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The Economics of Organization: The Transaction Cost Approach[1]

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The transaction cost approach to the study of economic organization regards the transaction as the basic unit of analysis and holds that an understanding of transaction cost economizing is central to the study of organizations. Applications of this approach require that transactions be dimensionalized and that alternative governance structures be described. Economizing is accomplished by assigning transactions to governance structures in a discriminating way. The approach applies both to the determination of efficient boundaries, as between firms and markets, and to the organization of internal transactions, including the design of employment relations. The approach is compared and contrasted with selected parts of the organization theory literature.

The proposition that the firm is a production function to which a profit-maximization objective has been assigned has been less illuminating for organization theory purposes than for economics. Even within economics, however, there is a growing realization that the neoclassical theory of the firm is self-limiting. A variety of economic approaches to the study of organization have recently been proposed in which the importance of internal organization is acknowledged.[2] The one described here emphasizes

[1] This paper has benefited from a number of discussions I have had with William G. Ouchi, including those we had at a Mini-Conference on Strategy, Marketing, and Organization (held at the Graduate School of Management, UCLA, during April 1980 under the auspices of Booz, Allen, & Hamilton) and at the recent Conference on the Economics of Organization (held in Berlin in June 1980 under the auspices of the International Institute of Management). It has also benefited from a year-long dialogue on these matters that Ouchi and I have had with Paul Kaestle and William Allen. The paper also benefited greatly from remarks on an earlier version by Banri Asanuma and on a later revision by Herbert Simon. The assistance of *AJS* reviewers in reshaping the manuscript is also appreciated. Requests for reprints should be sent to Oliver E. Williamson, Department of Economics, University of Pennsylvania, Philadelphia, Pennsylvania 19104.

[2] These include the neoclassical theory of the firm—which, however is relatively sparse in its organizational implications—managerial discretion theory (Baumol 1959; Marris 1964; Williamson 1964), team theory (Marschak and Radner 1972), agency theory (Alchian and Demsetz 1972; Jensen and Meckling 1976), and the transaction cost approach (Coase [1937] 1952; Williamson 1975). Although I was aware, when I was

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transaction costs and efforts to economize thereon. More than most economic approaches, it makes allowance for what Frank Knight (1965, p. 270) has felicitously referred to as "human nature as we know it."[3]

Economic approaches to the study of organization, transaction cost analysis included, generally focus on efficiency. To be sure, not every interesting organizational issue can be usefully addressed, except perhaps in a minor way, in efficiency terms. A surprisingly large number can, however, especially if transaction cost aspects are emphasized. This is accomplished by making the transaction—rather than commodities—the basic unit of analysis and by assessing governance structures, of which firms and markets are the leading alternatives, in terms of their capacities to economize on transaction costs.

The transaction cost approach to the study of organizations has been applied at three levels of analysis. The first is the overall structure of the enterprise. This takes the scope of the enterprise as given and asks how the operating parts should be related one to another. Unitary, holding company, and multidivisional forms come under scrutiny when these issues are addressed.[4] The second or middle level focuses on the operating parts and asks which activities should be performed within the firm, which outside it, and why. This can be thought of as developing the criteria for and defining the "efficient boundaries"[5] of an operating unit. The third level of analysis is concerned with the manner in which human assets are organized. The object here is to match internal governance structures with the attributes of work groups in a discriminating way.

Only issues of the two latter kinds are addressed in this paper.[6] The study of both of these issues turns critically on the dimensionalizing of transactions. The antecedent literature from which the transaction cost approach derives is sketched in Section I. The rudiments of the approach, including the dimensionalizing of transactions, are then set out in Section II. Applications to the study of efficient boundaries are developed in Section III. Employment relation issues are addressed in Section IV. Com-

working on *Markets and Hierarchies,* that it had a number of applications outside economics, the book was directed at an economics audience. I was therefore gratified when organization theory specialists recognized merit in the approach. I am especially indebted to William Ouchi for bringing the book to the attention of the organization theory audience (see Ouchi 1977).

[3] Knight's remarks about the human attributes of economic agents have been widely disregarded and attention has been focused narrowly on the risk-bearing aspects of Knight's classic work.

[4] I have discussed these issues at length elsewhere (see Williamson 1970, chaps. 2, 3, and 7; 1975, chaps. 8–9).

[5] The term "efficient boundaries" is borrowed from Ouchi (1980*a*).

[6] For a discussion of the issues that arise at the first level, see the references in n. 4.

parisons with selected aspects of the organization theory literature and contrasts with "power" approaches to the study of organizations are made in Section V. Concluding remarks follow.

I. ANTECEDENTS

The transaction cost approach to the study of organizations relates to three relatively independent literatures. To be sure, there is considerable overlapping among them and they have not proceeded heedless of one another. The extent to which they deal with common issues, however, is rarely recognized.

Considering that economizing is central to the transaction cost approach, it is not surprising that an economics literature is among the antecedents. Also, inasmuch as internal organizational issues are featured, the organization theory literature makes an expected appearance. The third literature is less obvious: this is the contract law literature in which contract is addressed as a governance issue.

Each of these literatures is large, and my summary of the intellectual progression in each is necessarily brief and omits important contributions. The 1930s witnessed significant advances in all three areas. My sketch of the antecedents begins there.

The proposition that the transaction is the basic unit of economic analysis was advanced by John R. Commons in 1934. He recognized that there were a variety of governance structures with which to mediate the exchange of goods or services between technologically separable entities. Assessing the capacities of different structures to harmonize relations between parties and recognizing that new structures arose in the service of these harmonizing purposes were central to the study of institutional economics as he conceived it.

Ronald Coase posed the problem more sharply in his classic 1937 paper, "The Nature of the Firm." He, like others, observed that the production of final goods and services involved a succession of early stage processing and assembly activities. But whereas others took the boundary of the firm as a parameter and examined the efficacy with which markets mediated exchange in intermediate and final goods markets, Coase held that the boundary of the firm was a decision variable for which an economic assessment was needed. What is it that determines when a firm decides to integrate and when instead it relies on the market?

Friedrich Hayek's 1945 article, "The Use of Knowledge in Society," shed further insight. He observed that the economic problem is relatively uninteresting except when economic events are changing and sequential adaptations to these changes are needed. What distinguishes a high per-

formance economy is its capacity to adapt efficiently to uncertainty. Although he did not state the issues in transaction-cost-economizing terms, such terms are implicit in much of the argument.

The postwar market failure literature helped better to define some of the "failures" with markets that common ownership (the firm) served to overcome. It was not until 1969, however, that the underlying difficulties with markets were unambiguously traced to transaction cost origins. As Kenneth Arrow put it: "Market failure is not absolute; it is better to consider a broader category, that of transaction costs, which in general impede and in particular cases completely block the formation of markets" (1969, p. 48).

The appearance of Chester Barnard's book *The Functions of the Executive* in 1938 and of Herbert Simon's explication of the Barnard thesis in *Administrative Behavior* in 1947 are widely recognized as significant events in the organization theory field. Purposive organization was emphasized, but the limits of human actors in bounded rationality respects and the importance of informal organization were prominently featured.

This stream of research was further developed by the "Carnegie School" (March and Simon 1958; Cyert and March 1963). Hierarchical organization and associated controls are traced to the limited capacities of human actors to cope with the complexity and uncertainty with which they are confronted. The organization is essentially viewed as a "problem-facing and problem-solving" entity (Thompson 1967, p. 9). But organizational efforts are often myopic, and demands for control can and often do give rise to dysfunctional outcomes.

