TRANSACTION-COST ECONOMICS: THE GOVERNANCE OF CONTRACTUAL RELATIONS*

OLIVER E. WILLIAMSON
University of Pennsylvania

THE new institutional economics is preoccupied with the origins, incidence, and ramifications of transaction costs. Indeed, if transaction costs are negligible, the organization of economic activity is irrelevant, since any advantages one mode of organization appears to hold over another will simply be eliminated by costless contracting. But despite the growing realization that transaction costs are central to the study of economics,[1] skeptics remain. Stanley Fischer's complaint is typical: "Transaction costs have a well-deserved bad name as a theoretical device . . . [partly] because there is a suspicion that almost anything can be rationalized by invoking suitably specified transaction costs."[2] Put differently, there are too many degrees of freedom; the concept wants for definition.

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[1] Ronald Coase has forcefully argued the importance of transaction costs at twenty-year intervals. See R. H. Coase, The Nature of the Firm, 4 Economica 386 (n.s. 1937), reprinted in Readings in Price Theory 331 (George J. Stigler & Kenneth E. Boulding eds. 1952) and R. H. Coase, The Problem of Social Cost, 3 J. Law & Econ. 1 (1960). Much of my own work has been "preoccupied" with transaction costs during the past decade. See especially Oliver E. Williamson, Markets and Hierarchies: Analysis and Antitrust Implications (1975). Other works in which transaction costs are featured include: Guido Calabresi, Transaction Costs, Resource Allocation, and Liability Rules: A Comment, 11 J. Law & Econ. 67 (1968); Victor P. Goldberg, Regulation and Administered Contracts, 7 Bell J. Econ. 426 (1976); Benjamin Klein, Robert G. Crawford, and Armen A. Alchian, Vertical Integration, Appropriable Rents, and the Competitive Contracting Process, 21 J. Law & Econ. 297 (1978); and Carl J. Dahlman, The Problem of Externality, 22 J. Law & Econ. 141 (1979). For an examination of Pigou in which transaction costs are featured, see Victor P. Goldberg, Pigou on Complex Contracts and Welfare Economics (1979) (unpublished manuscript).

[2] S. Fischer, Long-Term Contracting, Sticky Prices, and Monetary Policy: Comment, 3 J. Monetary Econ. 317, 322 n. 5 (1977).

Among the factors on which there appears to be developing a general consensus are: (1) opportunism is a central concept in the study of transaction costs;[3] (2) opportunism is especially important for economic activity that involves transaction-specific investments in human and physical capital;[4] (3) the efficient processing of information is an important and related concept;[5] and (4) the assessment of transaction costs is a comparative institutional undertaking.[6] Beyond these general propositions, a consensus on transaction costs is lacking.

Further progress in the study of transaction costs awaits the identification of the critical dimensions with respect to which transaction costs differ and an examination of the economizing properties of alternative institutional modes for organizing transactions. Only then can the matching of transactions with modes be accomplished with confidence. This paper affirms the proposition that transaction costs are central to the study of economics, identifies the critical dimensions for characterizing transactions, describes the main governance structures of transactions, and indicates how and why transactions can be matched with institutions in a discriminating way.

I am mainly concerned with intermediate-product market transactions. Whereas previously I have emphasized the incentives to remove transactions from the market and organize them internally (vertical integration),[7] the analysis here is symmetrical and deals with market, hierarchical, and intermediate modes of organization alike. The question of why there is so much vertical integration remains interesting, but no more so than the question of why there are so many market- (and quasi-market) mediated transactions. A discriminating analysis will explain which transactions are located where and give the reasons why. The overall object of the exercise essentially comes down to this: for each abstract description of a transaction, identify

[3] Opportunism is a variety of self-interest seeking but extends simple self-interest seeking to include self-interest seeking with guile. It is not necessary that all agents be regarded as opportunistic in identical degree. It suffices that those who are less opportunistic than others are difficult to ascertain ex ante and that, even among the less opportunistic, most have their price. For a more complete discussion of opportunism, see Oliver E. Williamson, *supra* note 1, at 7-10, 26-30. For a recent application see Benjamin Klein, Robert G. Crawford, & Armen A. Alchian, *supra* note 1.

[4] The joining of opportunism with transaction-specific investments (or what Klein, Crawford, and Alchian refer to as "appropriable quasi rents") is a leading factor in explaining decisions to vertically integrate. See Oliver E. Williamson, The Vertical Integration of Production: Market Failure Considerations, 61 Am. Econ. Rev. 112 (Papers & Proceedings, May 1971); Oliver E. Williamson, *supra* note 1, at 16-19, 91-101; and Benjamin Klein, Robert G. Crawford, & Armen A. Alchian, *supra* note 1.

[5] But for the limited ability of human agents to receive, store, retrieve, and process data, interesting economic problems vanish.

[6] See Carl J. Dahlman, *supra* note 1.

[7] See note 4 *supra*.

the most economical governance structure—where by governance structure I refer to the institutional framework within which the integrity of a transaction is decided. Markets and hierarchies are two of the main alternatives.

Some legal background to the study of transactions is briefly reviewed in Section I. Of the three dimensions for describing transactions that I propose, investment attributes are the least well understood and probably the most important. The special relevance of investments is developed in the context of the economics of idiosyncrasy in Section II. A general contracting schema is developed and applied to commercial contracting in Section III. Applications to labor, regulation, family transactions, and capital markets are sketched in Section IV. Major implications are summarized in Section V. Concluding remarks follow.

I. Some Contracting Background

Although there is widespread agreement that the discrete-transaction paradigm—"sharp in by clear agreement; sharp out by clear performance"[8]—has served both law and economics well, there is increasing awareness that many contractual relations are not of this well-defined kind.[9] A deeper understanding of the nature of contract has emerged as the legal-rule emphasis associated with the study of discrete contracting has given way to a more general concern with the contractual purposes to be served.[10]

[8] I. R. Macneil, The Many Futures of Contract, 47 S. Cal. L. Rev. 691, 738 (1974) [hereinafter cited without cross-reference as Macneil, Many Futures of Contract].

[9] With respect to commercial contracts, see Karl N. Llewellyn, What Price Contract?—An Essay in Perspective, 40 Yale L. J. 704 (1931); Harold C. Havighurst, The Nature of Private Contract (1961); Lon L. Fuller, Collective Bargaining and the Arbitrator, 1963 Wis. L. Rev. 3; *id.*, The Morality of Law (1964); Stewart Macaulay, Non-Contractual Relations in Business, 28 Am. Soc. Rev. 55 (1963); Lawrence M. Friedman, Contract Law in America (1965); Arthur Allen Leff, Contract as a Thing, 19 Am. U. L. Rev. 131 (1970); I. R. Macneil, Many Futures of Contracts; *id.*, Contracts: Adjustment of Long-Term Economic Relations under Classical, Neoclassical, and Relational Contract Law, 72 Nw. U. L. Rev. 854 (1978) [hereinafter cited without cross-reference as Macneil, Contracts]; and Victor P. Goldberg, Toward an Expanded Economic Theory of Contract, 10 J. Econ. Issues 45 (1976). Labor lawyers have made similar observations regarding contracts governing the employment relationship. See Archibald Cox, The Legal Nature of Collective Bargaining Agreements, 57 Mich. L. Rev. 1 (1958); Clyde W. Summers, Collective Agreements and the Law of Contracts, 78 Yale L. J. 525 (1969); and David E. Feller, A General Theory of the Collective Bargaining Agreement, 61 Cal. L. Rev. 663 (1973).

[10] The technical versus purposive distinction is made by Clyde Summers, *supra* note 9. He distinguishes between "black letter law," on the one hand (539, 543, 548, 566) and a more circumstantial approach to law, on the other (549-51, 561, 566). "The epitome of abstraction is the *Restatement,* which illustrates its black letter rules by transactions suspended in mid-air, creating the illusion that contract rules can be stated without reference to surrounding circumstances and are therefore generally applicable to all contractual transactions" (566). He observes that such a conception does not and cannot provide a "framework for integrating rules and principles applicable to all contractual transactions" (566) but that this must be sought in a more

Ian Macneil, in a series of thoughtful and wide-ranging essays on contract, usefully distinguishes between discrete and relational transactions.[11] He further supplies twelve different "concepts" with respect to which these differ.[12] Serious problems of recognition and application are posed by such a rich classificatory apparatus. More useful for my purposes is the three-way classification of contracts that Macneil offers in his most recent article, where classical, neoclassical, and relational categories of contract law are recognized.

