# The Logic of Economic Organization

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The transaction cost logic of economic organization had its origins in a tautology, which Ronald Coase wryly defines as "a proposition that is clearly right" (1988:00). The basic insight, first advanced by Coase in his classic 1937 article (1952:341) and restated for this conference, is this: "A firm . . . [has] a role to play in the economic system if . . . transactions [can] be organized within the firm at less cost than if the same transactions were carried out through the market. The limit to the size of the firm . . . [is reached] when the costs of organizing additional transactions within the firm [exceed] the costs of carrying out the same transactions through the market" (1988). Albeit "clearly right," the argument is also subject to the objection that "almost anything can be rationalized by invoking suitably specified transaction costs" (Fisher: 322, n. 5).

That the state of transaction cost economics in 1972 was approximately where Coase had left it in 1937[1] is largely attributable to the failure, for thirty-five years, to operationalize this important concept. That this flat trajectory has been supplanted by exponential growth during the past fifteen

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1. Coase remarks that his 1937 paper was "much cited and little used" over the interval 1937–72 (Coase, 1972:63).

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years is because recent students of transaction cost economics have insisted that this approach meet the test of refutable implications. Interestingly, these operationalization efforts have spawned a growing empirical literature. As discussed elsewhere (Williamson, 1985), and as Paul Joskow's conference paper (1988) discloses, this empirical literature is broadly corroborative.

Thus although the Coasian insight referred to above was a crucial first step in an effort to devise a comparative logic of economic organization in which transaction cost economizing was made the core feature, follow-up apparatus was thereafter needed. As described below, this entailed (1) identifying the microanalytic factors that are responsible for transaction cost differences among transactions, (2) aligning transactions with governance structures in a discriminating way, and (3) discovering and respecting the crucial intertemporal process features that predictably attend economic organization.

The microanalytic approach to the study of economic organization on which transaction cost economics is based is set out in section 1. The strategy of deriving refutable implications by effecting a "discriminating match" is described in section 2, both in general and with reference to the efficient use of debt and equity. The importance of process analysis is argued and illustrated in section 3. Concluding remarks follow.

## 1. MICROANALYTICS

Transaction cost economics adopts a comparative contractual approach to the study of economic organization in which the transaction is made the basic unit of analysis and the details of governance structures and human actors are brought under review. This focus on microanalytics plainly comes at a cost, the justifications for which are sometimes questioned. Thus David Kreps and Michael Spence observe that "if one wishes to model the behavior of organizations such as firms, then study of the firm as an organization ought to be high on one's agenda. This study is not, strictly speaking, necessary: one can hope to divine the correct 'reduced form' for the behavior of the organization without considering the micro-forces within the organization" (374–75).

The Kreps-Spence approach thus relegates the study of microanalytics to others or, alternatively, turns on the hope that economists will be lucky. The main risks with the first of these are that those to whom the study of the details are relegated will either take the wrong observations or will report the right observations in ways that mask their economic significance.[2] Since

2. William McNeill's remarks about Chinese history are apposite. He observes that an understanding of markets and command in medieval China is impaired not by a failure to study this period but because "historians of China have yet to work through the voluminous records . . . *with the appropriate questions in mind*" (1982:25, emphasis added). The study of business history in the United States has benefited from Alfred D. Chandler's perceptive research (1962;

hoping to get lucky is even more problematic, the need for economists to take the study of organization seriously is herein suggested.

Herbert Simon's contrast between the physical sciences and economics in microanalytic respects is instructive. As he observes (1984:40):

> In the physical sciences, when errors of measurement and other noise are found to be of the same order of magnitude as the phenomena under study, the response is not to try to squeeze more information out of the data by statistical means; it is instead to find techniques for observing the phenomena at a higher level of resolution. The corresponding strategy for economics is obvious: to secure new kinds of data at the micro level.

Transaction costs economics subscribes to Simon's prescription in both conceptual and empirical respects. To be sure, this focus on microanalytics places a great burden on empirical researchers—in that the relevant data rarely appear in standard statistical sources on library shelves and data tapes. The tradeoff of breadth for depth has nevertheless been resolved in favor of greater detail—for which those who have done the underlying data development deserve great credit.

Kenneth Arrow's contrast between the older institutional economics and the New Institutional Economics is pertinent. He inquires, "Why did the older institutional school fail so miserably, though it contained such able analysts as Thorstein Veblen, J. R. Commons, and W. C. Mitchell?" He ventures two answers, one of which is that the issues are intrinsically difficult. More important, the older institutional school lacked a research strategy. By contrast, "the New Institutional Economics movement . . . [does] not consist primarily of giving new answers to the traditional questions of economics—resource allocation and degree of utilization. Rather it consists of answering new questions, why economic institutions have emerged the way they did and not otherwise; it merges into economic history, but brings sharper nanoeconomic . . . ('nano' is an extreme version of 'micro') reasoning to bear than has been customary" (1987:734).

Transaction cost economics maintains that the microanalytics matter in three basic respects: (1) behavioral assumptions, (2) dimensionalizing transactions, and (3) process features. Consider these seriatim.

### 1.1. Behavioral Assumptions

As discussed at length elsewhere, transaction cost economics employs two critical behavioral assumptions. The first is a cognitive assumption: human agents are assumed to be "*intendedly* rational, but only *limitedly* so" (Simon,

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1977), but Chandler is the exception who proves the rule. Much the same can be said of Chester Barnard (1938) in the organization theory area. Most business historians, organization theory specialists, sociologists, and the like simply do not examine the microanalytics of organization from an economizing (or even quasi-economizing) point of view. Power, more often, is the congenial perspective.

1961:xxiv), which condition is commonly referred to as bounded rationality. This assumption relegates all forms of comprehensive contracting (with and without private information) to the infeasible set. The argument that all viable forms of complex contracting are unavoidably incomplete has massive research ramifications that are only now beginning to be explored (Hart and Holmstrom, 1987).

Much of the confusion that is associated with bounded rationality is due to the mistaken belief that irrationality or satisficing are thereby implied. Inasmuch, however, as boundedly rational agents are attempting effectively to cope, irrationality (except, perhaps, for certain pathological cases) is not contemplated. Satisficing, moreover, is merely one manifestation of bounded rationality. It appeals to psychology and works out of an aspiration level mechanics. Incomplete contracting, by contrast, appeals to economics and employs choice mechanics of a very different kind. That satisficing has not been a very productive approach to the study of economic organization (Aumann: 35) does not therefore imply that incomplete contracting is similarly fated. To the contrary, although the study of incomplete contracting is difficult and its accomplishments to date are limited, there are reasons already to be much more optimistic.