Although Alfred Chandler's remarkable book, *Strategy and Structure* (1962), had its origins in business history rather than organization theory, in many respects this historical account of the origins, diffusion, nature, and importance of the multidivisional form of organization ran ahead of contemporary economic and organization theory. The mistaken notion that economic efficiency was substantially independent of internal organizational structure was no longer tenable after this book appeared.

James Thompson built on all of the foregoing in fashioning his classic statement of the organizational problem in 1967. Both uncertainty and bounded rationality were featured. Moreover, implicitly, and sometimes explicitly[7] attention was fixed on efforts to economize on transaction costs. Core technologies, domains (or boundaries) of organized action, and the powers and limits of market and hierarchical modes are all recognized.

The legal literature to which I refer is concerned with contracting—especially the distinction between "hard contracting" (or black-letter law)

[7] For example, Thompson's proposition that "under norms of rationality, organizations group positions to minimize coordination costs" (1967, pp. 64–65) is in this spirit.

and "soft contracting" in which the contract serves mainly as framework. Karl Llewellyn's 1931 essay addressed these issues. He observed that transactions come in a variety of forms and that a highly legalistic approach can sometimes get in the way of the parties instead of contributing to their purposes. This is especially true where continuity of the exchange relation between the parties is highly valued.

Others who adopted and refined this theme include Steward Macaulay (1963), Lon Fuller (1964), Clyde Summers (1969), David Feller (1973), and Ian Macneil (1974). As Macneil puts it, the discrete transaction—"sharp in by clear agreement; sharp out by clear performance" (1974, p. 738)—is very rare in both law and economics, and we deceive ourselves by treating it otherwise. What he refers to as "relational" forms of contracting—which may involve arbitration, collective bargaining, and other types of obligational market exchange—are becoming more important and need to be recognized.

A deepening awareness of transaction cost issues marks the progression of each of the literatures. Among other things, by the early 1970s it was becoming clear that the study of organizations was a comparative institutional undertaking in which alternative governance structures—both within and between firms and markets—required explicit attention. Inasmuch, moreover, as the transactions of interest were not all of a kind, differences among them would evidently have to be recognized. What were the distinguishing attributes? Finally, although transaction cost economizing is an important and greatly neglected topic, such economizing cannot proceed regardless of the production cost ramifications. Put differently, transaction cost economizing needs to be located within a larger economizing framework and the relevant trade-offs need to be recognized.

II. SOME RUDIMENTS

A transaction occurs when a good or service is transferred across a technologically separable interface. One stage of activity terminates and another begins. With a well-working interface, as with a well-working machine, these transfers occur smoothly. In mechanical systems we look for frictions: do the gears mesh, are the parts lubricated, is there needless slippage or other loss of energy? The economic counterpart of friction is transaction cost: do the parties to the exchange operate harmoniously, or are there frequent misunderstandings and conflicts that lead to delays, breakdowns, and other malfunctions? Transaction cost analysis supplants the usual preoccupation with technology and steady-state production (or distribution) expenses with an examination of the comparative costs of

planning, adapting, and monitoring task completion under alternative governance structures.

Some transactions are simple and easy to mediate. Others are difficult and require a good deal more attention. Can we identify the factors that permit transactions to be classified as one kind or another? Can we identify the alternative governance structures within which transactions can be organized? And can we match governance structures with transactions in a discriminating (transaction-cost-economizing) way? These are the neglected issues with which organizational design needs to come to grips. These are the issues for which transaction cost analysis promises to offer new insights.

Behavioral Assumptions

It is widely recognized—by economists, lawyers, and others who have an interest in contracting—that complex contracts are costly to write and enforce. There is a tendency, however, to accept this fact as given rather than inquire into the reasons for it. As a result, some of the consequences of and remedies for costly contracting are less well understood than would otherwise be the case.

What is needed, I submit, is more self-conscious attention to "human nature as we know it." The two behavioral assumptions on which transaction cost analysis relies that both add realism and distinguish this approach from neoclassical economics are (1) the recognition that human agents are subject to bounded rationality and (2) the assumption that at least some agents are given to opportunism.

Bounded rationality needs to be distinguished from both hyperrationality and irrationality (Simon 1978). Unlike "economic man," to whom hyperrationality is often attributed, "organization man" is endowed with less powerful analytical and data-processing apparatus. Such limited competence does not, however, imply irrationality. Instead, although boundedly rational agents experience limits in formulating and solving complex problems and in processing (receiving, storing, retrieving, transmitting) information (Simon 1957), they otherwise remain "intendedly rational."

But for bounded rationality, all economic exchange could be efficiently organized by contract. (The economic theory of comprehensive contracting for unboundedly rational agents has been elegantly worked out.[8]) Given bounded rationality, however, it is impossible to deal with complexity in

[8] The comprehensive contracting model is widely referred to as the Arrow-Debreu model. For a discussion and an interesting contribution to this literature, see Radner (1968).

all contractually relevant respects. As a consequence, incomplete contracting is the best that can be achieved.

Ubiquitous, albeit incomplete, contracting would nevertheless be feasible if human agents were not given to opportunism. Thus, if agents, though boundedly rational, were fully trustworthy, comprehensive contracting would still be feasible (and presumably would be observed). Principals would simply extract promises from agents that they would behave in the manner of steward when unanticipated events occurred, while agents would reciprocally ask principals to behave in good faith. Such devices will not work, however, if some economic actors (either principals or agents) are dishonest (or, more generally, disguise attributes or preferences, distort data, obfuscate issues, and otherwise confuse transactions), and it is very costly to distinguish opportunistic from nonopportunistic types ex ante.

A different way of putting this is to say that while organizational man is computationally less competent than economic man, he is motivationally more complex. Thus, whereas economic man engages in simple self-interest seeking,[9] opportunism makes provision for self-interest seeking with guile. Problems of contracting are greatly complicated by economic agents who make "false or empty, that is, self-disbelieved threats or promises" (Goffman 1969, p. 105), cut corners for undisclosed personal advantage, cover up tracks, and the like.

That economic agents are simultaneously subject to bounded rationality and (at least some) are given to opportunism does not by itself, however, vitiate autonomous trading. On the contrary, when effective ex ante and ex post competition can both be presumed,[10] autonomous contracting will be efficacious. Of these two, effective ex ante competition is a much easier condition to satisfy: it merely requires that there be large numbers of qualified bidders at the outset. The subsequent transformation of an exchange relation involving large numbers to one involving small numbers during contract execution is what causes problems. Whether ex post competition is equally efficacious or breaks down as a result of contract execution depends on the characteristics of the transactions in question, which brings us to the matter of dimensionalizing.

[9] As Peter Diamond has put it, standard "economic models . . . [treat] individuals as playing a game with fixed rules which they obey. They do not buy more than they can pay for, they do not embezzle funds, and they do not rob banks" (1971, p. 31). Only recently has this standard presumption come under scrutiny, often by making allowance for what insurance specialists refer to as "moral hazard," which is a particular form of opportunism.

[10] Although large numbers of qualified bidders are frequently on a parity at the outset, winning a bid and executing a contract often introduces a disparity between the qualifications of winners and those of nonwinners, with the result that bidding competition involving large numbers is not equally effective at the contract renewal interval. For a discussion, see Williamson (1971; 1975, pp. 27–36; 1979*b*); and Klein, Crawford, and Alchian (1978).

