OUTSOURCING: TRANSACTION COST ECONOMICS AND SUPPLY CHAIN MANAGEMENT*

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This article examines outsourcing from the transaction cost economics (TCE) perspective. The transaction is made the basic unit of analysis and the procurement decision, as between make and buy, is made (principally) with reference to a transaction cost economizing purpose. As sketched herein, the ease of contracting varies with the attributes of the transaction, with special emphasis on whether preserving continuity between a particular buyer–seller pair is the source of added value. The basic regularity is this: as bilateral dependency builds up, the efficient governance of contractual relations progressively moves from simple market exchange to hybrid contracting (with credibility supports) to hierarchy. This last corresponds to the "make" decision, which, as viewed from the TCE perspective, is viewed as the organization form of last resort. The article successively describes the lens of contract approach to economic organization, the operationalization of TCE, different styles of outsourcing, qualifications to the foregoing and the main lessons of TCE for the supply chain literature.

Keywords: *contracting; outsourcing (make or buy); organization; supply chain management*

INTRODUCTION

This paper examines interfirm contracting by applying the lens of contract/governance to the make-or-buy decision, which is the canonical transaction for transaction cost economics (TCE).[1] The supply chain management (SCM) literature also focuses on procurement. But whereas TCE examines individual transactions, SCM introduces a broader systems perspective in which related transactions are grouped and managed as chains.

These two plainly share a lot of common ground, but there are also tensions. Because my background in TCE is extensive but is limited in SCM, I mainly emphasize the lessons of the microcosm (the transaction) for the system (the supply chain), yet recognize that there should be give and take.

The first section briefly sketches some of the background out of which TCE works. The operationalization of TCE is discussed in the second section, with emphasis on the efficient alignment of transactions with alternative modes of governance — principally markets, hybrids and hierarchies. The hybrid transaction is especially pertinent to the SCM literature and is singled out for further discussion in the third section. Extensions and qualifications are addressed in the fourth section. Lessons from and for SCM literature conclude.

BACKGROUND

The lens of contract, the description of human actors, positive transaction costs and pragmatic methodology all play key roles in the TCE treatment of interfirm contracting.

The Lens of Contract

James Buchanan advises that economics as a science of contract (as distinguished from textbook economics as a science of choice) is underdeveloped and that this should be rectified — it being his view that "mutuality of advantage from voluntary exchange . . . is the most fundamental of all understandings in economics" (2001, p. 29). The quest for mutual gains of a win-win kind drive the argument.

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[1]For recent earlier discussions, see Williamson (2002, 2003).

To be sure, efficiency gains from trade go back to when our ancestors traded nuts for berries on the edge of the forest, which exchanges were both transparent and simple — akin to what we now think of as spot market exchange. If and as, however, the exchanges in question will benefit from being of an ongoing kind, and inasmuch as all complex contracts are incomplete, additional gains can be realized if order-preserving mechanisms are devised that enable the parties to preserve cooperation during contract execution. What Karl Llewellyn has described as "contract as framework," *to be contrasted with* the more familiar concept of "contract as legal rules," applies (Llewellyn 1931, pp. 736–737; emphasis added):

> [T]he major importance of legal contract is to provide a framework for well-nigh every type of group organization and for well-nigh every type of passing or permanent relation between individuals and groups . . . a *framework highly adjustable,* a framework which almost never accurately indicates real working relations, but which affords a rough indication around which such relations vary, an occasional guide in cases of doubt, and a norm of *ultimate appeal* when the relations cease in fact to work.

As discussed below, the ongoing cooperation to which Llewellyn refers needs to be supported by the *mechanisms* of credible contracting.

Human Actors

Herbert Simon contends that "Nothing is more important in setting our research agenda and informing our research methods than our view of the nature of the human beings whose behavior we are studying" (1985, p. 303). Cognition and self-interest are both relevant and are herein described in a two-part way.

With reference to cognition, we need to come to terms both with bounds on *rationality, according to which* human actors are intendedly rational but only limitedly so (Simon 1957), and with the capacity of human actors to display feasible foresight. By reason of bounds on rationality, all complex contracts will be incomplete — so there will be gaps, errors, omissions and the like. If, however, boundedly rational parties also have the capacity to look ahead, then potential maladaptations can be relieved by crafting mechanisms ex ante to deal with unanticipated disturbances as they arise, the effect of which is to facilitate adaptation, preserve continuity and realize mutual gain during contract implementation.

Self-interest is likewise described in a two-part way. The benign version is that most people will do what they say and some will do more most of the time. As, however, circumstances change and the stakes progressively increase, defection from the spirit of an agreement to insist on the letter of the contract — thereby to force renegotiation or termination — cannot be disallowed. Again, however, feasible foresight considerations apply. The readiness to defect can be mitigated by introducing cost-effective ex ante safeguards to deter ex post opportunism. Credible interfirm contracting mechanisms are therefore employed and, in the limit, transactions are taken out of the market and organized internally (under unified ownership as mediated by hierarchy).