The second behavioral assumption is that human agents are given to opportunism, which is a deep condition of self-interest seeking that contemplates guile. Promises to behave responsibly that are unsupported by credible commitments will not, therefore, be reliably discharged. Although opportunism is an unflattering behavioral assumption and is repugnant to some, H. L. A. Hart's remarks help to put the issues in perspective (193, emphasis in original):

> Neither understanding of long-term interest, nor the strength of goodness of will . . . are shared by all men alike. All are tempted at times to prefer their own immediate interests. . . . "Sanctions" are . . . required not as the normal motive for obedience, but as a *guarantee* that those who would voluntarily obey shall not be sacrificed by those who would not.

But for these two behavioral assumptions—both individually but, especially, in combination—the study of economic organization would be vastly simplified. Thus, "it is only because individual human beings are limited in knowledge, foresight, skill, and time that organizations are useful instruments for the achievement of human purpose" (Simon, 1957:199). But there is more to it than this. Given bounded rationality and opportunism, the study of economic organization needs to make allowance for both. The following imperative is therefore proposed: organize economic activity so as to economize on bounded rationality while simultaneously safeguarding the transactions in question against the hazards of opportunism. The main contractual and organizational implications of this combined behavioral orientation are summarized in table 1.[3]

3. I have argued elsewhere (Williamson, 1985:30–32, 66–67) that contractual problems

Thus whereas behavioral assumptions are usually scanted by orthodox microtheory, transaction cost economics insists that these assumptions are vitally important—not least of all because they are the source of refutable implications. To be sure, the implications set out in table 1 are very general. Both parts of the following two arguments are nonetheless testable: (1a) all complex contracts will be incomplete, whence (1b) modes that support adaptive, sequential decisionmaking (as a means by which to cope with contractual incompleteness) will be observed; and (2a) "promises" that are unsupported by credible commitments will expose the parties to hazard, whence (2b) market and nonmarket safeguards will be observed to arise in support of exchange. An examination of both contract law and contract practice (including the use and nonuse of vertical integration) discloses that the data are corroborative.

## 1.2 Dimensionalizing

Transaction cost economics adopts John R. Commons's (1934) proposition that the transaction be made the basic unit of analysis.[4] It thereupon becomes important to identify the critical dimensions with respect to which transactions differ. The principal dimensions on which transaction cost economics

Table 1. Organizational Implications of Behavioral Assumptions.

| Behavioral assumptions / Implications | Bounded rationality | Opportunism |
|---|---|---|
| For contractual theory | Comprehensive contracting is infeasible | Contract as promise is naive |
| For economic organization | Exchange will be facilitated by modes that support adaptive, sequential decisionmaking | Trading requires the support of spontaneous or crafted safeguards |

vanish if *either* bounded rationality or opportunism can be presumed to be absent. The dashed vertical line in the table is intended as a reminder that the indicated contractual implications and organizational responses are joint responses to a combined condition of bounded rationality and opportunism.

4. Note that Simon advised that the "decision premise" be made the basic unit of analysis (1946; 1957:201). The transaction cost ramifications of working out of such a highly microanalytic framework have yet to be displayed. I conjecture that the decision premise is *too* microanalytic for the purpose of doing "middle range" analysis of the kind discussed here. Choice of the unit of analysis really matters.

presently relies for purposes of describing transactions are (1) the frequency with which they recur, (2) the degree and type of uncertainty to which they are subject, and (3) the condition of asset specificity. Although all are important, many of the refutable implications of transaction cost economics turn presently on this last.[5]

Asset specificity has reference to the degree to which an asset can be redeployed to alternative uses and by alternative users without sacrifice of productive value. This has a relation to the notion of sunk cost. But the pervasive organizational ramifications of asset specificity become evident only in the context of incomplete contracting. These went unrecognized in the

5. Although asset specificity can be and sometimes has been overworked, it has played a key role in the progressive operationalization of transaction cost economics from the outset (Williamson, 1971, 1975, 1979, 1985; Klein, Crawford, and Alchian; Teece, 1981; Stuckey; Alchian, 1984; Monteverde and Teece; Masten, 1984; Palay, 1985; Crocker and Masten; Joskow, 1985, 1987, 1988; Joskow and Schmalensee; Anderson and Schmittlein; Spiller; Grossman and Hart, 1986; Bjuggren; Weaklium). Interestingly, Coase states in his third conference lecture (1988) that he considered and then rejected the possibility that asset specificity played a key contractual role when he was studying the U.S. automobile industry in the 1930s. Having rejected asset specificity, however, he has since proposed no alternative key contractual dimension (or set of dimensions) for assessing the comparative efficacy of contract. As Thomas Kuhn reminds us, it takes a concept to beat a concept.

Coase evidently rejects asset specificity as a key dimension because he observed that A. O. Smith was supplying body frames to the major automobile firms by contract. The fact, therefore, that General Motors had acquired Fisher Body, purportedly for asset specificity reasons (Klein, Crawford, and Achian: 308–10), was unpersuasive.

I conjecture, however, that there were real differences between these two transactions for which greater microanalytic detail is needed. Thomas Palay's study (1981) of transportation transactions is apposite.

Thus Palay examined the ownership of "high cube" railroad cars that are specialized to automobile parts shipment. The cars, larger and more expensive than standard box cars, are, however, transferable among automobile manufacturers without sacrifice of value. He also examined the racks used to secure automobile parts in transit. These racks are not only specialized to the automobile industry but they are nonredeployable among automobile firms. Although initially the carriers owned both the high cube cars and the racks, problems developed with respect to the latter. Racks are now mainly owned, therefore, by the shippers.

Industry specificity, even in a concentrated market, thus needs to be distinguished from firm specificity. Like Klein (1988), I conjecture that the manufacture of automobile frames (A. O. Smith) entails a lesser investment in firm-specific assets than does the manufacture of automobile body panels (Fisher Body), especially when the latter is located cheek-by-jowl to GM assembly. Thus whereas Coase seems implicitly to assume that frames and bodies are on a parity in asset specificity respects—whence, upon observing different organizational responses to what he believed to be an identical condition of asset specificity, he concluded that the explanation for the differences must reside elsewhere—Klein argues otherwise.

Note, moreover, that transaction cost economics maintains that added contractual safeguards will appear as the condition of asset specificity deepens and that vertical integration is the organizational mode of *last resort*. Hybrid forms of contract—those for which private ordering safeguards have been crafted—are often able to cope effectively with intermediate degrees of asset specificity (Williamson, 1985; Joskow, 1987). Coase makes no reference to the possibility that the A. O. Smith contract was of a hybrid kind.

Thus although the earlier literature, mine included (1975), worked out of a binary firm or market framework, later work has disclosed the need to make prominent provision for the intermediate (hybrid) contracting category (Macneil; Williamson, 1979, 1985; Klein, 1980; Palay, 1981, 1985; Joskow, 1987).

pre–transaction cost era (Williamson, 1975, 1979; Klein, Crawford, and Alchian).[6]

The main import of the condition of asset specificity is this: whereas the identity of parties to a neoclassical transaction is irrelevant (Ben-Porath), the identity of parties to a transaction that is supported by nontrivial investments in durable, transaction-specific assets is critical. In effect, parties of the latter kind are *bilaterally dependent*. The intertemporal governance of contractual relations is greatly complicated as a consequence of this condition.