Dimensionalizing

As set out elsewhere (Williamson 1979*b*), the critical dimensions for describing transactions are (1) uncertainty, (2) the frequency with which transactions recur, and (3) the degree to which durable, transaction-specific investments are required to realize least cost supply. Only recurrent transactions are of interest for the purposes of this paper;[11] hence attention will hereafter be focused on uncertainty and asset specificity, especially the latter.

Asset specificity is both the most important dimension for describing transactions and the most neglected attribute in prior studies of organization. The issue is less whether there are large fixed investments, though this is important, than whether such investments are specialized to a particular transaction. Items that are unspecialized among users pose few hazards, since buyers in these circumstances can easily turn to alternative sources and suppliers can sell output intended for one buyer to other buyers without difficulty. Nonmarketability problems arise when the specific identity of the parties has important cost-bearing consequences. Transactions of this kind may be referred to as idiosyncratic.[12]

Asset specificity can arise in any of three ways: site specificity, as when successive stations are located in cheek-by-jowl relation to each other so as to economize on inventory and transportation expenses; physical asset specificity, as where specialized dies are required to produce a component; and human asset specificity that arises from learning by doing. The reason asset specificity is critical is that, once an investment has been made, buyer and seller are effectively operating in a bilateral (or at least quasi-bilateral) exchange relation for a considerable period thereafter. Inasmuch as the value of specific capital in other uses is, by definition, much smaller than the specialized use for which it has been intended, the supplier is effectively "locked into" the transaction to a significant degree. This is symmetrical, moreover, in that the buyer cannot turn to alternative sources of supply and obtain the item on favorable terms, since the cost of supply from unspecialized capital is presumably great.[13] The buyer is thus committed to the transaction as well. Accordingly, where asset specificity is great, buyer and seller will make special efforts to design an exchange that has good continuity properties.

The site-specific assets referred to here appear to correspond with those

[11] For a discussion of the organizational consequences of occasional, rather than recurrent, contracting, see Williamson (1979*b*, pp. 246–54). Also see n. 32 below.

[12] For earlier treatments of the economies of idiosyncrasy, see Williamson (1975, pp. 9–10, 27–33, 68–74; 1979*b*, pp. 238–45). Others who are persuaded that idiosyncratic investments are crucial to the understanding of the economics of organization include Klein et al. (1978), Klein (1980), and Teece (1980).

[13] For a somewhat related discussion of symmetry, see Thompson (1967, pp. 32–35).

Thompson describes as the "core technology" (1967, pp. 19–23). Indeed, the common ownership of site-specific stations is thought to be so "natural" that alternative governance structures are rarely considered. In fact, however, the joining of separable stations—for example, blast furnace and rolling mill, thereby to realize thermal economies—under common ownership is not technologically determined but instead reflects transaction-cost-economizing judgments.[14] It will nevertheless be convenient, for the purposes of this paper, to assume that all site-specific stations constitute a technological core the common ownership of which will be taken as given. Attention is thus focused on earlier stage, later stage, and lateral transactions. The efficient governance structure for these turns on physical asset and human asset specificity. Although these are often correlated, it will facilitate the argument to treat them sequentially. Thus, physical asset specificity is emphasized in Section III and human asset specificity is not introduced until Section IV.

III. EFFICIENT BOUNDARIES

The treatment of efficient boundaries in this section deals with only a part, albeit an interesting part, of the full set of organizational issues. Only two organizational alternatives are considered: either a firm makes a component itself or it buys it from an autonomous supplier. Thus mixed modes, such as franchising, joint ventures, etc., are disregarded. I also take the core technology as given and focus on a single line of commerce—say the activities of a particular manufacturing division within a larger industrial enterprise. The object is to describe how the economizing decisions which define the outer boundaries of this division are made.[15]

Schematic Description

Suppose that there are three distinct production stages which, for site-specificity reasons, are all part of the same firm. This is the technological core. Suppose that raw materials are distinct and are naturally procured from the market. Suppose that two things occur at each production stage: there is a physical transformation, and components are joined to the "main frame." And suppose, finally, that the firm has a choice between own distribution and market distribution.

Let the core production stages be represented by $S1$, $S2$, $S3$ and draw these as rectangles. Let raw materials be represented by R and draw this

[14] See Williamson (1971) and McKean (1971) for a discussion of alternative modes and an assessment of transaction cost consequences for site-specific transactions.

[15] The focus is on operating decisions of a firm or market kind. Both strategic decisions and interdivisional asset sharing are ignored.

as a circle. Let component supply be represented by *C1-B, C2-B, C3-B* if the firm buys its components and *C1-O, C2-O, C3-O* if it makes its own components. Draw these as triangles. Let distribution be given by *D-B* if the firm uses market distribution and *D-O* if the firm uses own distribution. Draw these as squares. Finally, let a solid line between units represent an actual transaction and a dashed line a potential transaction, and draw the boundary of the firm as a closed curve that includes those activities that the firm does for itself.

The closed curve that defines the efficient boundary of the firm in figure 1 includes, in addition to the technical core, component *C2* and the distribution stage, *D*. Components *C1* and *C3* and raw materials are procured in the market. Obviously this is arbitrary and merely illustrative. It also oversimplifies greatly. It is relatively easy, however, to elaborate the schema to add to the core, to consider additional components, to include several raw material stages and consider backward integration into these, to break down distribution, etc. But the central points would remain unchanged, namely: (1) the common ownership of some stations—the core—is sufficiently obvious that a careful, comparative assessment is unneeded (site specificity will often characterize these transactions); (2) there is a second set of transactions in which own supply is manifestly uneconomic, hence market supply is indicated (many raw materials are of this kind); but (3) there is a third set of activities for which make-or-buy decisions can only be made after assessing the transformation and transaction cost consequences of alternative modes. The efficient boundary is the inclusive set of core plus additional stages for which own supply can be shown to be the efficient choice.

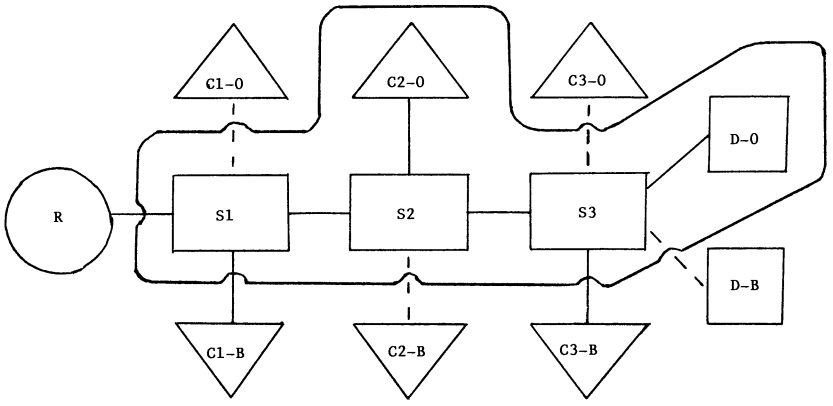

FIG. 1.—Efficient boundary

A Simple Model

The crucial issue is how the choice between firm and market governance structures for decisions related to point 3 above are made. Transaction cost reasoning is central to this analysis, but trade-offs between production cost economies (in which the market may be presumed to enjoy certain advantages) and governance cost economies (in which the advantages may shift to internal organization) need to be recognized.