Positive Transaction Costs

The importance of making provision for positive transaction costs becomes evident *upon pushing the* logic of zero transaction costs to completion. As Ronald Coase showed when he reformulated torts (or, more generally, externalities) as a contracting problem in his famous article on "The Problem of Social Cost" (1960), externalities vanish if the logic of zero transaction costs is taken to completion. Plainly, provision for positive transaction costs would thereafter have to be made if externalities, and the study of complex contracting more generally, were to be accurately described and assessed.

Arrow's (1969) examination of "The Organization of Economic Activity: Issues Pertinent to the Choice of Market versus Non-market Allocation" likewise made a prominent place for positive transaction costs, both in general and with respect to vertical integration. Upon recognizing that vertical integration entails the "replacement of the costs of buying and selling on the market by the costs of intra-firm transfers . . ., the existence of vertical integration may suggest that *the costs of operating competitive markets are not zero, as is usually assumed by our theoretical analysis*" (Arrow 1969, p. 48; emphasis added).

But while it is easy to agree that zero transaction cost is a fiction, how does the analysis of positive transaction costs get implemented? Upon opening the black box of the firm and the black box of the market, we are confronted with a vast buzzing, blooming profusion of transaction cost possibilities (Coase 1937), few of which are easy to quantify. Among *the variety of positive* transaction cost candidates, prioritization, conceptualization and operationalization are needed.

Pragmatic Methodology[2]

Describing himself as a native informant rather than as a certified methodologist, Robert Solow's "terse description of what one economist thinks he is doing" (2001, p. 111) takes the form of three precepts: keep it simple; get it right; make it plausible. Keeping it simple is accomplished by stripping away inessentials, thereby to focus on first order effects — the main case, as it were — after which qualifications, refinements and extensions can be introduced. Getting it right entails working out the logic.

[2]This subsection is based on my paper, "Pragmatic Methodology: A Sketch with Applications to Transaction Cost Economics" (forthcoming in the *Journal of Economic Methodology*).

And making it plausible means to preserve contact with the phenomena and eschew fanciful constructions.

Solow observes with reference to the simplicity precept that "the very complexity of real life . . . [is what] makes simple models so necessary" (2001, p. 111). Keeping it simple requires the student of complexity to prioritize: "Most phenomena are driven by a very few central forces. What a good theory does is to simplify, it pulls out the central forces and gets rid of the rest" (Friedman 1997, p. 196). Central features and key regularities are uncovered by the application of a focused lens.

Getting it right entails "translating economic concepts into accurate mathematics (or diagrams, or words) and making sure that further logical operations are correctly performed and verified" (Solow 2001, p. 112); and plausible simple models of complex phenomena are expected to "make sense for 'reasonable' or 'plausible' values of the important parameters" (Solow 2001, p. 112). Also, because "not everything that is logically consistent is credulous" (Kreps 1999, p. 125), fanciful constructions that lose contact with the phenomena are suspect — especially if alternative and more veridical models yield refutable implications that are congruent with the data.

This last brings me to a fourth precept: derive refutable implications to which the relevant (often microanalytic) data are brought to bear. Nicholas Georgescu-Roegen had a felicitous way of putting it: "The purpose of science in general is not prediction, but knowledge for its own sake," yet prediction is "the touchstone of scientific knowledge" (1971, p. 37). Indeed, most economists know in their bones that theories that are congruent with the data are more influential. Milton Friedman's reflections on a lifetime of work are pertinent: "I believe in every area where I feel that I have had some influence it has occurred less because of the pure analysis than it has because of the empirical evidence that I have been able to organize."[3]

PRIORITIZATION, CONCEPTUALIZATION AND OPERATIONALIZATION

Consistent with the first precept of pragmatic methodology, keep it simple, prioritization serves to focus attention on what are taken to be the central forces, the main case as it were. Conceptualization entails directing attention to those aspects of the main case where the comparative institutional action is concentrated. And operationalization entails deriving refutable implications.

Prioritization: Adaptation as the Main Case

Of the many purposes served by economic organization, TCE holds that adaptation is the main purpose. Interestingly, both the economist Friedrich Hayek and the organization theorist Chester Barnard were in agreement on this point, albeit with differences. Hayek (1945, pp. 526–527) focused on the adaptations of economic actors who adjust spontaneously to changes in the market. Upon looking "at the price system as . . . a mechanism for communicating information," the marvel of the market resides in "how little the individual participants need to know to be able to take the right action." By contrast, Barnard (1938, p. 9) featured coordinated adaptation among economic actors working through administration (hierarchy). The latter is accomplished not spontaneously but in a "conscious, deliberate, purposeful" way with the use of administration.