### 1.3. Process Analysis

The proposition that process matters is widely resisted and has attracted little concerted research attention from economists (Langlois). Although transaction cost economics is underdeveloped in process respects, process arguments nevertheless play a prominent role.

The Fundamental Transformation, which I discuss further in section 3 below, is one illustration of the proposition that process matters. Briefly, the argument is that it does not suffice to demonstrate that a condition of large numbers competition obtains at the outset. It is also necessary to examine whether this continues or if, by reason of transaction specific investments and incomplete contracting, a condition of bilateral trading *evolves* thereafter. The governance of contractual relations—which includes, but is by no means limited to, vertical integration—is massively influenced wherever ex-post bilateral monopoly predictably obtains.

More generally, what I refer to as a process outcome has three common features: it is manifested intertemporally; it is an unanticipated consequence; and it is often very subtle. Usually, the unanticipated behavior in question is an unwanted outcome; but this need not always be the case.

What sociologists refer to as "dysfunctional behavior" is an illustration. As Robert Merton, Alvin Gouldner, and others have documented, the organization of work is often attended by dysfunctional consequences. This is because added "demands for control" within the organization have not one but two effects: the first (or intended) effect is that greater control is realized; the second (or unintended) effect is that the workers who are subject to these added controls thereafter adapt. The earlier "machine model" of organization, which made no provision for such unanticipated adaptations, thus needed to be supplanted by a richer model of organization in which effects of both kinds are appropriately taken into account.

6. My initial effort to break out of the Coasian tautology and offer a predictive theory of economic organization in which transaction cost differences were featured was in 1971, when my paper "The Vertical Integration of Production: Market Failure Considerations" was published. I expressly appeal to idiosyncratic trading relations (which have their origins in asset specificity) in this article. Armen Alchian and Harold Demsetz (1972) offer an alternative hypothesis: firms supplant markets so as more effectively to deal with a condition of technological nonseparability.

Economists have not been deaf to this message. Indeed, agency theory has been responding precisely to such a condition for the past fifteen years. Given that agents enjoy information advantages and that they consult their own preferences when implementing incentive schemes, the design of incentives must be mindful of these "repositioning" effects. If this is the process analysis message, it has already been received and digested.

It is one thing, however, to be sensitized to secondary consequences in general. It is another to have knowledge of the particulars, some of which may be very subtle. If, moreover, all complex contracts are unavoidably incomplete, then the applicability of the mechanism design approach to economic organization is seriously called into question (Grossman and Hart, 1986; Hart, 1988). The study of subtle process particulars in the context of incomplete contracting is what process analysis, as herein described, is all about. A combined economics and organizations perspective is needed.[7]

## 2. DISCRIMINATING MATCH

### 2.1. General

Economic organization serves many purposes, of which transaction cost economizing is only one. Although a general theory of organization will make provision for "all significant factors," such a general theory is presently well beyond our reach. There are advantages, given our primitive understanding of these matters, in working out the ramifications of much simpler and partial models. What hypotheses have been nominated for "main case" standing, and what refutable implications are associated with each?

Note in this connection that I do not argue that refutable implications are all that matter. Rather, I subscribe to Nicholas Georgescu-Roegen's view that whereas "prediction is the touchstone of scientific knowledge . . . , the purpose of science in general is not prediction but knowledge for its own sake" (37). Especially in an area where opinions proliferate, of which the economics of organization is one, insistence upon refutable implications is needed to sort the wheat from the chaff. This is the touchstone function to which Georgescu-Roegen refers.

The main case to which transaction cost economics subscribes has been stated by Frank Knight as follows (252, emphasis added):

> Men in general, and within limits, wish to behave economically, to make their activities *and their organization* "efficient" rather than wasteful. This fact does deserve the utmost emphasis; and an adequate definition of the science of economics . . .

7. The question might be posed, how do we train students to bring a combined economics and organization perspective to bear? I conjecture that experience with and/or training in the area of business administration is important if not essential. Coase's own unusual educational training (see lecture 1, above) is pertinent.

might well make it explicit that the main relevance of the discussion is found in its relation to social policy, assumed to be directed toward the end indicated, of increasing economic efficiency, of reducing waste.

The transaction cost economics strategy for operationalizing this argument employs the following organizational imperative: align transactions (which differ in their attributes) with governance structures (the costs and competencies of which differ) in a discriminating (mainly, transaction cost economizing) way. In addition, therefore, to the heretofore mentioned effort to discover the principal dimensions with respect to which transactions differ, it is furthermore necessary to identify and describe the principal governance structures—firms, markets, hybrid modes—to which transactions might feasibly be assigned. The discriminating match between transactions and governance structures is the main source of refutable implications and plays a prominent role in both the conceptual and empirical parts of the transaction cost economics research agenda. Enunciating this purpose and thereafter working out the logic of the discriminating match describes much of what transaction cost economics has been up to.

## 2.2. Extant Applications

The first application of this approach, and the paradigm problem to which transaction cost economics recurrently returns, is that of vertical integration (Williamson, 1971, 1975, 1979; Klein, Crawford, and Alchian).[8] Once this issue had been worked through, it was obvious that the basic structure of the problem and its solution had general application. As Friedrich Hayek has put it, "Whenever the capacity of recognizing an abstract rule which the arrangement of these attributes follows has been acquired in one field, the same master mould will apply when the signs of those attributes are evoked by altogether different elements" (1967:52).

The study of labor organization thus turns out to have numerous parallels with, rather than be sharply different from, the study of intermediate product markets (Williamson, Wachter, and Harris; Williamson, 1985: ch. 10)—contrary opinion notwithstanding.[9] The study of public utility regulation and the feasibility of deregulation also have a contractual structure very similar to

8. Benjamin Klein (1988, n. 3) points to a significant difference between their treatment and mine. Thus whereas Klein, Crawford, and Alchian rely entirely on the *existence* of a potentially appropriable quasi-rent, which is a static measure, I have continuously emphasized the differential competence of firm and market to implement a program of adaptive, sequential decisionmaking. Contractual incompleteness and uncertainty give rise to contractual misalignments, the costs of adaptation to which varies with asset specificity—markets having the advantage when asset specificity is low, the advantage shifting to internal organization as asset specificity deepens. Process analysis is needed to explicate this condition.

9. Martin Weitzman maintains that the labor market is unique and is flawed by rigidities. By contrast, I argue that labor and intermediate product markets display strong commonalities and that the rigidities observed in each often serve value-enhancing contractual purposes (Williamson, 1986).

that which characterizes the make-or-buy (vertical integration) decision (Williamson, 1976; Goldberg; Joskow and Schmalensee). A wide variety of nonstandard contracting practices that were once believed to have monopoly purpose—franchising and reciprocity being examples—are likewise usefully interpreted in this way (Klein; Williamson, 1983). And even such disparate phenomena as career marriages display strong commonalities (Williamson, 1987a).