A. *Classical Contract Law*

As Macneil observes, any system of contract law has the purpose of facilitating exchange. What is distinctive about classical contract law is that it attempts to do this by enhancing discreteness and intensifying "presentiation,"[13] where presentiation has reference to efforts to "make or render present in place or time; to cause to be perceived or realized at present."[14] The economic counterpart to complete presentiation is contingent-claims contracting—which entails comprehensive contracting whereby all relevant future contingencies pertaining to the supply of a good or service are described and discounted with respect to both likelihood and futurity.[15]

Classical contract law endeavors to implement discreteness and presentiation in several ways. For one thing, the identity of the parties to a transaction is treated as irrelevant. In this respect it corresponds exactly with the "ideal" market transaction in economics.[16] Second, the nature of the agreement is carefully delimited, and the more formal features govern when formal (for example, written) and informal (for example, oral) terms are contested. Third, remedies are narrowly prescribed such that, "should the initial presentiation fail to materialize because of nonperformance, the consequences are relatively predictable from the beginning and are not open-

affirmative view of the law in which effective governance relations are emphasized. Contract interpretation and completing contracts are among these affirmative functions.

[11] See especially Macneil, Many Futures of Contract; Macneil, Contracts; and references to related work of his cited therein.

[12] Macneil, Many Futures of Contracts 738-40; Macneil, Contracts 902-05.

[13] Macneil, Contracts 862.

[14] *Id.* at 863 n. 25.

[15] For a discussion of complex contingent-claims contracting and its mechanics, see Kenneth J. Arrow, Essays in the Theory of Risk Bearing 121-34 (1971); J. E. Meade, The Controlled Economy 147-88 (1971); and Oliver E. Williamson, *supra* note 1, at 20-40.

[16] As Lester G. Telser & Harlow N. Higinbotham put it: "In an organized market the participants trade a standardized contract such that each unit of the contract is a perfect substitute for any other unit. The identities of the parties in any mutually agreeable transaction do not affect the terms of exchange. The organized market itself or some other institution deliberately creates a homogeneous good that can be traded anonymously by the participants or their agents." Organized Futures Markets: Costs and Benefits 85 J. Pol. Econ. 969, 997 (1977).

ended."[17] Additionally, third-party participation is discouraged.[18] The emphasis, thus, is on legal rules, formal documents, and self-liquidating transactions.

B. *Neoclassical Contract Law*

Not every transaction fits comfortably into the classical-contracting scheme. In particular, long-term contracts executed under conditions of uncertainty are ones for which complete presentiation is apt to be prohibitively costly if not impossible. Problems of several kinds arise. First, not all future contingencies for which adaptations are required can be anticipated at the outset. Second, the appropriate adaptations will not be evident for many contingencies until the circumstances materialize. Third, except as changes in states of the world are unambiguous, hard contracting between autonomous parties may well give rise to veridical disputes when state-contingent claims are made. In a world where (at least some) parties are inclined to be opportunistic, whose representations are to be believed?

Faced with the prospective breakdown of classical contracting in these circumstances, three alternatives are available. One would be to forgo such transactions altogether. A second would be to remove these transactions from the market and organize them internally instead. Adaptive, sequential decision making would then be implemented under common ownership and with the assistance of hierarchical incentive and control systems. Third, a different contracting relation which preserves trading but provides for additional governance structure might be devised. This last brings us to what Macneil refers to as neoclassical contracting.

As Macneil observes, "Two common characteristics of long-term contracts are the existence of gaps in their planning and the presence of a range of processes and techniques used by contract planners to create flexibility in lieu of either leaving gaps or trying to plan rigidly."[19] Third-party assistance in resolving disputes and evaluating performance often has advantages over litigation in serving these functions of flexibility and gap filling. Lon Fuller's remarks on procedural differences between arbitration and litigation are instructive:

> . . . there are open to the arbitrator . . . quick methods of education not open to the courts. An arbitrator will frequently interrupt the examination of witnesses with a request that the parties educate him to the point where he can understand the testimony being received. This education can proceed informally, with frequent interruptions by the arbitrator, and by informed persons on either side, when a point

[17] Macneil, Contracts 864.

[18] *Id.*

[19] *Id.* at 865.

needs clarification. Sometimes there will be arguments across the table, occasionally even within each of the separate camps. The end result will usually be a clarification that will enable everyone to proceed more intelligently with the case. There is in this informal procedure no infringement whatever of arbitrational due process.[20]

A recognition that the world is complex, that agreements are incomplete, and that some contracts will never be reached unless both parties have confidence in the settlement machinery thus characterizes neoclassical contract law. One important purposive difference in arbitration and litigation that contributes to the procedural differences described by Fuller is that, whereas continuity (at least completion of the contract) is presumed under the arbitration machinery, this presumption is much weaker when litigation is employed.[21]

C. *Relational Contracting*

The pressures to sustain ongoing relations "have led to the spin-off of many subject areas from the classical, and later the neoclassical, contract law system, e.g., much of corporate law and collective bargaining."[22] Thus, progressively increasing the "duration and complexity" of contract has resulted in the displacement of even neoclassical adjustment processes by adjustment processes of a more thoroughly transaction-specific, ongoing-administrative kind.[23] The fiction of discreteness is fully displaced as the relation takes on the properties of "a minisociety with a vast array of norms beyond those centered on the exchange and its immediate processes."[24] By contrast with the neoclassical system, where the reference point for effecting adaptations remains the original agreement, the reference point under a truly relational approach is the "entire relation as it has developed . . . [through] time. This may or may not include an 'original agreement'; and if it does, may or may not result in great deference being given it."[25]

II. The Economics of Idiosyncrasy

Macneil's three-way discussion of contracts discloses that contracts are a good deal more varied and complex than is commonly realized.[26] It further-

[20] Lon L. Fuller, *supra* note 9, at 11-12.

[21] As Lawrence Friedman observes, relationships are effectively fractured if a dispute reaches litigation. *Supra* note 9, at 205.

[22] Macneil, Contracts 885.

[23] *Id.* at 901.

[24] *Id.*

[25] *Id.* at 890.

[26] To be sure, some legal specialists insist that all of this was known all along. There is a difference, however, between awareness of a condition and an understanding. Macneil's treatment heightens awareness and deepens the understanding.

more suggests that governance structures—the institutional matrix within which transactions are negotiated and executed—vary with the nature of the transaction. But the critical dimensions of contract are not expressly identified, and the purposes of governance are not stated. Harmonizing interests that would otherwise give way to antagonistic subgoal pursuits appears to be an important governance function, but this is not explicit in his discussion.

That simple governance structures should be used in conjunction with simple contractual relations and complex governance structures reserved for complex relations seems generally sensible. Use of a complex structure to govern a simple relation is apt to incur unneeded costs, and use of a simple structure for a complex transaction invites strain. But what is simple and complex in contractual respects? Specific attention to the defining attributes of transactions is evidently needed.

As developed in Section III, the three critical dimensions for characterizing transactions are (1) uncertainty, (2) the frequency with which transactions recur, and (3) the degree to which durable transaction-specific investments are incurred. Of these three, uncertainty is widely conceded to be a critical attribute;[27] and that frequency matters is at least plausible.[28] The governance ramifications of neither, however, have been fully developed—nor can they be until joined with the third critical dimension: transaction-specific investments. Inasmuch as a considerable amount of the "action" in the study of governance is attributable to investment differences, some explication is needed.

A. *General*

The crucial investment distinction is this: to what degree are transaction-specific (nonmarketable) expenses incurred. 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 order to other buyers without difficulty.[29] Nonmarketability problems arise

[27] For a recent study of contractual relations in which uncertainty is featured, see Peter Temin, Modes of Economic Behavior: Variations on Themes of J. R. Hicks and Herbert Simon (March 1979) (Working Paper No. 235, MIT Dep't of Econ.).