The issues here are somewhat involved and are set out more fully and formally elsewhere.[16] The central points are these: (1) physical asset specificity is never valued by itself but only because demand is thereby increased in design or performance respects;[17] (2) such valued demand consequences are often realized only at greater production expense (standardized items would be cheaper, often because scale economies could be more fully exhausted); whence (3) the optimal choice of asset specificity requires that demand and production cost consequences be taken into account simultaneously; and (4) governance costs also vary with asset specificity, and these also have to be introduced into the calculus.

The choice between firm and market organization arises in this last connection. If assets are nonspecific, markets enjoy advantages in both production cost and governance cost respects: static scale economies can be more fully exhausted by buying instead of making; markets can also aggregate uncorrelated demands, thereby realizing risk-pooling benefits; and external procurement avoids many of the hazards to which internal procurement is subject.[18] As assets become more specific, however, the aggregation benefits of markets in the first two respects are reduced and exchange takes on a progressively stronger bilateral character. The governance costs of markets escalate as a result and internal procurement supplants external supply for this reason.[19] Thus, the governance of recurrent transactions for which uncertainty is held constant (in intermediate degree) will vary as follows: classical market contracting will be efficacious

[16] The simple model sketched out here is developed more fully in Williamson (1981).

[17] Site specificity, in contrast, involves transportation and inventory cost savings, albeit by complicating the problem of mediating the exchange interface.

[18] For a discussion of bureaucratic hazards, see Thompson (1967, pp. 152–54) and Williamson (1975, pp. 117–31).

[19] Actually, the nature of the asset specificity matters. If the assets in question are mobile and the specificity is due to physical but not human asset features, market procurement may still be feasible. It can be accomplished by having the buyer own the specific assets (e.g., dies). He puts the business up for bid and awards it to the low bidder, to whom he ships the dies. Should contractual difficulties arise, however, he is not locked into a bilateral exchange. He reclaims the dies and reopens the bidding. This option is not available if the specific assets are of a human asset kind or if they are nonmobile. This "refinement" of transaction cost reasoning illustrates how the approach can and should be developed and its predictive power sharpened and tested.

whenever assets are nonspecific to the trading parties; bilateral or obligational market contracting will appear as assets become semispecific; and internal organization will displace markets as assets take on a highly specific character.

The advantages of firms over markets in harmonizing bilateral exchange are three. First, common ownership reduces the incentives to suboptimize. Second, and related, internal organization is able to invoke fiat to resolve differences, whereas costly adjudication is needed when an impasse develops between autonomous traders. Third, internal organization has easier and more complete access to the relevant information when dispute settling is needed. The incentive to shift bilateral transactions from markets to firms increases as uncertainty is greater, since the costs of harmonizing the interface vary directly with the need to adjust to changing circumstances.

At the risk of oversimplification,[20] the essence of the foregoing argument can be shown graphically by expressing both production cost differences and governance cost differences as functions of asset specificity (A). Thus let $\Delta C = f(A)$ be the production cost difference between internal organization and the market, $\Delta G = g(A)$ be the corresponding governance cost difference, and assume that these two functions have the shapes and relative locations shown in figure 2. So long as the vertical sum of $\Delta C + \Delta G$ remains positive, market procurement enjoys the advantage. Indifference between governance structures obtains where $\Delta C + \Delta G = 0$, namely, at $\hat{A}$. Internal procurement enjoys the advantage for values of A that exceed $\hat{A}$ (since $\Delta C + \Delta G < 0$ in this region).

Implicitly, this was the apparatus used in making governance structure assignments for the component and distribution stages shown in figure 1. Inasmuch as component $C2$ was taken out of the market and is supplied internally, while components $C1$ and $C3$ remain in the market, components $C1$ and $C3$ are presumably more standardized[21] ($C1$ represents, say, arma-

[20] The main simplification is that ΔC (and possibly ΔG) is also a function of the amount produced. Figure 2 can be thought of as a cross-section for a fixed level of output. Furthermore, the optimal value of A will depend on both demand effects and absolute cost effects. Only cost differences are shown in the figure.

[21] Transaction-specific investments are related to but need to be distinguished from the more familiar notion of standardization. Although many nonstandard goods and services are produced with the assistance of nonstandard (specialized) assets, this need not be the case. When it is not, the production of nonstandard goods or services with assets that involve little specificity poses few contracting problems. Thus, suppose that a glass manufacturer is producing circular lenses for spotlights and supplies them to a large number of spotlight manufacturers. Suppose that one of the spotlight firms decides to add triangular and square spotlights to its line. Such designs will be recognized as nonstandard, but they will pose special problems in contracting for lenses only if the glass manufacturer has to dedicate special assets to the production of the nonstandard lenses. If he can, with slight modification, produce them with existing plant and labor force, the fact of nonstandard design poses no particular economic

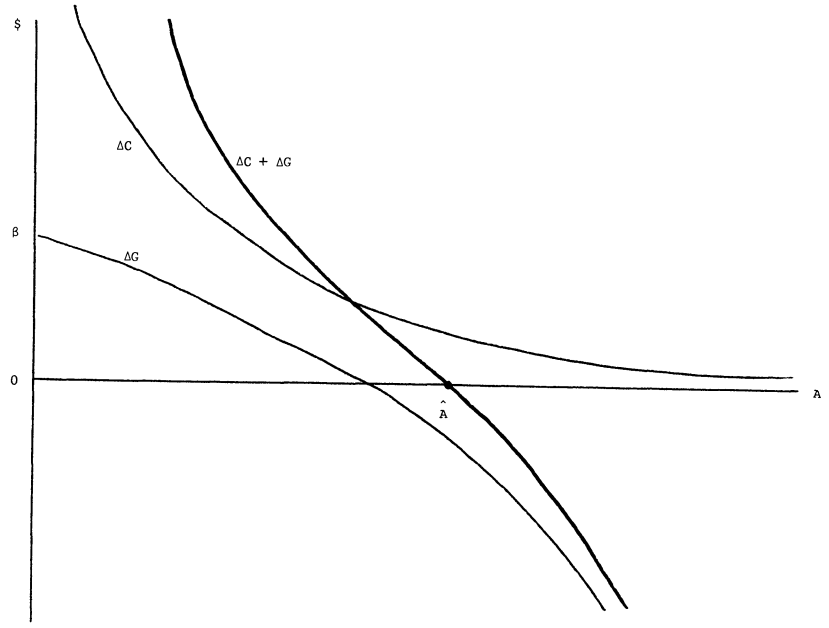

FIG. 2.—Representative net production and governance cost differences

ture wire and $C3$ a transistor) while $C2$ is more specialized (has distinctive chassis styling or performance features). Similarly, the decision to integrate forward into distribution reflects the fact that the product cannot be marketed effectively through standard channels, presumably because specialized human assets are needed to sell and service the product and a bilateral employment relation develops as a consequence. In terms of figure 2, the values of A are low for $C1$ and $C3$ but exceed $\hat{A}$ for both $C2$ and D.

Two Examples

The transaction cost arguments set out above are of a normative kind: what governance structure *should* be chosen. In contrast, the examples developed here describe what has been observed. The critical question is not whether the appropriate governance structure was selected at the

obstacles. If, however, the glass manufacturer must be induced to incur specialized (transaction-specific) investments to produce the triangular or square lenses, a much more complicated contractual situation develops. The parties then have a stake in maintaining a continuing exchange relation (so that the specialized assets can be utilized effectively). Additional governance structure designed to sustain the relation and safeguard it against opportunism is needed.

outset but whether transaction cost factors, possibly manifested as difficulties that resulted from a maladapted structure, are responsible for the eventual configuration.