The transaction cost treatment of vertical integration has proceeded in a series of stages. The first and most critical was the statement of the general verbal argument (Williamson, 1971, 1975; Klein, Crawford, and Alchian). This was then given a geometric interpretation (Williamson, 1981), was thereafter recast in a more general mathematical way (Masten, 1982; Riordan and Williamson, 1985), and has since been developed more rigorously in the context of comparative incomplete contracting (Grossman and Hart, 1986).

### 2.3. Debt and Equity

A recent application of transaction cost economics reasoning (that is developed more fully elsewhere, in Williamson, 1988b) involves corporate finance. The object is to align investment projects (which differ in their attributes) with financial instruments (where debt and equity are viewed as alternative governance structures). Thus consider a firm that is contemplating a series of investment projects and is asking whether it makes a difference how these are financed. The conventional view is that the cost of capital is independent of the choice of financial instruments (Modigliani and Miller). Although this basic result has since been qualified—by arguing that (1) debt could be used as a signal of differential business prospects (Ross), (2) debt could be used by entrepreneurs with limited resources who were faced with new investment opportunities and did not want to dilute their equity position, thereby to avoid sacrifice of incentive intensity (Jensen and Meckling), and (3) debt could be used as an incentive bonding device (Grossman and Hart, 1982)—all of these work out of a composite capital framework. Transaction cost economics examines the issues more microanalytically. It maintains that the asset attributes of investment projects *differ* and that efficiency purposes are served by aligning projects with the governance structure competencies of debt and equity in a discriminating way.

Thus suppose that a firm wishes to build a general purpose factory, acquire inventories, install equipment, procure dies, and the like. A general purpose factory that is located in a population center is a highly redeployable asset. Lenders will be prepared to finance it at the "going rate" for real estate and take a mortgage as security. The same is true for inventories and mobile equipment (forklifts, trucks, etc.) that are unspecialized and easily redeployed or liquidated. Suppose, however, that lenders are now asked to supply

funds for durable assets that are much more highly specialized. Is debt financing equally well-suited to these?

Assume, for this purpose, that debt is regarded as a governance structure that is safeguarded by prescribing (1) that fixed interest payments will be made at regular intervals, (2) that the business will continuously meet certain liquidity tests, (3) that sinking funds will be set up and principal repaid at the loan expiration date, and (4) that, in the event of default, the debt-holders will exercise preemptive claims against the assets in question. If everything goes well, interest and principal will be paid on schedule. In the event of default, however, debt-holders will realize differential recovery in the degree to which the assets in question are redeployable. Since the value of a preemptive claim declines as the degree of asset specificity deepens, the terms of debt financing will be adjusted adversely.

Confronted with the prospect that specialized investments will be financed on adverse terms, the firm might respond by sacrificing some of the specialized investment features in favor of greater redeployability. But might it be possible to invent a new governance structure to which suppliers of finance would attach added confidence? Suppose, arguendo, 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 tradeable 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.[10]

An *endogenous response* to the governance needs of suppliers of finance who are asked to invest in nonredeployable projects has thereby resulted. In exchange for accepting a residual claimant status to the firm, these suppliers are awarded "control" over the board of directors. Also note that equity in this scenario comes in late. It being a relatively cumbersome form of governance, equity is the financial instrument of *last resort*.

The transaction cost approach to corporate finance thus calls for the *discriminating* use of debt and equity as a function of the attributes of investment projects. Debt and equity are more than alternative sources of funds. They are alternative governance structures. This latter distinction is the key to the transaction cost economics approach to the study of economic organization in all of its forms. The discriminating use of financial instruments is

10. See Eugene Fama and Michael Jensen (1983).

merely another variation on the same underlying transaction cost economizing theme to which I referred earlier.

## 3. PROCESS MATTERS

The proposition that process matters enjoys widespread support throughout the social sciences,[11] economics conspicuously excepted. Economists are skeptical of process arguments for several reasons. First and foremost, appeal to process is unnecessary if the interesting action in all "properly formulated" problems is explained by ex-ante incentive alignments. To be sure, stating problems in a way that discloses the relevant incentive features is not always easy. But that is the real challenge nonetheless. Second, the incentive alignment apparatus is much more refined and fully developed than is the corresponding apparatus for assessing process. Indeed, a leading reason why the claim that "process is important" is so difficult to disprove (or even contest) is that the process mechanics are rarely displayed. Third, the analysis of process requires considerable knowledge of the nanoeconomic details to which Arrow made reference. Many economists have been loath to take this step, expressing the hope that it can be avoided (the Kreps-Spence position set out in section 1, above, is probably representative).

Transaction cost economics maintains that the comparative study of economic organization requires the discovery and explication of process features. The lack of focus to which I refer is partly rectified by studying process issues from an economizing perspective. And transaction cost economics furthermore insists that process analysis deal with specifics.

The Fundamental Transformation to which I referred earlier is examined in section 3.1. A less fully developed but, where it applies, similarly important process consequence is the need to match incentive intensities with organization form. This is examined in section 3.2. Incentive and process interpretations of takeover are contrasted in section 3.3. A brief discussion of oligarchy follows.

### 3.1. THE FUNDAMENTAL TRANSFORMATION

That asset specificity was earlier regarded merely as a sunk cost is because the contracting ramifications were not wrung out. An intertemporal examination of the contracting process was needed to expose the issues. What was true of vertical integration turned out similarly to apply to franchise bidding for natural monopoly.

3.1.1. *The Incentive Approach.* Harold Demsetz imaginatively refor-

11. For recent research that advocates or illustrates process analysis, see Mark Granovetter, who is a sociologist, Robert Axelrod, a political scientist, and Mary Douglas, an anthropologist.

mulated the problem of natural monopoly by pushing the analysis back a stage, thereby to disclose its incentive properties. Such a reformulation led to a dramatic reinterpretation of the so-called natural monopoly dilemma: "There is unfortunately no good solution for technical monopoly. There is only a choice among three evils: private unregulated monopoly, private monopoly regulated by the state, and government operation" (Friedman: 128).

Demsetz perceptively argued that this statement of the problem omitted the possibility of conducting an ex ante bidding competition for the right to serve the market. The three-way monopoly dilemma described by Friedman could thus be relieved by inviting a large number of qualified suppliers to engage in a noncollusive "competition for the market." To be sure, an ex-post monopoly condition would obtain upon awarding a franchise to the firm that offers to sell product most cheaply. But that is neither here nor there. The object is to secure the benefits of natural monopoly (economies of scale) without incurring the monopoly prices or the regulatory and bureaucratic distortions that ensue when monopoly is awarded in any of the conventional (three evil) ways. Franchise bidding for natural monopoly purportedly accomplishes the desired result.