[28] Gordon Whinston emphasizes frequency in his "A Note on Perspective Time: Goldberg's Relational Exchange, Repetitiveness, and Free Riders in Time and Space" (October 1978) (unpublished paper).

[29] See Lester A. Telser & Harold N. Higinbotham, *supra* note 16; also Yoram Ben-Porath, The F-Connection: Families, Friends, and Firms and the Organization of Exchange (December 1978) (Report No. 29/78, The Hebrew University of Jerusalem) and Yoram Barzel, Measurement Cost and the Organization of Markets (April 1979) (unpublished paper). Note that Barzel's concern with standardization is mainly in connection with final-product markets, whereas I am more interested in nonstandard investments. The two are not unrelated, but identical quality can often be realized with a variety of inputs. I am concerned with specialized (transaction-specific) inputs.

when the *specific identity* of the parties has important cost-bearing consequences. Transactions of this kind will be referred to as idiosyncratic.

Occasionally the identity of the parties is important from the outset, as when a buyer induces a supplier to invest in specialized physical capital of a transaction-specific kind. Inasmuch as the value of this 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.[30] The buyer is thus committed to the transaction as well.

Ordinarily, however, there is more to idiosyncratic exchange than specialized physical capital. Human-capital investments that are transaction-specific commonly occur as well. Specialized training and learning-by-doing economies in production operations are illustrations. Except when these investments are transferable to alternative suppliers at low cost, which is rare, the benefits of the set-up costs can be realized only so long as the relationship between the buyer and seller of the intermediate product is maintained.

Additional transaction-specific savings can accrue at the interface between supplier and buyer as contracts are successively adapted to unfolding events, and as periodic contract-renewal agreements are reached. Familiarity here permits communication economies to be realized: specialized language develops as experience accumulates and nuances are signaled and received in a sensitive way. Both institutional and personal trust relations evolve. Thus the individuals who are responsible for adapting the interfaces have a personal as well as an organizational stake in what transpires. Where personal integrity is believed to be operative, individuals located at the interfaces may refuse to be a part of opportunistic efforts to take advantage of (rely on) the letter of the contract when the spirit of the exchange is emasculated. Such refusals can serve as a check upon organizational proclivities to behave opportunistically.[31] Other things being equal, idiosyncratic exchange rela-

[30] This assumes that it is costly for the incumbent supplier to transfer specialized physical assets to new suppliers. On this, see Oliver E. Williamson, Franchise Bidding for Natural Monopolies—in General and with Respect to CATV, 7 Bell J. Econ. 73 (1976). Klein, Crawford, & Alchian use the term "appropriable quasi rent" to refer to this condition. Use versus user distinctions are relevant in this connection: "The quasi-rent value of the asset is the excess of its value over its salvage value, that is, its value in its next best *use* to another renter. The potentially appropriable specialized portion of the quasi rent is the portion, if any, in excess of its value to the second highest-valuing *user*." Benjamin Klein, Robert G. Crawford, & Armen A. Alchian, *supra* note 1, at 298.

[31] Thorstein Veblen's remarks on the distant relation of the head of a large enterprise to transactions are apposite. He observes that under these impersonal circumstances "The mitigating effect which personal conduct may have in dealings between man and man is . . . in great

tions which feature personal trust will survive greater stress and display greater adaptability.

Idiosyncratic goods and services are thus ones where investments of transaction-specific human and physical capital are made and, contingent upon successful execution, benefits are realized. Such investments can and do occur in conjunction with occasional trades where delivery for a specialized design is stretched out over a long period (for example, certain construction contracts). The transactions that I wish to emphasize here, however, are exchanges of the recurring kind. Although large-numbers competition is frequently feasible at the initial award stage for recurring contracts of all kinds, idiosyncratic transactions are ones for which the relationship between buyer and supplier is quickly thereafter *transformed* into one of bilateral monopoly—on account of the transaction-specific costs referred to above. This transformation has profound contracting consequences.

Thus, whereas recurrent spot contracting is feasible for standardized transactions (because large-numbers competition is continuously self-policing in these circumstances), such contracting has seriously defective investment incentives where idiosyncratic activities are involved. By assumption, cost economies in production will be realized for idiosyncratic activities only if the supplier invests in a special-purpose plant and equipment or if his labor force develops transaction-specific skills in the course of contract execution (or both). The assurance of a continuing relation is needed to encourage investments of both kinds. Although the requisite incentives might be provided if long-term contracts were negotiated, such contracts are necessarily incomplete (by reason of bounded rationality). Appropriate state-contingent adaptations thus go unspecified. Intertemporal efficiency nevertheless requires that adaptations to changing market circumstances be made.

How to effect these adaptations poses a serious contracting dilemma, though it bears repeating that, absent the hazards of opportunism, the difficulties would vanish—since then the gaps in long-term, incomplete contracts could be faultlessly filled in an adaptive, sequential way. A general clause, to which both parties would agree, to the effect that "I will behave responsibly rather than seek individual advantage when an occasion to adapt arises," would, in the absence of opportunism, suffice. Given, however, the unenforceability of general clauses and the proclivity of human agents to make false and misleading (self-disbelieved) statements, the follow-

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measured eliminated. . . . Business management [then] has a chance to proceed . . . untroubled by sentimental considerations of human kindness or irritation or of honesty." The Theory of Business Enterprise 53 (1927). Veblen evidently assigns slight weight to the possibility that those to whom negotiating responsibilities are assigned will themselves invest the transactions with integrity.

ing hazard must be confronted: joined as they are in an idiosyncratic condition of bilateral monopoly, both buyer and seller are strategically situated to bargain over the disposition of any incremental gain whenever a proposal to adapt is made by the other party. Although both have a long-term interest in effecting adaptations of a joint profit-maximizing kind, each also has an interest in appropriating as much of the gain as he can on each occasion to adapt. Efficient adaptations which would otherwise be made thus result in costly haggling or even go unmentioned, lest the gains be dissipated by costly subgoal pursuit. Governance structures which attenuate opportunism and otherwise infuse confidence are evidently needed.

B. *Examples*

Some illustrations may help to motivate what is involved in idiosyncratic transactions. Specialized physical capital is relatively straightforward. Examples are (1) the purchase of a specialized component from an outside supplier or (2) the location of a specialized plant in a unique, proximate relation to a downstream processing stage to which it supplies vital input.

Thus assume (*a*) that special-purpose equipment is needed to produce the component in question (which is to say that the value of the equipment in its next-best alternative use is much lower), (*b*) that scale economies require that a significant, discrete investment be made, and (*c*) that alternative buyers for such components are few (possibly because of the organization of the industry, possibly because of special-design features). The interests of buyer and seller in a continuing exchange relation are plainly strong under these circumstances.

