organization, with a suggestion that this same strategy can inform applied microeconomics and the contiguous social sciences more generally.

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<sup>13</sup> Kreps's (1999, p. 123) assessment of full formalism also signals precaution: "Most economists, and especially and most critically, new recruits in the form of graduate students, learn transaction-cost economics as translated and renamed (incomplete) contract theory. . . . [Awaiting new tools], we should be clear on how (in)complete the translations are, to fight misguided tendencies to put *Markets and Hierarchies* away on that semi-accessible shelf."

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