3.1.2. *The Process Approach.* Transaction cost economics fully accepts this description of ex ante bidding competition but insists that the study of contracting be extended to include ex-post features. Thus initial bidding merely sets the contracting process in motion. A full assessment requires that both contract execution and ex-post competition at the contract renewal interval come under scrutiny.

Contrary to earlier practice, transaction cost economics holds that a condition of large numbers bidding at the outset does not necessarily imply that a large numbers bidding condition will obtain thereafter. Whether ex-post competition is fully efficacious or not depends on whether the good or service in question is supported by durable investments in transaction specific human or physical assets. Where no such specialized investments are incurred, the initial winning bidder realizes no advantage over nonwinners. Although it may continue to supply for a long period of time, this is only because, in effect, it is continuously meeting competitive bids from qualified rivals. Rivals cannot be presumed to operate on a parity, however, once substantial investments in transaction specific assets are put in place. Winners in these circumstances enjoy advantages over nonwinners, which is to say that parity at the renewal interval is upset. Accordingly, what was a large numbers bidding condition at the outset is effectively *transformed* into one of bilateral supply thereafter.

As Joskow insists, however, general arguments ought to be asked to address contractual specifics. In his case, the application of this approach to assess the purported efficacy of franchise bidding for CATV supplied the hitherto missing contractual specifics (Joskow, 1988).

The details of the general comparative exercise and CATV specifics are set out elsewhere (Williamson, 1976; Goldberg). Suffice it to observe here that the argument is not that ex-ante competition for a franchise award for natural monopoly will never work well. Rather, the argument is that whether it will work well or poorly depends on the characteristics of the assets.

Large, durable investments are not the issue. Rather, the issues are (1) whether large and durable investments are redeployable or not and, if they are not, (2) the need for and ease of adapting to changing market and technological circumstances. The initial franchise award undergoes a Fundamental Transformation if the assets in question are highly specific, in which event the efficacy of "unassisted" franchise bidding becomes highly problematic at contract renewal intervals and when adaptations to change are attempted. Public policy toward deregulation needed (and needs) to be informed by a *discriminating* perspective in which the asset specificity attributes of investments play a key role (Joskow and Schmalensee; Levine).

### 3.2. Incentive Intensity

There is now widespread agreement that asset specificity and the resulting Fundamental Transformation are centrally implicated in assessing vertical integration. But this "solves" one puzzle only to pose another. If vertical integration is the source of adaptive gains and is not attended by losses, why not integrate everything?[12] More generally, why can't a large firm do everything that a collection of small firms can do and more? A different but related way of putting this query is in terms of "selective intervention"—where by selective intervention I mean that each production stage is directed to perform in the preacquisition manner except when misalignments occur and the substitution of authority for autonomy yields net gains.

Thus suppose that a procurement stage acquires a supply stage (or the reverse) and instructs the supply (procurement) stage to continue to behave in the preacquisition manner except on those few occasions when the aforementioned net gains from authoritarian realignment obtain. Whereas contractual misalignments previously elicited self-interested bargaining, which delayed the adjustment and itself was costly, the operating divisions in the post-merger interval simply accept hierarchical realignment decisions as determinative. Analytic processes thus supplant bargaining processes (March and Simon: 130), whence quicker and better adaptations occur after the merger has been accomplished. If the combined enterprise can never do worse and sometimes does better, then integration is everywhere the superior form.

12. Coase perceptively posed the issues as follows: "Why does the entrepreneur not organize one less transaction or one more?" (1952:339); and "Why is not all production carried on in one big firm?" (1952:340).

Two very different answers have been advanced to explain wherein the costs of vertical integration arise. The first of these is an incentive argument and is due to Sanford Grossman and Oliver Hart (1986). The second invokes process considerations.

3.2.1. *The Incentive Approach.* The Grossman and Hart approach to vertical integration turns on ex-ante investment distortions. The argument here is that the adaptive benefits of vertical integration are sometimes more than offset by induced investment distortions. Assessed comparatively, market organization will sometimes remain the preferred alternative.

This pathbreaking article works out of an incomplete contracting setup. Since a mechanism design formulation is precluded upon admitting that complex contracts are incomplete (Hart, 1988), new solution concepts are required (Grossman and Hart, 1986; Holmstrom and Tirole, 1988; Hart, 1988).

The argument expressly invokes asset specificity and implicitly turns on bounded rationality and opportunism. It also turns critically on the way in which Grossman and Hart define ownership. Whereas ownership is normally defined in terms of assets, they define ownership as ex-post decision rights of control. Accordingly, they distinguish three ownership alternatives: stages $A$ and $B$ remain independent (nonintegration); $A$ acquires $B$; $B$ acquires $A$.

Each production stage in each period is assumed to make decisions of two kinds: ex-ante investment decisions and, after state-of-the-world realizations obtain, ex-post operating decisions. Grossman and Hart further assume that the ex-ante investment decisions in each stage are made "simultaneously and independently," whatever the ownership structure, and that each stage experiences high-powered incentives—that is, each stage appropriates its net receipts—under all three ownership configurations.

An immediate consequence of this two-part decision setup, with ownership defined in terms of ex-post decision rights, is that each ownership regime induces different ex-ante investments. Since each stage appropriates its net receipts, investments will be "prepositioned" to reflect different ownership structures. Full optimality (which would require that investment decisions be made coordinately) being unavailable, the question is which assignment of ex-post decision rights is best.

Not only will no integration sometimes be the most preferred alternative, but it furthermore matters, if integration occurs, whether $A$ acquires $B$ or $B$ acquires $A$. The Grossman and Hart formulation thus yields a unified theory of integration *and* nonintegration. They contrast this with earlier "transaction-cost based arguments—[that] do not explain how the scope for [opportunistic] behavior changes when one of the self-interested owners becomes an *equally* self-interested employee" (Grossman and Hart, 1986:692, emphasis added). They furthermore observe that integration under their theory "does not make any new variable observable to both parties. Any

audits that an employer can have done on his subsidiary are also feasible when the subsidiary is a separate company" (1986:695). Also, as Hart explains in his conference paper (1988), theirs is a symmetric argument that makes no appeal to (and, indeed, denies that integration incurs) any added costs of bureaucracy.

3.2.2. *The Process Approach.* The process approach likewise works out of an incomplete contracting setup where bounded rationality, opportunism, and asset specificity are featured. Also, so as to implement the spirit of selective intervention, the high-powered incentives of market procurement are assumed to be replicated by vertical integration. Thus although, as discussed below, high-powered incentives are actually undone so as to secure relief from the suboptimality that integration in a high-powered incentive regime experiences, this is the operative assumption at the outset.