Plant-proximity benefits are attributable to transportation and related flow-process (inventory, thermal economy, and so on) economies. A specialized plant need not be implied, but long life and a unique location are. Once made, the investment preempts the unique location and is not thereafter moveable (except at prohibitive cost). Buyer and supplier again need to satisfy themselves that they have a workable, adaptable exchange agreement.[32]

Idiosyncratic investments in human capital are in many ways more interesting and less obvious than are those in physical capital. Polanyi's discussion of "personal knowledge" is illuminating:

> The attempt to analyze scientifically the established industrial arts has everywhere led to similar results. Indeed even in the modern industries the indefinable knowledge is still an essential part of technology. I have myself watched in Hungary a new, imported machine for blowing electric lamp bulbs, the exact counterpart of which

[32] The *Great Lakes Carbon* case is an example of the latter, 1970-1973 Trade Reg. Rep. Transfer Binder ¶ 19,848 (FTC Dkt No. 8805).

was operating successfully in Germany, failing for a whole year to produce a single flawless bulb.[33]

And he goes on to observe with respect to craftsmanship that:

. . . an art which has fallen into disuse for the period of a generation is altogether lost. . . . It is pathetic to watch the endless efforts—equipped with microscopy and chemistry, with mathematics and electronics—to reproduce a single violin of the kind the half-literate Stradivarius turned out as a matter of routine more than 200 years ago.[34]

Polanyi's discussion of language also has a bearing on the argument advanced above that specialized code words or expressions can and do arise in the context of recurring transactions and that these yield economies. As he puts it, "Different vocabularies for the interpretation of things divide men into groups which cannot understand each other's way of seeing things and acting upon them."[35] And subsequently he remarks that:

To know a language is an art, carried on by tacit judgments and the practice of unspecifiable skills. . . . Spoken communication is the successful application by two persons of the linguistic knowledge and skill acquired by such apprenticeship, one person wishing to transmit, the other to receive, information. Relying on what each has learnt, the speaker confidently utters words and the listener confidently interprets them, while they mutually rely on each other's correct use and understanding of these words. A true communication will take place if, and only if, these combined assumptions of authority and trust are in fact justified.[36]

Babbage reports a remarkable example of transaction-specific value in exchange that occurred in the early 1800s. Although he attributes the continuing exchange in the face of adversity to values of "established character" (trust), I believe there were other specialized human and physical investments involved as well. In any event, the circumstance which he describes is the following:

The influence of established character in producing confidence operated in a very remarkable manner at the time of the exclusion of British manufactures from the Continent during the last war. One of our largest establishments had been in the habit of doing extensive business with a house in the centre of Germany; but, on the closing of the continental ports against our manufacturers, heavy penalties were inflicted on all those who contravened the Berlin and Milan decrees. The English manufacturer continued, nevertheless, to receive orders, with directions how to con-

[33] Michael Polanyi, Personal Knowledge: Towards a Post-Critical Philosophy 52 (2d ed. 1962).

[34] *Id.* at 53.

[35] *Id.* at 112.

[36] *Id.* at 206.

sign them, and appointments for the time and mode of payment, in letters, the handwriting of which was known to him, but which were never signed, except by the Christian name of one of the firm, and even in some instances they were without any signature at all. These orders were executed; and in no instance was there the least irregularity in the payments.[37]

While most of these illustrations refer to technical and commercial transactions, other types of transactions also have an idiosyncratic quality. Justice Rhenquist refers to some of these when speaking of the general class of cases where "the litigation of an individual's claim of deprivation of a right would bring parties *who must remain in a continuing relationship* into the adversarial atmosphere of a courtroom"[38]—which atmosphere he plainly regards as detrimental to the quality of the relationship. Examples that he offers include reluctance to have the courts mediate collective bargaining disputes[39] and to allow children to bring suit against parents.[40]

But surely we must ask what is distinctive about these transactions. I submit that transaction-specific human capital is central to each. Why else would it take the Hungarians so long to operate the German light-bulb machine? And what else explains the loss of Stradivarius's craftsmanship? Likewise the understanding and trust which evolve between Babbage's transmitter and receiver are valued human assets which, once developed, will be sacrificed with reluctance. And the disruption of continuing relationships to which Justice Rhenquist refers occasions concern precisely because there are no adequate substitutes for these idiosyncratic relations.[41]

The general argument of this paper is that special governance structures supplant standard market-cum-classical contract exchange when transac-

[37] Charles Babbage, On the Economy of Machinery and Manufacturers 220-21 (1832). More recent examples of contracts wherein private parties can and evidently do "ignore" the law, even at some peril, when the law and the interests of the parties are at variance are offered by Stewart Macaulay, The Use and Nonuse of Contracts in the Manufacturing Industry, 9 Practical Lawyer 13, 16 (1963): "Requirements contracts probably are not legally enforceable in Wisconsin and a few other States. Yet, chemicals, containers, and a number of other things are still bought and sold there on the basis of requirements contracts.

"Decisions of the United States Court of Appeals for the Seventh Circuit indicate that a clause calling for a 'seller's price in effect at time and place of delivery' makes a contract unenforceable. The Wisconsin cases are not clear. Yet steel and steel products usually are sold in this way."

[38] Remarks of Mr. Justice Rhenquist, The Adversary Society, Baron di Hirsch Meyer Lecture, University of Miami School of Law, February 2, 1978, at 19 (emphasis added).

[39] *Id.* at 11-13.

[40] *Id.* at 16-19.

[41] As Ben-Porath puts it, "The most important characteristic of the family contract is that it is embedded in the identity of the partners without which it loses its meaning. It is thus specific and non-negotiable or nontransferable." Yoram Ben-Porath, *supra* note 29, at 6.

tion-specific values are great. Idiosyncratic commercial, labor, and family relationships are specific examples.

III. Commercial Contracting

The discussion of commercial contracting begins with a brief statement on economizing. The proposed schema for characterizing transactions and their governance is then developed, including the relation of the schema with Macneil's three-way classification of contract.

A. *Economizing*

The criterion for organizing commercial transactions is assumed to be the strictly instrumental one of cost economizing. Essentially this takes two parts: economizing on production expense and economizing on transaction costs.[42] To the degree that transaction costs are negligible, buying rather than making will normally be the most cost-effective means of procurement.[43] Not only can static scale economies be more fully exhausted by buying rather than making, but the supplier who aggregates uncorrelated demands can realize collective pooling benefits as well. Since external procurement avoids many of the bureaucratic hazards of internal procurement (which hazards, however, are themselves of a transaction-cost kind),[44] external procurement is evidently warranted.[45]

As indicated, however, the object is to economize on the *sum* of production and transaction costs. To the degree production-cost economies of external procurement are small and/or the transaction costs associated with external procurement are great, alternative supply arrangements deserve serious consideration. Economizing on transaction costs essentially reduces

[42] More generally, the economizing problem includes choice between a special-purpose and a general-purpose good or service. A general-purpose item affords all of the advantages of market procurement, but possibly at the sacrifice of valued design or performance characteristics. A special-purpose item has the opposite features: valued differences are realized but market procurement here may pose hazards. For the purposes of this paper, intermediate-product characteristics are mainly taken as given and I focus principally on production and transaction-cost economies. A more general formulation would include product characteristics in the optimization.

[43] This ignores transient conditions, such as temporary excess capacity. (In a zero-transaction-cost world, such excesses vanish as assets can be deployed as effectively by others as they can by the owner.)

[44] On these hazards and their transaction-cost origins, see Oliver E. Williamson, *supra* note 1, at 117-31.

[45] Dennis Carlton shows that economies of "vertical integration" can frequently be realized in a market where, absent integration, buyers and suppliers are randomly paired. As he defines vertical integration, however, this can be accomplished as effectively by long-term contract as it can by in-house production. Dennis W. Carlton, Vertical Integration in Competitive Markets under Uncertainty, 27 J. Indus. Econ. 189 (1979).

to economizing on bounded rationality while simultaneously safeguarding the transactions in question against the hazards of opportunism. Holding the governance structure constant, these two objectives are in tension, since a reduction in one commonly results in an increase in the other.[46]

Governance structures, however, are properly regarded as part of the optimization problem. For some transactions, a shift from one structure to another may permit a simultaneous reduction in both the expense of writing a complex contract (which economizes on bounded rationality) and the expense of executing it effectively in an adaptive, sequential way (by attenuating opportunism). Indeed, this is precisely the attraction of internal procurement for transactions of a recurrent, idiosyncratic kind. Not only are market-aggregation economies negligible for such transactions—since the requisite investments are transaction-specific—but market trading in these circumstances is shot through with appropriable quasi-rent hazards. The issues here have been developed elsewhere.[47] The object of this paper is to integrate them into a larger contractual framework.

Note in this connection that the prospect of recovering the set-up costs associated with specialized governance structures varies with the frequency with which transactions recur. Specialized governance structures are much easier to justify for recurrent transactions than for identical transactions that occur only occasionally.