Automobile body manufacture.—Klein et al. (1978, pp. 308–10) have examined the problems that arose when a bilateral exchange relationship between Fisher Body and General Motors was attempted in the 1920s. The basic facts are these:

1. In 1919 General Motors entered a 10-year contractual agreement with Fisher Body whereby General Motors agreed to purchase substantially all its closed bodies from Fisher.

2. The price for delivery was set on a cost-plus basis and included provisions that General Motors would not be charged more than rival automobile manufacturers. Price disputes were to be settled by compulsory arbitration.

3. The demand for General Motors's production of closed body cars increased substantially above that which had been forecast. As a consequence, General Motors became dissatisfied with the terms under which prices were to be adjusted and urged Fisher to locate its body plants adjacent to GM assembly plants, thereby to realize transportation and inventory economies. Fisher Body resisted.

4. General Motors began acquiring Fisher stock in 1924 and completed a merger agreement in 1926.

Inasmuch as GM cars had distinctive body designs, the production of closed bodies required significant transaction-specific investments to be made. Site-specificity considerations reinforced this need. The transaction, moreover, was evidently beset by substantial demand and cost uncertainties. Since there was little to be gained from market procurement, while the governance costs of market procurement were predictably great, the transaction was one for which internal procurement was indicated. The strains that autonomous contracting experienced could thus have been anticipated, and the eventual reconfiguration from long-term contracting to common ownership is consistent with the basic transaction-cost-economizing argument.

Forward integration.—Chandler (1977) and Porter and Livesay (1971) report that extensive forward integration from manufacturing into distribution occurred in the last 30 years of the 19th century. The reasons for this are several, including the appearance of infrastructure (in the form of the railroad, telephone, and telegraph) and a variety of manufacturing developments. But the response to these developments was anything but uniform. Forward integration included retailing for some commodities (e.g., farm equipment and sewing machines), extended only to wholesaling for others (e.g., tobacco and certain branded items), and was negligible for

still others (e.g., packaged groceries and dry goods). What were the determining factors?

Tracing this differential response is beyond the scope of this paper but is reported elsewhere (Williamson 1980). Very briefly, the pattern appears to be this. Integration into retailing occurred only for commodities that required considerable point-of-sale information, possibly to include demonstration, and follow-on service. Specialized human assets were evidently needed to provide such sales and service. Integration into wholesaling occurred for commodities that were perishable and branded. Forward integration occurred because contracts to turn over inventory and destroy older stocks were neither self-enforcing nor incentive-compatible, hence they placed the manufacturers' reputations at risk. Commodities that had none of these properties were sold through market distribution channels because no special hazards were posed. This progression of forward integration contingent on differential degrees of asset specificity and the differential hazards of opportunism is the principal implication of transaction cost reasoning and appears also to be the main factor explaining the selective degree of forward integration reported by Chandler.[22]

IV. MANAGING HUMAN ASSETS: THE EMPLOYMENT RELATION

It will be convenient, for the purposes of this section, to assume that the transactions in question are site specific, whence internal organization is warranted. Merely to assign a transaction to an internal governance structure does not, however, assure that the efficiency purposes of transaction cost analysis will be realized. It is necessary in addition to examine the human asset characteristics of the internal transactions in question and to fashion the employment relation appropriately.

The same general principles apply to the governance of human assets as apply to the efficient organization of transactions in general. Thus to use a complex structure for governing simple transactions is to incur unneeded costs, while to use a simple structure to govern a complex transaction invites strain. The questions are, How are human asset differences best described, what are the employment relation alternatives, and what is the appropriate correspondence between them?

The discussion is in two parts. The first addresses the organization of human assets at the staff level. The second deals with union organization, which applies primarily at the production level.

[22] Alfred Chandler advises me that he agrees broadly with this interpretation of his results.

Governance, General

Recall that transactions are described in terms of three attributes: frequency, uncertainty, and asset specificity. The assets of interest here involve a continuing supply of services, whence frequency aspects will be suppressed and attention focused on the internal organizational aspects of uncertainty and asset specificity.

It will facilitate the argument to assume that transfers of goods and services across interfaces are not at issue. Internal governance is thus concerned entirely with intrastage activity. Inasmuch as physical assets are nonvolitional, transactions assigned to internal organization pose problems only in conjunction with human asset specificity.[23]

Note in this connection that skill acquisition is a necessary but not a sufficient condition for a human asset governance problem to arise. The nature of the skills also matters; the distinction between transaction-specific and nonspecific human assets is crucial. Thus, physicians, engineers, lawyers, etc., possess valued skills for which they expect to be compensated, but such skills do not by themselves pose a governance issue. Unless these skills are deepened and specialized to a particular employer, neither employer nor employee has a special interest in maintaining a continuing employment relation.[24] The employer can easily hire a substitute and the employee can move to alternative employment without loss of productive value.

Mere deepening of skills through job experience does not by itself pose a problem either. Thus, typing skills may be enhanced by practice, but if they are equally valued by current and potential employers there is no need to devise special protection for an ongoing employment relation. Knowledge of a particular firm's filing system, in contrast, may be highly specific (nontransferable). Continuity of the employment relation in the latter case is a source of added value.

Thus to the neoclassical proposition that the acquisition of valued skills leads to greater compensation, transaction cost reasoning adds the following proposition: skills acquired in a learning-by-doing fashion and imperfectly transferable across employers need to be embedded in a protective governance structure, lest productive values be sacrificed if the employment relation is unwittingly severed. The concern here is with what Knight has referred to as "the internal problems of the corporation, the protection . . . of members and adherents against each other's predatory propensities"

[23] Actually, this assumes away transfer pricing problems, which can be tricky but take us away from our main concerns.

[24] This ignores transitional problems that may be associated with job relocation. All employees experience these, on which account protection against arbitrary dismissal is sought. But the further question is what *additional* safeguards are warranted. This matter turns on human asset specificity.

(1965, p. 254). This poses a problem in the degree to which assets are firm-specific.

The internal organizational counterpart for uncertainty is the ease with which the productivity of human assets can be evaluated. This is essentially the metering problem to which Armen Alchian and Harold Demsetz refer in their treatment of the firm (1972). Their argument is that firms arise when tasks are technologically nonseparable, the standard example being manual freight loading. As they put it (1972, p. 779): "Two men jointly lift cargo into trucks. Solely by observing the total weight loaded per day, it is impossible to determine each person's marginal productivity. . . . The output is yielded by a team, by definition, and it is not a *sum* of separable outputs of each of its members."

When tasks are nonseparable in this sense, individual productivity cannot be assessed by measuring output—an assessment of inputs is needed. Sometimes productivity may be inferred by observing the intensity with which an individual works; this is the aspect emphasized by Alchian and Demsetz. Often, however, the assessment of inputs is much more subtle than effort accounting. Does the employee cooperate in helping to devise and implement complex responses to unanticipated circumstances, or does he attend to his own or local goals at the expense of others? Metering this, except over long observation intervals, can be inordinately difficult.