Ownership, however, is defined differently than Grossman and Hart. Integration places the physical assets of both stages under the unified ownership of the acquirer and awards ex-post decision rights to intervene (thereby to implement a program of adaptive, sequential decisionmaking whenever ex-post misalignments prospectively appear) to the acquirer.

Working through the ramifications of this statement of vertical integration is somewhat involved (Williamson, 1985: ch. 6). Suffice it to observe here that preserving high-powered incentives in both stages of the integrated firm induces distortions of three kinds: (1) the acquired stage will dissipate assets; (2) the acquiring stage will gain control over accounting and will manipulate transfer prices, overhead allocations, and the like to shift net receipts in its favor; and (3) the acquiring stage can use its control over ex-post decision rights strategically.

"Promises," moreover, to eschew behavior of these kinds are lacking in credibility. Thus consider the following "modified Odysseus problem," where the issue to be evaluated is whether, as widely believed, "binding oneself is a privileged way of resolving the problem of weakness of will" (Elster, 1979:37).

Recall that Odysseus, with foreknowledge that the call of the Sirens was irresistible, commanded that he be bound to the mast when the ship came within range of the Sirens. Suppose further that Odysseus instructed the crew to "tighten and add to my bonds" should he ask for release. But suppose now that there is one exception. Should it be the case that the ship comes under attack or is otherwise in serious jeopardy, the bonds are to be relaxed if not released at his command so that he can direct the crew to take appropriate adaptive action.

The difficulty, plainly, is that the circumstances that qualify as an exception are not unproblematic. To be sure, the crew will refuse him if Odysseus signals, "Release my bonds, I must accede to the Sirens." But they are presented with a dilemma if Odysseus, whose knowledge of the seas and

their perils is unsurpassed, should signal, "I perceive grave danger; loosen my bonds a little so that I may instruct the recovery." When is the latter signal to be believed and when not?[13]

Similar problems arise in conjunction with implementing the agreement between buyer and integrated supply division whereby the former "promises" to refrain from intervention except for good cause. If the supply division is awarded claims over a stream of net receipts the value of which can be altered and expropriated by asserting needs for selective intervention, and if grounds for good cause cannot be unambiguously discerned and displayed, then the supply division is exposed to hazard.

This has profound ramifications from the comparative institutional study of alternative forms of organization. If reasoned (explicit or implicit) exceptions to self-binding constraints frequently vitiate the "intended" effects, then the exercise of binding oneself may be fatuous. What applies at the individual level holds a fortiori, moreover, when attempts are made to impose constraints intraorganizationally.

One of the added complications is that internal organization experiences difficulty in using the courts to buttress the weakness of will to which Elster refers. Recall in this connection Thomas Hobbes's 1651 discussion of oaths and promises in *The Leviathan*. Upon observing that the "force of words . . . [was] too weak to hold men to the performance of their covenants" (1928:92), Hobbes went on to prescribe that "there must be some coercive power, to compel" performance (1928:94). The state (a court system) was thus created to enforce interpersonal and interorganizational agreements.

Although I have elsewhere argued that reliance on court ordering is often exaggerated (Williamson, 1985: ch. 7), what I want here to emphasize are that (1) the courts are important for purposes of ultimate appeal, and (2) the courts are not available (either at all or in equivalent degree) to enforce intrapersonal and intraorganizational agreements. The upshot is that efforts to replicate markets within firms for all activities for which markets cannot be beat (call this the latent set) and intervene selectively only where net gains can be projected (call this the active set) are misguided. The added degrees of freedom that support intervention in the active set will extend beyond the delimited circumstances for which they are intended, which is to say that the added latitude will spill over and disturb decisions within the latent set where replication is intended. The gains of internalization (greater adaptability within the active set when the contract gets out of alignment)

13. One possibility is for Odysseus to delegate this judgment to a trusted subordinate (maybe to a committee). But this poses further difficulties. First, the ship is deprived of Odysseus's superior powers of inference during the period that he is bound. Second there is a concern that the individual to whom responsibility is delegated may exercise it not in Odysseus's interests but instead look to his own situation. And third, there are delays of getting composite judgments if, to deter defection by any single individual, a committee is charged to make the decision. Thus a better decision may be reached, but to what avail if it sometimes comes too late.

thus come at a cost (operating decisions within the latent set are distorted when the high-powered incentives of markets are carried over into the firm).

Selective intervention is thus defeated by the added costs to which internal organization is subject when high-powered incentives are applied within the firm. But there is more to the argument if, contrary to Grossman and Hart, internal organization is often able to exercise control instruments more effectively than the market (Williamson, 1985:154–55). The use of lower-powered internal incentives coupled with added control instruments is made more attractive as a consequence. To be sure, bureaucratic costs rise (Williamson, 1985: ch. 6). But the distortions that result when high-powered incentives are used within firms are mitigated. This shift from a high-powered incentive regime in the market to a combined lower-powered/added controls regime within the firm illustrates the microanalytic proposition to which I referred earlier: incentive intensity and organization form need to be matched.

Thus construed, the basic tradeoff is between comparative bureaucratic costs (where the market enjoys the advantage) and comparative adaptive capacity (where, under bilateral trading, internal organization enjoys the advantage). This tradeoff switches from net negative to positive as the condition of asset specificity deepens.[14] Note, moreover, that the relevant comparative institutional choice under the process approach is only two-way, market or hierarchy, since in a low-powered incentive regime, it matters little who acquires whom.[15]

More generally, the point is this: the comparative analysis of alternative modes of organization requires an examination of context. If added or different latitude exists in one contracting milieu as compared with the other, then the ramifications need to be wrung out. Microanalytic process analysis is needed.

14. The transaction cost story of vertical integration thus comes down to this: (1) although markets support high-powered incentives, such incentives impair adaptability when bilateral dependency is great; (2) moving a transaction out of the market into the firm is attended by a weakening of incentives and the appearance of added control instruments, with the result that adaptability under bilateral trading is facilitated; whence (3) integration is reserved for those transactions where bilateral adaptability needs are great (namely, those where asset specificity and uncertainty are substantial), but market organization is elsewhere favored (being less subject, as it is, to the bureaucratic distortions that attend internal organization).

15. This is not to say that the perceived benefits of integration will be equally evident ex ante to both parties. Assume, however, in the Grossman and Hart setup, that *A*'s decisions are "much more important" than *B*'s. Then whereas the acquisition of *B* by *A* is apt to lead to net gains, their model predicts that a "wrong way" acquisition (of *A* by *B*) could well be worse than for the two to remain independent.

Transaction cost economics maintains that, since low-powered incentives supplant high-powered incentives in the integrated state, the matter of who acquires whom is relatively unimportant. Thus if *A* has limited resources, *B* has many, and the capital market cannot easily be persuaded of the idiosyncratic gains, then the acquisition of *A* by *B* will occur with substantially the same net gains as would have been realized had *A* acquired *B*.