B. *Characterizing Transactions*

I asserted earlier that the critical dimensions for describing contractual relations are uncertainty, the frequency with which transactions recur, and the degree to which investments are idiosyncratic. To simplify the exposition, I will assume uncertainty exists in some intermediate degree and focus initially on frequency and the degree to which the expenses incurred are transaction-specific. The separate importance of uncertainty will then be developed in Section III.D. Three frequency and three investment categories will be recognized. Frequency can be characterized as one-time, occasional, and recurrent; and investments are classed as nonspecific, mixed, and idiosyncratic. To further simplify the argument, the following assumptions are made: (1) Suppliers intend to be in business on a continuing basis; thus the special hazards posed by fly-by-night firms can be disregarded. (2) Potential suppliers for any given requirement are numerous—which is to say that *ex ante* monopoly in ownership of specialized resources is assumed away. (3)

[46] Thus a reduction in monitoring commonly gives rise to an increase in opportunism. Monitoring the employment relation, however, needs to be done with special care. Progressively increasing the intensity of surveillance can elicit resentment and have counterproductive (for example, work-to-rule) results. Such perversities are less likely for interfirm trading.

[47] See note 30 *supra*.

The frequency dimension refers strictly to buyer activity in the market.[48] (4) The investment dimension refers to the characteristics of investments made by suppliers.[49]

Although discrete transactions are intriguing—for example, purchasing local spirits from a shopkeeper in a remote area of a foreign country to which one never again expects to visit nor to refer his friends—few transactions have this totally isolated character. For those that do not, the difference between one-time and occasional transactions is not apparent. Accordingly, only occasional and recurrent frequency distinctions will be maintained. The two-by-three matrix shown in Figure I thus describes the six types of transactions to which governance structures need to be matched. Illustrative transactions appear in the cells.

		Investment Characteristics		
		Nonspecific	Mixed	Idiosyncratic
Frequency	Occasional	Purchasing Standard Equipment	Purchasing Customized Equipment	Constructing a Plant
	Recurrent	Purchasing Standard Material	Purchasing Customized Material	Site-Specific Transfer of Intermediate Product Across Successive Stages

FIGURE I
ILLUSTRATIVE COMMERCIAL TRANSACTIONS

C. *Governance Structures*

Three broad types of governance structures will be considered: non-transaction-specific, semi-specific, and highly specific. The market is the classic nonspecific governance structure within which "faceless buyers and sellers . . . meet . . . for an instant to exchange standardized goods at

[48] This seems reasonable for most intermediate-product market transactions.

[49] Production aspects are thus emphasized. Investments in governance structure are treated separately.

equilibrium prices."[50] By contrast, highly specific structures are tailored to the special needs of the transaction. Identity here clearly matters. Semi-specific structures, naturally, fall in between. Several propositions are suggested immediately. (1) Highly standardized transactions are not apt to require specialized governance structure. (2) Only recurrent transactions will support a highly specialized governance structure.[51] (3) Although occasional transactions of a nonstandardized kind will not support a transaction-specific governance structure, they require special attention nonetheless. In terms of Macneil's three-way classification of contract, classical contracting presumably applies to all standardized transactions (whatever the frequency), relational contracting develops for transactions of a recurring and nonstandardized kind, and neoclassical contracting is needed for occasional, nonstandardized transactions.

1. *Market Governance: Classical Contracting.* Market governance is the main governance structure for nonspecific transactions of both occasional and recurrent contracting. Markets are especially efficacious when recurrent transactions are contemplated, since both parties need only consult their own experience in deciding to continue a trading relationship or, at little transitional expense, turn elsewhere. Being standardized, alternative purchase and supply arrangements are presumably easy to work out.

Nonspecific but occasional transactions are ones for which buyers (and sellers) are less able to rely on direct experience to safeguard transactions against opportunism. Often, however, rating services or the experience of other buyers of the same good can be consulted. Given that the good or service is of a standardized kind, such experience rating, by formal and informal means, will provide incentives for parties to behave responsibly.

To be sure, such transactions take place within and benefit from a legal framework. But such dependence is not great. As S. Todd Lowry puts it, "the traditional economic analysis of exchange in a market setting properly corresponds to the legal concept of *sale* (rather than contract), since sale presumes arrangements in a market context and requires legal support primarily in enforcing transfers of title."[52] He would thus reserve the concept of contract for exchanges where, in the absence of standardized market

[50] Yoram Ben-Porath, *supra* note 29, at 7.

[51] Defense contracting may appear to be a counterexample, since an elaborate governance structure is devised for many of these. This reflects in part, however, the special disabilities of the government as a production instrument. But for this, many of these contracts would be organized in-house. Also, contracts that are very large and of long duration, as many defense contracts are, do have a recurring character.

[52] S. Todd Lowry, Bargain and Contract Theory in Law and Economics, 10 J. Econ. Issues 1, 12 (1976).

alternatives, the parties have designed "patterns of future relations on which they could rely."[53]

The assumptions of the discrete-contracting paradigm are rather well satisfied for transactions where markets serve as a main governance mode. Thus the specific identity of the parties is of negligible importance; substantive content is determined by reference to formal terms of the contract; and legal rules apply. Market alternatives are mainly what protect each party against opportunism by his opposite.[54] Litigation is strictly for settling claims; concentrated efforts to sustain the relation are not made because the relation is not independently valued.[55]

2. *Trilateral Governance: Neoclassical Contracting.* The two types of transactions for which trilateral governance is needed are occasional transactions of the mixed and highly idiosyncratic kinds. Once the principals to such transactions have entered into a contract, there are strong incentives to see the contract through to completion. Not only have specialized investments been put in place, the opportunity cost of which is much lower in alternative uses, but the transfer of these assets to a successor supplier would pose inordinate difficulties in asset valuation.[56] The interests of the principals in sustaining the relation are especially great for highly idiosyncratic transactions.

Market relief is thus unsatisfactory. Often the setup costs of a transaction-specific governance structure cannot be recovered for occasional transactions. Given the limits of classical contract law for sustaining these transactions, on the one hand, and the prohibitive cost of transaction-specific (bilateral) governance, on the other, an intermediate institutional form is evidently needed.

Neoclassical contract law has many of the sought-after qualities. Thus rather than resorting immediately to strict reliance on litigation—with its

[53] *Id.* at 13.

[54] Although recurrent, standard transactions are ones for which an active spot market commonly exists, term contracting may also be employed—especially as planning economies are thereby realized by the parties. See Dennis W. Carlton, Price Rigidity, Forward Contracts, and Market Equilibrium, J. Pol. Econ. (forthcoming). The duration of these contracts will not be long, however, since the assets in question can be employed in other uses and/or in the service of other customers. The result is that changing market circumstances will be reflected relatively quickly in both price and quantity and relatively stringent contracting attitudes may be said to prevail.

[55] "Generally speaking, a serious conflict, even quite a minor one such as an objection to a harmlessly late tender of the delivery of goods, terminates the discrete contract as a live one and leaves nothing but a conflict over money damages to be settled by a lawsuit. Such a result fits neatly the norms of enhancing discreteness and intensifying . . . presentiation." Macneil, Contracts 877.

[56] See the articles cited in note 30 *supra*.

transaction-rupturing features—*third-party assistance* (arbitration) in resolving disputes and evaluating peformance is employed instead. (The use of the architect as a relatively independent expert to determine the content of form construction contracts is an example.)[57] Also, the expansion of the specific-performance remedy in past decades is consistent with continuity purposes—though Macneil declines to characterize specific performance as the "primary neoclassical contract remedy."[58] The section of the Uniform Commercial Code which permits the "seller aggrieved by a buyer's breach . . . unilaterally to maintain the relation"[59] is yet another example.

3. *Transaction-specific Governance: Relational Contracting.* The two types of transactions for which specialized governance structures are commonly devised are recurring transactions of the mixed and highly idiosyncratic kinds. The nonstandardized nature of these transactions makes primary reliance on market governance hazardous, while their recurrent nature permits the cost of the specialized governance structure to be recovered.

Two types of transaction-specific governance structures for intermediate-production market transactions can be distinguished: bilateral structures, where the autonomy of the parties is maintained, and unified structures, where the transaction is removed from the market and organized within the firm subject to an authority relation (vertical integration). Bilateral structures have only recently received the attention they deserve and their operation is least well understood.