Human assets can thus be described in terms of (1) the degree to which they are firm-specific and (2) the ease with which productivity can be metered. The fact that Alchian and Demsetz consider only the latter explains the narrow construction of the employment relation in their assessment of economic organization.[25] Both dimensions, however, are critical to an adequate assessment.[26] Letting H_1 and H_2 represent low and high degrees of human asset specificity and M_1 and M_2 represent easy and difficult conditions of meterability, the following four-way classification of internal governance structures is tentatively proposed:

1. H_1, M_1: *internal spot market.*—Human assets that are nonspecific and for which metering is easy are essentially meeting market tests continuously for their jobs. Neither workers nor firms have an efficiency interest in maintaining the association. Workers can move between employers without loss of productivity, and firms can secure replacements without incurring start-up costs. Hence no special governance structure is devised to sustain the relation. Instead, the employment relation is terminated

[25] Alchian and Demsetz treat human assets as fungible. Thus although incumbents may continue to hold jobs for a considerable period of time and may claim to be subject to an "authority relationship," all they are doing is continuously meeting bids for their jobs in the spot market under the Alchian and Demsetz scheme. See Alchian and Demsetz (1972, p. 777) and, for a discussion, Williamson (1975, pp. 66–69).

[26] Alchian evidently agrees. See Klein et al. (1979, p. 322, n. 49).

when either party is sufficiently dissatisfied. An internal spot market labor relation may be said to exist. Examples include migrant farm workers and custodial employees. Professional employees whose skills are nonspecific (certain draftsmen and engineers) also fall into this category.

2. H_1, M_2: *primitive team.*—Although the human assets here are nonspecific, the work cannot be metered easily. This is the team organization to which Alchian and Demsetz refer (1972). Although the membership of such teams can be altered without loss of productivity, compensation cannot easily be determined on an individual basis.[27] The manual freight loading example would appear to qualify. This structure is referred to as a primitive team, to distinguish it from the relational team, described below.

3. H_2, M_1: *obligational market.*—There is a considerable amount of firm-specific learning here, but tasks are easy to meter. Idiosyncratic technological experience (as described, for example, by Doeringer and Piore [1971, pp. 15–16]) and idiosyncratic organizational experience (accounting and data-processing conventions, internalization of other complex rules and procedures, and the like) both qualify. Both firm and workers have an interest in maintaining the continuity of such employment relations. Procedural safeguards will thus be devised to discourage arbitrary dismissal. And nonvested retirement and other benefits will accrue to such workers so as to discourage unwanted quitting (for a discussion, see Mortensen 1978).

4. H_2, M_2: *relational team.*—The human assets here are specific to the firm and very difficult to meter. This appears to correspond with the "clan" form of organization to which William Ouchi (1980*b*) has referred. The firm here will engage in considerable social conditioning, to help assure that employees understand and are dedicated to the purposes of the firm, and employees will be provided with considerable job security, which gives them assurance against exploitation. Neither of these objectives can be realized independently of the other.

Relational teams are very difficult to develop, and it is uncertain how widespread or sustainable they are. It is argued that some of the Japanese corporations are organized in this way (for a discussion, see Lifson 1979), but the interpretation of this is subject to dispute. Certain utopian societies are organized as relational teams, but these have experienced severe continuity problems as the initial membership, which often was highly committed, retired or expired (see Kanter 1972; Manuel and Manuel 1979).

The above described match of internal governance structures with the

[27] This assumes that output is a joint product and that input differences cannot be easily ascertained.

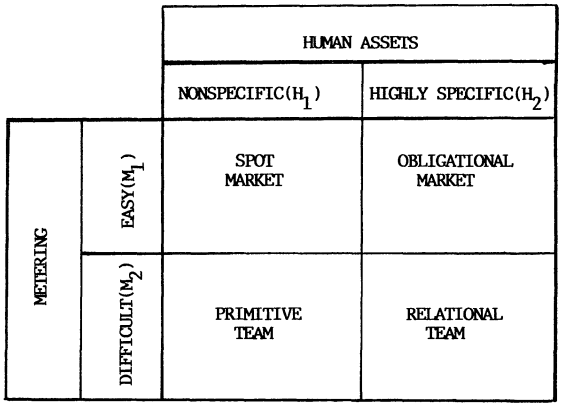

FIG. 3.—The governance of internal organization

internal transactional attributes just described is summarized in figure 3. Admittedly, describing internal transactions in bivariate, binary terms simplifies considerably. The overall framework is nevertheless in place and refinements can be made as needed. (Thus, mixed internal governance structures will presumably arise to service transactions that take on intermediate, rather than extreme, *M* and *H* values.)

Despite its simplicity, the four-way classification is instructive in several respects. For one thing, even this simple four-way classification of the employment relation is useful in breaking down what has previously been subsumed under the broad heading of unified governance. Second, and related, merely to recognize that a recurrent transaction involves high asset specificity and hence is appropriately organized under unified governance is not sufficient to assure that the efficiency purposes of transaction cost analysis will be realized. It is also necessary to recognize that asset specificity breaks down into site, physical, and human asset categories and that these have significantly different internal governance ramifications. Third, differential meterability also matters. The fact that internal transactions dimensionalize along lines similar to those used to describe transactions generally (see Sec. II) reinforces confidence in the underlying transaction cost approach.

Some Remarks on Union Organization

The foregoing discussion of internal governance structures refers mainly to staff rather than production-level employees. Since it is among the latter that union organization appears, the question arises as to whether transaction cost reasoning has useful applications to the study of collective

organization. To the extent that it does, further confidence in the power of the approach is presumably warranted.

The general reasons that collective organization of the work force affords efficiency benefits when the human assets in question are firm-specific in significant degree have been set out elsewhere (Williamson, Wachter, and Harris 1975). Rather than repeat them here, I merely observe that the transaction cost approach to the study of unionization yields testable implications that do not derive from more familiar theories of unionization that rely on power or politics to drive the analysis (Freeman and Medoff 1979). The principal implications are: (1) the incentive to organize production workers within a collective governance structure increases with the degree of human asset specificity; and (2) the degree to which an internal governance structure is elaborated will vary directly with the degree of human asset specificity. Transaction cost analysis thus predicts that unions will arise early in such industries as railroads, where the skills are highly specific, and will arise late in such industries as migrant farm labor, where skills are nonspecific. It further predicts that the governance structure (job ladders, grievance procedures, pay scales) will be more fully elaborated in industries with greater specificity than in those with less (steel vs. autos is an example). The preliminary data appear to support both propositions.[28]

The transaction cost hypothesis does not deny the possibility that unions will appear in settings where human asset specificity is slight. Where this occurs, however, the presumption is that these outcomes are driven more by power than by efficiency considerations. Employers in these circumstances will thus be more inclined to resist unionization; successful efforts to achieve unionization will often require the assistance of the political process; and, since power rather than efficiency is at stake, the resulting governance structure will be relatively primitive.

V. RELATION TO THE ORGANIZATIONAL LITERATURE

As noted at the outset, some of the antecedents and the behavioral assumptions employed in the transaction cost approach have their origins in the organization theory literature. Further connections between transaction cost economics and that literature are sketched. The transaction cost approach is then contrasted with the "power" approach to the study of organizations.

[28] The arguments and the evidence are developed more fully in Scott R. Williamson (1980).

Some Comparisons

The transaction cost approach is usefully compared with the population ecology model, with Thompson's work on organizations, with a recent survey of interorganizational linkages, and with the posterior rationality perspective. Michael Hannan and John Freeman's influential statement of the population ecology model poses the following provocative question: "Why are there so many kinds of organizations?" (1977, p. 936). The transaction cost approach affords a partial answer: there are so many kinds of organizations because transactions differ so greatly and efficiency is realized only if governance structures are tailored to the specific needs of each type of transaction.