3.2.3. *Comparisons.* Given bilateral dependency, the incentive and process approaches to vertical integration can be distinguished as follows:

| | Integration Entails | |
|---|---|---|
| | *Incentive* | *Process* |
| ownership | ex-post decision rights only | assets and ex-post decision rights |
| incentives | HPI | HPI gives way to LPI |
| controls | unchanged by integration | extended by integration |
| bureaucratic costs | unchanged by integration | greater under integration |
| adaptation costs[16] | unchanged by integration | reduced by integration |
| who acquires whom | matters | negligible |

Although vertical integration *in manufacturing*[17] apper as to line up with the process approach, appearances are neither here nor there. The more important point is that these two approaches have different implications and can be assessed by examining the data.

## 3.3. Takeover

Takeover poses real puzzles for law and economics. It is plainly an anomaly if managers are assumed always and everywhere to be given to profit maximization—either because they are faithful stewards or because of the presumed efficacy of modern invisible hand arguments (von Weizsacker; Fama). The unsupported oaths of stewards lack credibility, however, while the mechanics of modern invisible hand arguments are vague. Awaiting an expli-

16. Because Grossman and Hart "do not want to get into the details of contract renegotiation" (1986:702), they assume that renegotiation is costless under all ownership conditions. By contrast, I argue that high-powered incentives not only give rise to operating distortions under vertical integration but are an obstacle to ex post adaptation under all ownership configurations. That vertical integration experiences reduced adaptation costs is because high-powered (market) incentives are supplanted by lower-powered (internal) incentives under the process analysis scenario.

17. Manufacturing is the context out of which Grossman and Hart and I all work. A recent acquisition in which an unusual effort was made to preserve high-powered incentives is the merger of EDS into General Motors. This acquisition has led to protracted disputes and has been reformed. Among other things, EDS was dissatisfied with the transfer prices proposed by GM.

cation of the mechanics, it is judicious to argue that some nontrivial degree of managerial discretion survives.

The managerial discretion approach to the modern corporation assumes that managers are (within limits) in effective control of the firm and operate it with a keen view to their own interests (Baumol; Marris, 1964; Williamson, 1964; Alchian, 1965). Interestingly, the existence of managerial discretion supports two very different interpretations of contests for corporate control.

Skeptics of mergers and takeovers view these events as manifestations of managerial discretion *by the firm proposing the takeover* (the bidder or raider). The managers in the bidding firm have growth aspirations; takeover is a way of giving expression to these purposes.[18] By contrast, those who regard takeovers more favorably focus on *managerial discretion in the target firms*. Firms that are given to excesses of managerial discretion are taken over by other firms or groups whose preferences for profits, cost reduction, and the like are more nearly neoclassical. Value enhancement is thus realized by squeezing out excesses of discretion.

Whereas my earliest work emphasized the distortions that result from managerial discretion (Williamson, 1964), I am convinced that a more productive research strategy is to start from managerial discretion premises and then inquire into what means can be or have been devised to bring discretionary excesses *under control*. The basic view that informs the latter is that which informs the study of externalities quite generally: all failures to allocate resources to highest valued uses invite redress.[19]

The attenuation of managerial discretion through takeover is an application of this reasoning. But this is a two-sided phenomenon and a chronic puzzle remains. Why did takeovers appear in the 1960s rather than much earlier?

One possibility is that the invention of takeover was simply a chance event. Another possibility is that takeover appeared as a response to a change in relative prices.

3.3.1. *The Incentive Argument.* Regulation is an obvious candidate for producing a change in relative prices. Takeover is thus purportedly a response to the added costs of waging proxy contests that resulted from new securities regulations in 1955 and 1964 (Jarrell and Bradley: 371). But while this hypothesis can explain recourse to a previously unused instrument for challenging incumbent managements, it is not obvious why this previously inferior instrument should have such profound effects. Proxy contests, after all, were never widely used and were rarely successful. Why should regulation-induced takeover be associated with a large number of contests for corporate control with a greater degree of success?[20]

18. This is the orientation of Robin Marris and Dennis Mueller (1980), and John Coffee.

19. The collision of strategic purposes and efficiency purposes sometimes prevents this from going through, although strategic purposes themselves then need to be unpacked. What prevents value-enhancing deals from being reached whereby strategic distortions are eliminated?

20. A different argument has recently been advanced to explain timing: takeover purportedly

3.3.2. *Process Analysis.* A historical interpretation of takeover in which organizational innovation is featured is herein proposed. The argument proceeds in three parts. First, the organizational innovation on which I rely (multidivisionalization) is briefly described. Second, the requisites for "full functionalism" are set out and the M-form innovation is interpreted with reference to these. Differences between the M-form and rival takeover hypotheses are then briefly discussed.

3.3.2a. THE ORGANIZATIONAL INNOVATION. Transaction cost economics examines alternative forms of economic organization with reference to their capacity to economize on bounded rationality while simultaneously safeguarding the transactions in question against the hazards of opportunism. I interpret the multidivisional form of organization, which first appeared in the 1920s, as having the purpose and immediate effect of relieving the pressing demands on bounded rationality that were experienced as functionally organized firms grew in size and variety. Alfred Chandler's summary of the defects of the large unitary form (U-form) enterprise, to which the multidivisional (M-form) enterprise was a response, is pertinent (1962:382–83):

> The inherent weakness in the centralized, functionally departmentalized operating company . . . became critical only when the administrative load on the senior executives increased to such an extent that they were unable to handle their entrepreneurial responsibilities efficiently. This situation arose when the operations of the enterprise became too complex and the problems of coordination, appraisal, and policy formulation too intricate for a small number of top officers to handle both long-run, entrepreneurial, and short-run operational administration activities.

But there were (at least partly) unanticipated effects as well. In addition to relieving the communication overload in large, complex U-form firms, this same M-form structure also served (in comparison with the U-form structure which it supplanted) to attenuate subgoal pursuit (reduce opportunism). This is because the M-form structure "clearly removed the executives responsible for the destiny of the entire enterprise from the more routine operational activities, and so gave them the time, information, and even psychological commitment for long-term planning and appraisal" (Chandler, 1962:382). A strategic resource allocation orientation thus supplanted the earlier functional or operational orientation that beset the general office previously.

3.3.2b. FULL FUNCTIONALISM. Elster maintains that a "valid functional explanation in sociology" takes the following form (1983:57):

> An institution or a behavioral pattern $X$ is explained by its function $Y$ for group $Z$ if and only if:
> (1) $Y$ is an effect of $X$;
> (2) $Y$ is beneficial for $Z$;
> (3) $Y$ is unintended by the actors producing $X$;

---

has technological origins. The requisite technological precondition was that it be "possible to trade millions of shares of stock instantly," whence takeover awaited computer developments in the 1960s (Labaton: 8).

(4) Y—or at least the causal relation between $X$ and $Y$—is unrecognized by the actors in Z;
(5) $Y$ maintains $X$ by a causal feedback loop passing through Z.