(*a*) *Bilateral Governance: Obligational Contracting.* Highly idiosyncratic transactions are ones where the human and physical assets required for production are extensively specialized, so there are no obvious scale economies to be realized through interfirm trading that the buyer (or seller) is unable to realize himself (through vertical integration). In the case, however, of mixed transactions, the degree of asset specialization is less complete. Accordingly, outside procurement for these components may be favored by scale-economy considerations.

As compared with vertical integration, outside procurement also is good in eliciting cost control for steady-state supply. Problems, however, arise when adaptability and contractual expense are considered. Whereas internal adaptations can be effected by fiat, outside procurement involves effecting adaptations across a market interface. Unless the need for adaptations has been contemplated from the outset and expressly provided for by the contract,

[57] Macneil, Contracts 866.

[58] *Id.* at 879.

[59] *Id.* at 880. The rationale for this section of the Code is that "identification of the goods to the contract will, within limits, permit the seller to recover the price of the goods rather than merely damages for the breach. . . , ([where the] latter may be far less in amount and more difficult to prove)." *Id.*

which often is impossible or prohibitively expensive, adaptations across a market interface can be accomplished only by mutual, follow-on agreements. Inasmuch as the interests of the parties will commonly be at variance when adaptation proposals (originated by either party) are made, a dilemma is evidently posed.

On the one hand, both parties have an incentive to sustain the relationship rather than to permit it to unravel, the object being to avoid the sacrifice of valued transaction-specific economies. On the other hand, each party appropriates a separate profit stream and cannot be expected to accede readily to any proposal to adapt the contract. What is needed, evidently, is some way for declaring admissible dimensions for adjustment such that flexibility is provided under terms in which both parties have confidence. This can be accomplished partly by (1) recognizing that the hazards of opportunism vary with the type of adaptation proposed and (2) restricting adjustments to those where the hazards are least. But the spirit within which adaptations are effected is equally important.[60]

Quantity adjustments have much better incentive-compatibility properties than do price adjustments. For one thing, price adjustments have an unfortunate zero-sum quality, whereas proposals to increase, decrease, or delay delivery do not. Also, except as discussed below, price-adjustment proposals involve the risk that one's opposite is contriving to alter the terms within the bilateral monopoly trading gap to his advantage. By contrast, a presumption that exogenous events, rather than strategic purposes, are responsible for quantity adjustments is ordinarily warranted. Given the mixed nature of the exchange, a seller (or buyer) simply has little reason to doubt the representations of his opposite when a quantity change is proposed.

Thus buyers will neither seek supply from other sources nor divert products obtained (at favorable prices) to other uses (or users)—because other sources will incur high setup costs and an idiosyncratic product is nonfungible across uses and users. Likewise, sellers will not withhold supply because better opportunities have arisen, since the assets in question have a specialized character. The result is that quantity representations for idiosyncratic products can ordinarily be taken at face value. Since inability to adapt both quantity and price would render most idiosyncratic exchanges nonviable, quantity adjustments occur routinely.

[60] As Stewart Macaulay observes, "Disputes are frequently settled without reference to the contract or to potential or actual legal sanctions. There is a hesitancy to speak of legal right or to threaten to sue in . . . negotiations" where continuing business is valued. Stewart Macaulay, *supra* note 9, at 61.

The material which follows in this subsection was originally developed in connection with the study of inflation. See Michael L. Wachter & Oliver E. Williamson, Obligational Markets and the Mechanics of Inflation, 9 Bell J. Econ. 549 (1978).

Of course, not all price adjustments pose the same degree of hazard. Those which pose few hazards will predictably be implemented. Crude escalator clauses which reflect changes in general economic conditions are one possibility. But since such escalators are not transaction-specific, imperfect adjustments often result when these escalators are applied to local conditions. We should therefore consider whether price adjustments that are more closely related to local circumstances are feasible. The issue here is whether interim price adjustments can be devised for some subset of conditions such that the strategic hazards described above do not arise. What are the preconditions?

Crises facing either of the parties to an idiosyncratic exchange constitute one class of exceptions. Faced with a viability crisis which jeopardizes the relationship, ad hoc price relief may be permitted. More relevant and interesting, however, is whether there are circumstances whereby interim price adjustments are made routinely. The preconditions here are two: first, proposals to adjust prices must relate to exogenous, germane, and easily verifiable events; and second, quantifiable cost consequences must be confidently related thereto. An example may help to illustrate. Consider a component for which a significant share of the cost is accounted for by a basic material (copper, steel). Assume, moreover, that the fractional cost of the component in terms of this basic material is well specified. An exogenous change in prices of materials would under these circumstances pose few hazards if partial but interim price relief were permitted by allowing pass-through according to formula. A more refined adjustment than aggregate escalators would afford thereby obtains.

It bears emphasis, however, that not all costs so qualify. Changes in overhead or other expenses for which validation is difficult and which, even if verified, bear an uncertain relation to the cost of the component will not be passed through in a similar way. Recognizing the hazards, the parties will simply forgo relief of this kind.

(*b*) *Unified Governance: Internal Organization.* Incentives for trading weaken as transactions become progressively more idiosyncratic. The reason is that, as the specialized human and physical assets become more specialized to a single use, and hence less transferable to other uses, economies of scale can be as fully realized by the buyer as by an outside supplier.[61] The choice of organizing mode then turns on which mode has superior adaptive

[61] This assumes that factor prices paid by buyer and outside supplier are identical. Where this is not true, as in some unionized firms, buyers may choose to procure outside because of a differential wage rate. This is a common problem in the automobile industry, which has a very flat and relatively high wage scale.

properties. As discussed elsewhere, vertical integration will invariably appear in these circumstances.[62]

The advantage of vertical integration is that adaptations can be made in a sequential way without the need to consult, complete, or revise interfirm agreements. Where a single ownership entity spans both sides of the transactions, a presumption of joint profit maximization is warranted. Thus price adjustments in vertically integrated enterprises will be more complete than in interfirm trading. And quantity adjustments, of course, will be implemented at whatever frequency serves to maximize the joint gain to the transaction.

Unchanging identity at the interface coupled with extensive adaptability in both price and quantity is thus characteristic of highly idiosyncratic transactions which are vertically integrated. Obligational contracting is supplanted by the more comprehensive adaptive capability afforded by administration.

The match of governance structures with transactions that results from these economizing efforts is shown in Figure II.

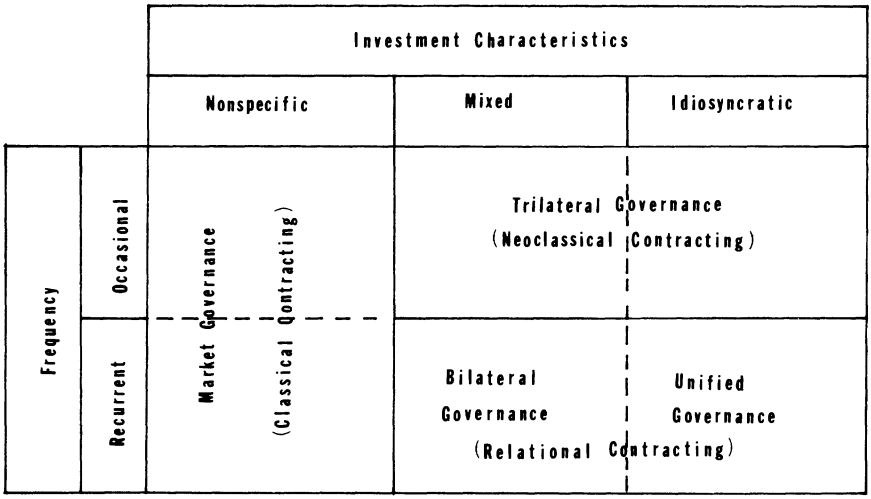

FIGURE II
MATCHING GOVERNANCE STRUCTURES WITH COMMERCIAL TRANSACTIONS

D. *Uncertainty*

Transactions conducted under certainty are relatively uninteresting. Except as they differ in the time required to reach an equilibrium-exchange

[62] See the references cited in note 4 *supra*.

configuration, any governance structure will do. More relevant are transactions where uncertainty is present to an intermediate or high degree. The foregoing has dealt with the first of these. The question here is how the governance of transactions is affected by increasing the degree of uncertainty.