Hannan and Freeman also observe that "little attention is paid in the organizations literature to issues concerning the proper units of analysis" (1977, p. 933). They argue, however, that choice of the unit of analysis is important and "involves subtle issues [with] far reaching consequences for research activity" (1977, p. 933). I fully concur and argue that the transaction is usefully made the basic unit of analysis. Among other things, this practice shifts attention away from technology (and technological determinism) and sensitizes analysts to transaction costs and the crucial importance of organizations for economizing on such costs. This brings organization theory to the fore, since choice of an appropriate governance structure is preeminently an organization theory issue.

The population ecology model emphasizes adaptive fitness (Hannan and Freeman 1977; Aldrich 1979). It operates at a relatively high level of abstraction, however, and hence does not offer specific predictions as to which particular organizations will have superior properties in which circumstances. The transaction cost approach has addressed this issue mainly in the context of commercial organizations, in which both product and capital market competition are the sources of natural selection pressures. How broadly it will apply elsewhere remains to be seen. It is nevertheless interesting that public utilities can be studied in this way (Williamson 1976). More generally, any issue that can be posed, directly or indirectly, as a contracting problem can be analyzed to advantage in transaction-cost-economizing terms.[29]

The transaction cost approach has numerous points of contact with Thompson's work. Thus both he and I emphasize that human agents are subject to bounded rationality and that the basic problem with which

[29] An illustration of a problem that I once believed to be outside the scope of transaction cost analysis is the oligopoly issue. Once I had rethought the issue in contracting terms, it became clear that a number of useful statements could be made about the likelihood of successful collusion among oligopolists. See Williamson (1975, chap. 12).

organizations must contend is adapting effectively to uncertainty.[30] Both of us are also interested in the problem of efficient boundaries (what Thompson refers to as the "domain" [1967, p. 26]), and we both contend that economizing on "coordination costs" (Thompson 1967, pp. 57–65) is crucial to the definition of the boundary and to the way in which internal relations are ordered. I also pick up his notion of the "technical core" (Thompson 1967, p. 11) in my discussion of efficient boundaries, and his discussion of power as a reciprocal condition (Thompson 1967, p. 32) is similar to (though in other respects it goes beyond) mine.

Thompson and I differ in that he does not appear to make allowance for trade-offs between production economies and transaction cost economies,[31] while I do. In addition, he does not dimensionalize transactions. Many of his propositions appear to be nontestable for this reason, but at least some of them could be restated to advantage using the dimensionalization of transactions proposed above. His contracting, coopting, and coalescing arguments (Thompson 1967, pp. 35–37), for example, can be expressed in terms of the frequency, uncertainty, and asset specificity properties of the transactions in question. Thus, assume that the transactions in question are recurring and involve an intermediate degree of uncertainty. Then autonomous contracting will be used when assets are nonspecific; obligational contracting (which is akin to co-opting) will be used for assets of an intermediate degree of specificity; and merger (coalescing) occurs if assets, especially human assets, are highly specific. We also differ somewhat in our treatments of collective bargaining. I contend that the governance structure within which collective bargaining operates will be specifically attuned to the nature of the human assets in question. This is not inconsistent with Thompson's discussion (1967, pp. 109–10) but goes beyond it.

It is also of some interest to relate the transaction cost approach to the recent survey of interorganizational linkages by Laumann, Galaskiewicz, and Marsden (1978). Similarities here include their discussion of

[30] See Thompson (1967, pp. 9–13). Thompson's view that "structure is a fundamental vehicle by which organizations achieve bounded rationality" (1967, p. 54) is close in spirit to mine, though I would express it somewhat differently. The manner in which the internal affairs of the firm are decomposed determines whether the organization is able to cope effectively within the bounded rationality limits to which its management is subject.

[31] Thus, Thompson refers repeatedly to minimizing activities without inquiring whether successive minimizing efforts are independent. If they are not, it is not possible simultaneously to "minimize the power of task-environment elements" (Thompson 1967, p. 32) and to "group positions to minimize coordination costs" (Thompson 1967, p. 57). Moreover, the trade-offs between organizing costs and operating costs need to be faced. For any given output, the object is to minimize the *sum* rather than either one.

modes, relationships, and linkages in an open-systems context. They adopt a relatively microanalytic approach to the study of transactions and contend that "interorganizational and intraorganizational transactions [must] be distinguished, which thus implies that the problem of delineating organizational boundaries be faced" (1978, p. 460). This is precisely the issue addressed in Section III, above. They argue further that the "specific form taken by the total network . . . will also be influenced by the context of the relationships . . . as well as by the modality or normative context within which network formation occurs" (1978, p. 461). Expressed in my terms, it does not suffice to assign a transaction to one governance structure (a firm or a market) or another. It is furthermore necessary to attune the exchange relationship to the continuity needs of the parties. When these are minimal, autonomous contracting is both efficient and effective. As the needs for contingent cooperation increase, however, autonomous contracting is supplemented by mandated rules or by mutual efforts (including merger) to discourage aggressive suboptimization (Laumann et al. 1978, p. 468). Within internal organization, moreover, there is a further need to examine the characteristics of the employment relation and to attune it in a discriminating way (see Sec. IV, above).

Whereas Laumann et al. describe network modalities in terms of competitive and cooperative modes, I favor a three-way description in which networks are described as autonomous, cooperative, and strategic. Introduction of this last goes beyond the scope of this paper but makes allowance for "interorganizational relations [that] take on a more perduring nature than that of the narrowly defined instrumentalities of procuring necessary inputs and disposing of products, . . . [but include] seeking unfair advantage and subverting the market mechanism" (Laumann et al. 1978, p. 467). Whether such strategic uses of interorganizational relations are feasible turns on market structure considerations. A transaction cost interpretation of strategic abuses can be developed and has been set out elsewhere (Williamson 1979*a*).

The Laumann et al. discussion of the "resource-dependency" theory is interesting in two respects (1978, p. 470). For one thing, Laumann et al. question whether it is sufficient to focus on dyadic exchange. My answer is that dyadic exchange is very powerful and less delimiting than some suggest (though I concede that triadic or higher-order analysis is sometimes indicated). They also observe that exchange theory has a tendency "to become tautological" and that specific exchanges, once formed, may be resistant to reassignment thereafter. I examine the tautological aspects of exchange theory in the discussion of "power" below. The difficulty of changing trading partners to which they refer is akin to my distinction

between ex ante and ex post competition. The issue is this: do the benefits of large-numbers bidding competition (which condition can normally be presumed at the outset, when all potential bidders are at a parity in experience respects) continue at the contract renewal interval, or are they upset during contract execution? The transaction cost answer is that the initial large numbers bidding competition will be *transformed* into one of bilateral exchange at the contract renewal interval *if* execution entails nontrivial transaction specific investments. Winners will then enjoy an advantage over nonwinners, but not otherwise.[32]

Consider finally the relation between bounded rationality, as it is used by Simon and employed here, and the concepts of hyperrationality and "posterior rationality" (Weick 1969; March 1973, 1978). Bounded rationality has been defined as behavior that is "*intendedly* rational, but only *limitedly* so" (Simon 1961, p. xxiv). Insistence that the limited capacities of human agents have important organizational ramifications distinguishes Simon's work from that of the hyperrationality genre. But the absence of hyperrationality does not imply irrationality. On the contrary, the human agents with whom Simon is concerned are attempting effectively to cope. This is what intended rationality is all about. To regard organizations as devices by which to *economize* on bounded rationality is thus suggested by this perspective and is central to the transaction cost approach.