Elster argues that full functional explanations are rarely satisfied in the social sciences. Rather, functionalism is mainly reserved for biology. This is because in biology "the theory of natural selection creates a presumption that whatever benefits reproductive capacity can also be explained by these benefits. In the social sciences there is no such theory of comparable generality, and so the actual mechanism must be specified for each particular case" (Elster, 1983:20). This being rarely possible, Elster urges that social scientists eschew functional explanation in favor of "intentional explanation [which] differs from functional in that the former can be directed to the distant future, whereas the latter is typically myopic and opportunistic" (1983:20).

Efforts to apply functional explanation in the social sciences should recognize that "condition (4) is fulfilled only if the rules are spread by takeover, not if they are spread by imitation." Also, "many purported cases of functional explanation fail because the feedback loop of criterion (5) is postulated rather than demonstrated" (Elster, 1983:58). Unlike biologists, social scientists must show in each instance how the feedback operates (Elster, 1983:61).

With reference to the organizational innovation described above, let $X$ be the M-form structure, the appearance of which mainly had bounded rationality origins. The unanticipated consequence (in this instance a benefit) $Y$ is that managerial roles have been redefined so as to favor strategic resource allocation. The general office of the firm can thus be thought of as an internal capital market. This generic competence to manage lines of business in an internal capital market mode applies, moreover, not merely to extant lines of business but includes potential lines of business as well. The acquisition of additional lines of business to which profit center standing is conferred thereby becomes feasible. The completion of full functionalism is thus accomplished through the spread of multidivisionalization through takeover of unadapted firms (Z), which is the *reproductive link* normally missing from functional arguments in the social sciences (Elster, 1983:58).

Indeed, there is an additional process of spreading the M-form that ought also to be mentioned: mitosis. The large and diversified M-form structure may discover that the benefits associated with new activities or acquisitions do not continue indefinitely. Acquired components or diversified parts may therefore be divested. To the extent that these are spun off or otherwise divested as discrete multidivisional units themselves, propagation through cell division may be said to exist. This quasi-biological process would also presumably qualify as a reproductive link and thereby contribute to successful functional explanation.

3.3.2c. THE DATA. That the M-form explanation for takeover fulfills the requisites for full functionalism is surely to its credit. Inasmuch, however,

as the M-form innovation first appeared in the 1920s, how is it that takeover was delayed until the 1960s?

Part of the answer is that imitation of the M-form occurred slowly. Prospective reorganizations were delayed, moreover, by the onset of World War II (Chandler, 1962). But more than mere imitation was needed. The conglomerate variant of the M-form needed to be evolved and thereafter applied to mergers—first of a voluntary and then of an involuntary (takeover) kind (Williamson, 1975: ch. 9). The experience with conglomerates in the 1950s was thus the last of a series of organizational developments—innovation, imitation, conglomeration—antecedent to takeover in the 1960s.

To rest here, however, is merely ex-post rationalization. How can this explanation for takeover be distinguished from alternative plausible explanations for these events? Specifically, what are the attributes of takeover that are distinctively associated with this organizational rationale that would not be predicted by rival theories of takeover?

The first is that the firms that attempt takeover will come predominantly from the universe of those that have previously adopted the M-form structure. The second is that M-form firms will have greater success in managing disparate lines of takeover-acquired assets than will similar takeovers by non–M-form firms (the so-called go-go conglomerates of the 1960s). A differential success rate is therefore predicted. A third is that M-form firms will engage in voluntary divestiture more readily than U-form firms. And finally, M-form firms will divest with reference to a value enhancement criterion—which will sometimes entail divesting the "crown jewels"—whereas U-form firms will divest the troublesome parts.

None of this is to say that managerial discretion vanishes upon the appearance of the M-form. Both the immediate and secondary effects of the M-form nevertheless favor incentive attenuation.

### 3.4. Oligarchy

Robert Michel's statement of the iron law of oligarchy is a classic example of the proposition that organization has a life of its own or, more generally, that process matters: "It is organization which gives birth to the dominion of the elected over the electors, of the mandataries over the mandators, of the delegates over the delegators. Who says organization, says oligarchy" (Michels, 1962:365). But what is the comparative institutional significance of this condition?

3.4.1. *Incentive Assessment.* The incentive literature makes no provision whatsoever for the possibility that oligarchy is a predictable process outcome. Such neglect comes at a slight cost if oligarchy affects all forms of organization equally. In that event, only older and younger firms need to be distinguished. But conceivably there is more to it than this.

3.4.2. *Process Analysis.* Process analysis has been neglectful of oligarchy as well. The evolution of oligarchy is, however, a matter with which process analysis can and should be engaged. What are the factors that contribute to oligarchy, what can be done to delay or deflect these developments, and what are the comparative institutional ramifications? Explicating these matters is a microanalytic undertaking.

Note that if, as seems plausible, larger and more complex organizations are more given to oligarchy than smaller and simpler firms, then the decision to integrate should make allowance for the differential costs of oligarchy that are associated with integrated and nonintegrated forms of supply. Also, voluntary divestiture may sometimes be a means by which to relieve oligarchical outcomes.

## 4. CONCLUSIONS

A three-stage program for operationalizing transaction cost economics has been described. The first entails comparative contractual analysis of a microanalytic kind. This is implemented by (1) making the transaction the basic unit of analysis, (2) identifying the relevant behavioral assumptions for assessing contract, and (3) naming and explicating the critical dimensions with respect to which transactions differ. The second stage entails a concerted effort to develop refutable implications based on the logic of discriminating alignment. With respect to each distinct class of transactions, the object is to assess the comparative efficacy of alternative forms of governance—market, hybrid, and hierarchy—with reference to (1) how well does each implement a program of adaptive, sequential decisionmaking, and (2) what are the associated costs? An examination of intertemporal process differences among modes, which is the third stage, is an integral part of the effort to ascertain the relevant tradeoffs.

Although the study of process has long been of interest to Austrian economists (Langlois), evolutionary economists (Nelson and Winter), and sociologists (Granovetter), this often proceeds at a very high level of abstraction. Transaction cost economics insists that the process features of organization be examined in the context of specific contractual relationships. Greater knowledge of and attention to microanalytic detail is thus required.

Transaction cost economics argues that process effects are much more subtle and pervasive than most economists (and economic models) currently admit. Thus although economic models can always be amended or extended to make allowance for all regularities of whatever kind, it is first necessary to be apprised of what these regularities are. Vague arguments that process matters are unhelpful. What is needed is to identify and explicate process particulars. To be sure, use of a comparative, microanalytic, transaction cost economizing perspective is not the only way to address these issues. It is nonetheless instructive that intertemporal contractual issues are ones to

which transaction cost economics easily relates. That this approach has already helped to unpack puzzles that had hitherto gone unsolved and even undetected augurs well for the future.

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