Recall that nonspecific transactions are ones for which continuity has little value, since new trading relations are easily arranged. Increasing the degree of uncertainty does not alter this. Accordingly, market exchange continues and the discrete-contracting paradigm (classical contract law) holds across standardized transactions of all kinds, whatever the degree of uncertainty.

Matters are different with transaction-specific investments. Whenever investments are idiosyncratic in nontrivial degree, increasing the degree of uncertainty makes it more imperative that the parties devise a machinery to "work things out"—since contractual gaps will be larger and the occasions for sequential adaptations will increase in number and importance as the degree of uncertainty increases. This has special relevance for the organization of transactions with mixed investment attributes. Two possibilities exist. One would be to sacrifice valued design features in favor of a more standardized good or service. Market governance would then apply. The second would be to preserve the design but surround the transaction with an elaborated governance apparatus, thereby facilitating more effective adaptive, sequential decision making. Specifically, a more elaborate arbitration apparatus is apt to be devised for occasional, nonstandard transactions. And bilateral governance structures will often give way to unified ones as uncertainty is increased for recurrent transactions.

Reductions in uncertainty, of course, warrant shifting transactions in the opposite direction. To the extent that uncertainty decreases as an industry matures, which is the usual case, the benefits that accrue to integration presumably decline. Accordingly, greater reliance on obligational market contracting is commonly feasible for transactions of recurrent trading in mature industries.

IV. Other Applications

The three dimensions for describing transactions—frequency, investment idiosyncrasy, and uncertainty—apply to transactions of all kinds. The same general considerations that apply to governance structures for commercial transactions carry over as well. The specific governance structures for organizing commercial transactions do not, however, apply without modification to the governance of other types of transactions. Applications of the framework to the study of labor markets, regulation, family law, and capital markets are briefly sketched here.

A. *Labor*

Occasional labor-market transactions typically take the form of repair or replacement services—the plumber, electrician, and so forth. Especially in older homes or structures, these transactions can take on an idiosyncratic quality. Although such transactions can be interesting, the transactions on which I want to focus are recurrent labor-market transactions of the nonspecific, mixed, and idiosyncratic kinds.

Clyde Summers's examination of collective agreements in relation to the law of contracts disclosed that, while the collective bargain differed greatly from the ordinary bargain of commerce, collective agreements are nonetheless a part of the "mainstream of contract."[63] He suggested that the study of contract proceed on two levels: the search for an underlying framework and, within that framework, an examination of the distinctive institutional attributes that distinguish each type of transaction. With respect to the first of these he conjectured that "the principles common to the whole range of contractual transactions are relatively few and of such generality and competing character that they should not be stated as legal rules at all."[64]

I am persuaded that Summers's two-part strategy for studying contract leads to a deeper understanding of the issues. And I believe that the framework set out in the preceding sections of this paper provides much of the underlying unity called for by Summers. What differs as one moves across various contracting activities is the institutional infrastructure.

(1) *Nonspecific Transactions.* Nonspecific labor-market transactions are ones where employer and employee are largely indifferent to the identity of each. Migrant farm labor is an example. Although an unchanging employment association between firm and worker may be observed to continue over long intervals for some of these employees, each party is essentially meeting bids in the spot market. A valuable ongoing relationship, in which specific training and on-the-job learning yield idiosyncratic benefits, is thus not implied. Both wages and employment are variable and market governance applies to transactions of this kind. Consider, therefore, mixed and idiosyncratic labor-market transactions.

(2) *Mixed Transactions.* Probably the most interesting labor-market transactions are those where large numbers of workers acquire an intermediate degree of firm-specific skill. Note that, inasmuch as the degree of idiosyncrasy is a design variable, firms would presumably redesign jobs to favor more standardized operations if it were impossible to devise governance structures which prevented antagonistic bargaining relations from developing between firms and idiosyncratically skilled employees. Although

[63] Clyde W. Summers, *supra* note 9, at 527.

[64] *Id.* at 568.

least-cost production technologies would be sacrificed in the process, net gains might nevertheless be realized since incumbent workers would realize little strategic advantage over otherwise qualified but inexperienced outsiders.

Justice Rhenquist has observed that "Adjudicatory review of the decisions of certain institutions, while perhaps insuring a 'better' decision in some objective sense, can only disrupt on-going relationships within the institution and thereby hamper the institution's ability to serve its designated societal function."[65] Examples of adjudicatory review with respect to which he counsels caution include collective bargaining agreements.

The reasons for this are that adjudicatory review is not easily apprised of the special needs of the transaction and the prospect of such review impairs the incentive of the parties to devise bilateral governance structure. The *Vaca v. Stipes* holding, which Justice Rhenquist cites, is fully consistent with this interpretation. There the Court held that an individual could not compel his union to take his grievance to arbitration, since if the law were otherwise "the settlement machinery provided by the contract would be substantially undermined, thus . . . [introducing] the vagaries of independent and unsystematic negotiations."[66] Archibald Cox elaborates as follows:[67]

> . . . giving the union control over all claims arising under the collective agreement comports so much better with the functional nature of a collective bargaining agreement. . . . Allowing an individual to carry a claim to arbitration whenever he is dissatisfied with the adjustment worked out by the company and the union . . . discourages the kind of day-to-day cooperation between company and union which is normally the mark of sound industrial relations—a relationship in which grievances are treated as problems to be solved and contracts are only guideposts in a dynamic human relationship. When . . . the individual's claim endangers group interests, the union's function is to resolve the competition by reaching an accommodation or striking a balance.

The practice described by Cox of giving the union control over arbitration claims plainly permits group interests—whence the concern for system viability—to supersede individual interests, thereby curbing small-numbers opportunism.

General escalator or predetermined wage adjustments aside, wages are unchanging under collective bargaining agreements.[68] Interim adaptations are nonetheless essential. These take three forms: (1) quantity adjustments,

[65] Remarks of Mr. Justice Rhenquist, *supra* note 38, at 4.

[66] 386 U.S. 171, 191 (1967).

[67] Archibald Cox, *supra* note 9, at 24.

[68] The reason, of course, is that it is very costly and apt to be unproductive to reopen wage bargaining during the period covered by a contract. Since to reopen negotiations for one type of job is to invite it for all, and as objective differences among jobs may be difficult to demonstrate, wage bargaining is foreclosed except at contract-renewal intervals.

(2) assignment changes, and (3) refinement of working rules as a result of grievances.

Quantity adjustments are made in response to changing market opportunities. Either the level or the mix of employment is adjusted as economic events unfold. Given that valuable firm-specific training and learning reside in the workers, layoffs with a presumption of reemployment when conditions improve are common. Conformably, the degree to which the machinery governing access to jobs is elaborated ought to vary directly with the degree to which jobs in a firm are idiosyncratic. Thus promotion ladders in firms where a succession of interdependent jobs are highly idiosyncratic should be long and thin, with access mainly restricted to the bottom, whereas promotion ladders in nonidiosyncratic activities should be broadly structured.[69] Likewise, promotion on merit ought to be favored over promotion strictly by seniority in firms where jobs are more idiosyncratic.[70]

(3) *Highly Idiosyncratic Transactions.* Recall that idiosyncratic transactions involve not merely uniqueness but uniqueness of a transaction-specific kind. Also recall that our concern in this section is with recurring transactions. Thus, although there are many uniquely skilled individuals (artists, athletes, researchers, administrators), unique skills are rarely of a transaction-specific kind. On the contrary, most of these individuals could move to another organization without significant productivity losses.

The exceptions are those where the benefits which accrue to experience (inside knowledge) and/or team interaction effects are great. Whereas commercial transactions of a highly idiosyncratic nature are unified under a common ownership, limits on indenture foreclose this option for labor-market transactions. Instead of "merger," complex contracts designed to tie the interests of the individual to the organization on a long-term basis are negotiated. Severe penalties are provided should either party seek unilateral termination. Nonvested, long-term, contingent reward schemes are devised. More generally, transaction-specific infrastructure will be highly individuated for such transactions.