Weick's emphasis is rather different. He argues that decisions made by boundedly rational actors "will be made in terms of localized disturbances to which abbreviated analyses will be applied, with short-term recommendations as the result. A search for more stable solutions . . . is unlikely; consequences are not given much attention, and apparently logical solutions may prove faulty as their consequences ramify" (1969, p. 10). Accordingly, Weick treats cognitions as retrospective (1969, p. 30) and contends that environments are "enacted" (1969, p. 64). As March puts it, "Posterior rationality models maintain the idea that action should be consistent with preferences, but they conceive action as being antecedent to goals" (1978, p. 593).

Intended rationality and posterior rationality models have different organizational design ramifications. Thus, whereas Simon recognizes hierarchy as a means by which to effect semidecomposability, thereby to economize on bounded rationality and produce order out of organizational chaos (by

[32] Another point of contact between transaction cost economics and the Laumann et al. survey concerns the frequency dimension for describing transactions. As they point out, whether relationships are "episodic or highly recurrent" affects the way they are organized (1978, p. 465). Although recurrent transactions are emphasized throughout this paper, frequency is expressly included in my discussion of governance structures elsewhere (1979*b*, pp. 246–54).

permitting operating and strategic decisions, for example, to be clearly distinguished), Weick gives little attention to rational organizational design. Unable to plan or prepare for contingencies, Weick's organizations are given to myopic groping. Ex ante planning gives way to ex post rationalization.

Since the study of organizations can usefully be informed by both perspectives, a forced choice between them is unnecessary and unwise. The question of concentrating research resources nevertheless needs to be faced. Inasmuch as our understanding of organizational anatomy is still primitive, since the study of anatomy logically precedes pathology, and as transaction cost economizing is central to the design and assessment of governance structures, I urge that greater attention to anatomy—viewed through the lens of transaction cost reasoning—is indicated at this juncture.

Power

The resource-dependency model sometimes makes reference to efficiency but more often relies on power in explaining organizational outcomes. Inasmuch as power is very poorly defined and hence can be used to explain virtually anything, the tautological objection to resource-dependency analysis is easily understood. Ready access to a power explanation has also had the unfortunate effect of removing efficiency analysis from center stage.

Thus consider Jeffrey Pfeffer's assertion that if "the chief executive in a corporation always comes from marketing . . . there is a clue about power in the organization" (1978, p. 23). Viewed from a power perspective, the argument evidently is that the marketing people in this corporation have "possession of control over critical resources" (1978, p. 17), have preferential access to information (1978, p. 18), and are strategically located to cope with "critical organizational uncertainty" (1978, p. 28). I do not disagree with any of this, but would make the more straightforward argument that the marketing function in this organization is especially critical to competitive viability.

As Ouchi and I have argued elsewhere (1981), those parts of the enterprise that are most critical to organizational viability will be *assigned* possession of control over critical resources, will *have* preferential access to information, and will be *dealing* with critical organizational uncertainties. In some organizations this may be marketing, in others it may be R & D, and in still others it may be production. Indeed, we argue that failure to assign control to that part of the enterprise on which viability turns would contradict the efficiency hypothesis but would presumably be explained as a power outcome.

Or consider the transformation of the merchant capitalist described by Glenn Porter and Harold Livesay. They report that during the first two centuries after the initial English settlement on the North American continent, "urban merchant capitalists . . . were the wealthiest, best informed, and most powerful segment of early American society" (1972, p. 6). These all-purpose merchants nevertheless gave way to specialized merchants early in the 19th century; such merchants then became "the most important men in the economy" (1972, p. 8). But specialized merchants in turn found their functions sharply cut back by the rise late in the 1800s of integrated manufacturers: "The long reign of the merchant had finally come to a close. In many industries the manufacturer of goods had also become their distributor. A new economy dominated by the modern, integrated manufacturing enterprise had arisen" (1972, p. 12).

Power theory must confront two troublesome facts in explaining these changes. First, why would the all-purpose and later the specialized merchants ever permit economic activity to be organized in ways that would remove power from their control? Second, why did power leak out *selectively*—with the merchant role being appropriated extensively by some manufacturers but not by others? As discussed above and developed elsewhere (Williamson 1980*a*), the transaction cost approach explains both in terms of efficiency. Perhaps power theory can sometimes add detail. However, until it has been much more carefully delimited—which, I submit, will entail dimensionalizing—power theory, as an overall approach to the study of organizational change, is a pied piper whose enticements are better resisted in favor of more mundane efficiency considerations.

VI. CONCLUDING REMARKS

Transaction cost analysis is an interdisciplinary approach to the study of organizations that joins economics, organization theory, and aspects of contract law. It provides a unified interpretation for a disparate set of organizational phenomena. Although applications additional to those set out here have been made,[33] the limits of transaction cost analysis have yet to be reached. Indeed, there is reason to believe that the surface has merely been scratched.

Transaction cost reasoning probably has greater relevance for studying commercial than noncommercial enterprise, since natural selection forces operate with greater assurance in the former. Transaction cost economizing

[33] For applications to organization form, see n. 4 above; for a discussion of oligopoly, see n. 29 above; natural monopoly is assessed in transaction cost terms in Williamson (1976).

is nevertheless important to all forms of organization. Accordingly, the following proposition applies quite generally: governance structures that have better transaction cost economizing properties will eventually displace those that have worse, ceteris paribus. The *cetera,* however, are not always *paria,* whence the governance implications of transaction cost analysis will be incompletely realized in noncommercial enterprises in which transaction cost economizing entails the sacrifice of other valued objectives (of which power will often be one; the study of these trade-offs is an important topic on the future research agenda).

Certain methodological features of the transaction cost approach should perhaps be made more explicit. Three are especially noteworthy. For one thing, the transaction cost approach employs functional analysis in the following sense: "Institutions are functional if reasonable men might create and maintain them in order to meet social needs or achieve social goals" (Simon 1978, p. 3).[34] Second, the approach straddles the methodological dispute that separates maximizers and satisficers. Thus it relies on economizing arguments (which disciplines the analysis and appeals to maximizers) but substitutes comparative institutional for optimizing procedures (which is more in the spirit of satisficing). Inasmuch as the assessment of discrete structural alternatives can often be performed without "elaborate mathematical apparatus or marginal calculation" (Simon 1978, p. 6) and is furthermore entirely adequate for many purposes, such an unpretentious approach to the study of organizations has much to commend it. Third, as already noted, the transaction cost approach relies—in a somewhat informal, background, and long-run way—on the operation of natural selection forces.

While it is injudicious to claim too much for the transaction cost approach, neither do I want to claim too little. At present, it is probably under- rather than overapplied to organization theory. In contrast with the highly microanalytic approach to the study of organizations, in which personalities and detailed organizational procedures are scrutinized, and the highly aggregative approach to organizations employed in mainline economics, the transaction cost approach employs a semimicroanalytic level of analysis. This appears to be a level of analysis at which sociologists and other students of organization enjoy a comparative advantage. Facility with the apparatus, however, requires that an irreducible minimal investment in transaction cost reasoning be made. This paper attempts both to supply requisite background and to make substantive headway on some of the governance issues of common interest to economics, law, and sociology.

[34] The only change that is necessary for my purposes is that "private or social" should be substituted for "social" in the two places where "social" appears in this quotation.

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