B. *Regulation of Natural Monopoly*

Again the argument is that specialized governance structure is needed to the degree efficient supply necessarily joins buyers and sellers in a bilateral

[69] Michael L. Wachter & Oliver E. Williamson, *supra* note 60, at 567.

[70] Thus although both nonidiosyncratic and idiosyncratic jobs may be organized collectively, the way in which the internal labor markets associated with each are organized should reflect objective differences between them. Additionally, the incentive to provide an orderly governance structure varies directly with the degree to which efficiencies are attributable thereto. *Ceteris paribus,* nonidiosyncratic jobs ought to be organized later and the governance structure less fully elaborated than for idiosyncratic jobs. Both propositions are borne out by the evidence.

trading relation of a continuing nature. And again, the object of governance is to (1) protect the interests of the respective parties and (2) adapt the relationship to changing circumstances.

Although differing in details, both Victor Goldberg[71] and I[72] have argued that specialized governance structure is needed for services for which natural monopoly features are great. Such structure presumably has the purpose of providing sellers (investors) and buyers with security of expectations, which is a protective function, while at the same time facilitating adaptive, sequential decision making. Rate-of-return regulation with periodic review has these features. To the extent, however, that such regulation is observed in conjunction with activities where transaction-specific investments are insubstantial (as, for example, in the trucking industry), the case for regulation is not at all apparent—or, if it is to be made, must appeal to arguments very different from those set out here.

C. *Family Law*

The issue here is whether the role of adjudication should be *expanded* to help govern family relationships. Granting that adjudication as ultimate relief can and often does serve a useful role for sustaining family relations, such relations are plainly idiosyncratic to an unusual degree and a specialized governance structure is surely the main mode of governance. As the role of adjudication is expanded, reliance upon internal structure is apt to be reduced. Therefore, except when individual rights are seriously threatened, withholding access to adjudication may be indicated.

Justice Rhenquist's remarks concerning the corrosive effects of adversary hearings on the family are apposite: "Any sort of adversary hearing which pits parent against child is bound to be disruptive, placing stresses and tensions on the intra-familial relationships which in turn weaken the family as an institution."[73] Whether, as this suggests, parent-child family relations are optimized where adjudication is zero or negligible is beyond the scope of this paper. It suffices for my purposes merely to note that valued family relations are recurrent and idiosyncratic and that a specialized, transaction-specific governance structure must be encouraged lest the parties withhold investing heavily in the institution.[74]

[71] Victor P. Goldberg, *supra* note 1.

[72] Oliver E. Williamson, *supra* note 30.

[73] Remarks of Mr. Justice Rhenquist, *supra* note 38, at 19.

[74] For a more extensive discussion of family transactions, see Yoram Ben-Porath, *supra* note 29, at 4-7.

D. *Capital Market Transactions*

The ease of verification is critical to the operation of capital markets.[75] Where verification is easy, markets work well and additional governance is unnecessary. Where verification is difficult or very difficult, however, additional governance may be indicated. Occasional transactions are apt to benefit from third-party assistance, while recurring transactions are ones for which bilateral or unified governance will presumably be observed. Assessing capital-market transactions within the proposed framework is thus accomplished by substituting "ease of verification" for "degree of transaction-specific investment." Once this is done, the governance structures appropriate to capital markets are broadly similar to those within which commercial transactions are organized.

V. IMPLICATIONS

Dimensionalizing transactions and examining the costs of executing different transactions in different ways generate a large number of institutional implications. Some of these are summarized here.

A. *General*

1. Nonspecific transactions, either occasional or recurrent, are efficiently organized by markets.

2. Occasional transactions that are nonstandardized stand most to benefit from adjudication.

3. A transaction-specific governance structure is more fully developed where transactions are (1) recurrent, (2) entail idiosyncratic investment, and (3) are executed under greater uncertainty.

B. *Commercial Transactions*

1. Optimization of commercial transactions requires simultaneous attention to (1) production economies, (2) transaction-cost economies, and (3) component design.

2. The reason why Macaulay observes so few litigated cases in business[76] is because markets work well for nonspecific transactions, while recurrent, nonstandard transactions are governed by bilateral or unified structures.

3. As uncertainty increases, the obligational market-contracting mode will not be used for recurrent transactions with mixed investment features. Such transactions will either be standardized, and shifted to the market, or organized internally.

[75] This feature was called to my attention by Sanford Grossman.

[76] Stewart Macaulay, *supra* note 9.

4. As generic demand grows and the number of supply sources increases, exchange that was once transaction-specific loses this characteristic and greater reliance on market-mediated governance is feasible. Thus vertical integration may give way to obligational market contracting, which in turn may give way to markets.

5. Where inventory and related flow-process economies are great, site-specific supply and transaction-specific governance (commonly vertical integration) will be observed. Generic demand here has little bearing.

6. The organization of the interface between manufacturing and distribution reflects similar investment considerations: goods and services that can be sold without incurring transaction-specific investment will be distributed through conventional marketing channels while those where such investments are great will be supported by specialized—mainly bilateral (for example, franchising) or unified (forward integration)—governance structures.

7. The governance of technical change poses special difficulties. The frequently noted limits of markets[77] often give way to more complex governance relations, again for the same general reasons and along the same general lines as are set out here.[78]

C. *Other Transactions*

1. The efficiency benefits of collective organization are negligible for nonspecific labor. Accordingly, such labor will be organized late, often only with the assistance of the political process.

2. Internal labor markets become more highly individuated as jobs become more varied and idiosyncratic.

3. Regulation can be interpreted in part as a response to the transactional dilemma posed by natural monopoly.

4. A transaction-cost justification for regulating activities for which transaction-specific investments are lacking (for example, trucking) is not apparent. The possibility that politics is the driving consideration in such industries warrants consideration.

5. Adjudication should proceed with caution in the area of family law lest valued transaction-specific investments be discouraged.

6. Ease of verification is the capital-market counterpart of transaction-specific investments. Upon making this substitution, the organization of capital markets and intermediate-product markets is broadly similar.

[77] Kenneth J. Arrow, Economic Welfare and the Allocation of Resources for Invention, in The Rate and Direction of Economic Activity 609 (1962).

[78] Aspects are discussed in Oliver E. Williamson, *supra* note 1, at 203-05.

VI. Concluding Remarks

Transaction-cost economics is an interdisciplinary undertaking that joins economics with aspects of organization theory and overlaps extensively with contract law. It is the modern counterpart of institutional economics and relies heavily on comparative analysis.[79] Frictionless ideals are useful mainly for reference purposes.

Although mathematical economics captures only a fraction of the transaction-cost phenomena of interest,[80] this has not been the only obstacle. Headway with the study of transaction-cost issues has been impeded by lack of verbal definitions. Identifying the critical dimensions with respect to which transactions differ has been a significant omission.

This paper attempts to rectify this deficiency and identifies uncertainty, frequency of exchange, and the degree to which investments are transaction-specific as the principal dimensions for describing transactions. The efficient organization of economic activity entails matching governance structures with these transactional attributes in a discriminating way.

Although the main applications in this paper are to commercial contracting, the proposed approach generalizes easily to the study of labor contracts. It also has ramifications for understanding both public utility regulation and family relations. A unified approach to contract thus emerges.

The fact that the broad features of so many varied transactions fit within the framework is encouraging. The importance of transaction costs to the organization of economic activity is thus confirmed. But the world of contract is enormously complex,[81] and the simple economizing framework proposed here cannot be expected to capture more than main features. Elaborating the framework to deal with microanalytic phenomena, however, should be feasible. And extending it to include additional or substitute dimensions (of which the ease of verification, in the case of capital-market transactions, is an example) may sometimes be necessary.

[79] Reliance on comparative analysis has been repeatedly emphasized by R. H. Coase, *supra* note 1.

[80] See Carl J. Dahlman, *supra* note 1, at 144-47.

[81] Benjamin Klein, Robert C. Crawford, & Armen A. Alchian, *supra* note 1, at 325.