In effect, the adaptations to which Hayek refers are autonomous adaptations accomplished in the market, whereas the adaptations of concern to Barnard are consciously coordinated adaptations accomplished through the use of management within the firm. To the widely celebrated "marvel of the market" (Hayek) is now therefore joined the hitherto scorned "marvel of hierarchy" (Barnard).[4]

Conceptualization

Adaptation of autonomous and coordinated kinds are both evidently important. But if autonomous adaptation is the province of economics and coordinated adaptation is the domain of organization theory, and if economics and organization theory are as oil to water, how can these two be joined?[5]

Look for common ground. Can markets and hierarchies (more generally, alternative modes of economic organization) be examined through a common lens? Can a common unit of analysis be applied to each? Can a common objective be discerned? By contrast with the orthodox lens of price theory (prices and output; supply and demand), the lens of contract uncovers common ground between organization theory and the study of exchange in all three respects.

Describing markets and hierarchies as alternative modes of governance, each with its distinctive strengths

[3]Personal communication, February 6, 2006, from Milton Friedman to the author.

[4]Interestingly, Laffont and Martimort (2002, p. 11) credit Barnard as "the first to define a general theory of incentives in management," where they interpret Barnard's views as broadly in the spirit of their own agency theory work. Laffont and Martimort (2002, p. 13) also write that "Barnard recognized that incentive contracts do not rule all of the activities within an organization." In particular, "the incompleteness of contracts and the bounded rationality of members of the organization require that some leaders be given authority," presumably to exercise ex post governance. Barnard advanced prescient ideas that were pertinent both to the economics of ex ante agency theory and to the economics of ex post governance.

[5]Organization theory is often divided into three parts: rational systems, natural systems and open systems (Scott 1987). As among these three, economics is most compatible with the rational systems branch of organization theory, which is the branch of organization theory on which TCE mainly relies.

and weaknesses, is a promising start. Also, not only is the transaction the obvious unit of analysis for describing exchange in the market but, if and as internal organization is not one large in decomposable whole but is broken down into nearly decomposable subsystems (Simon 1962, pp. 474–475), then exchange within firms can also be similarly described. The upshot is that each make-or-buy decision reduces to ascertaining whether the transaction should be mediated by an interfirm or by an intrafirm contract, where the first corresponds to the market (buy) and the latter to hierarchy (make). Economizing on transaction costs is the common objective of both.

Note, moreover, that the standard presumption that *technologically separable transactions* should be mediated in the market is too glib. How best to organize such transactions awaits an examination and comparative assessment of complications that reside in attributes of separable transactions, as described below.

Operationalization

Operationalization is accomplished by naming and explicating the key attributes of both transactions and governance structures, by working out the efficient alignments between transactions and governance and by empirical testing.

Dimensionalization: Of the endless number of attributes across which transactions and governance structures can be described, where does the key transaction cost action reside? It being vital to keep it simple, the institutional environment is usually taken as given (often by assuming that property rights are well defined and reliably enforced by the courts). Also, as previously described, adaptation (of autonomous and coordinated kinds) is taken to be the central problem of economic organization.[6] The positive transaction costs of principal interest thus take the form of maladaptation, which costs vary with the attributes of transactions — yet would vanish but for bounds on rationality and contingent opportunism (which give rise to *incomplete contracts and defection*, respectively).

The key attributes of transactions to which TCE calls attention are asset specificity, uncertainty and frequency. Although much of the explanatory power of the theory turns on asset specificity (Williamson 1971, 1975, 1985; Klein, Crawford and Alchian 1978), which gives rise to bilateral dependency (or the absence thereof), bilateral dependency by itself would not pose a problem were it not for the need for the parties to an incomplete contract to adapt to disturbances. Indeed, the problem of contracting under fully stationary conditions is uninteresting: "Only when the need to make unprogrammed adaptations is introduced does the market versus internal organization issue become engaging" (Williamson 1971, p. 113). Uncertainty is the source of disturbances to which adaptation is required. Frequency is relevant in two respects: reputation effects and setup costs, the net effects of which will vary with the particulars.

Asset specificity in conjunction with disturbances is where the main contractual action resides. Sometimes asset specificity can be traced to nonredeployable durable investments that are made immediately upon signing the contract. But asset specificity will also evolve during contract implementation if what had been a large number of qualified suppliers at the outset is transformed into a bilateral dependency condition between the buyer and initial winning bidder during contract implementation and at the contract renewal interval (Williamson 1985, pp. 61–63). The fundamental ramification of asset specificity is this: because transaction-specific assets can be redeployed to alternative uses and users only at a loss of productive value, continuity preserving governance for such transactions is important.

Governance structures are described as syndromes of attributes that differ in discrete structural ways. Markets and hierarchies are the polar modes to which hybrid (long term) contracting is an intermediate mode (Williamson 1985, 1991). The salient attributes of governance that bear on adaptations (of autonomous and coordinated kinds) are incentive intensity, administrative command and control, and contract law regime. Different values and combinations of these attributes give rise to adaptive strengths and weaknesses.

Specifically, the market-mode features high-powered incentives, little administrative control and a legal-rules contract law regime, which combination is well suited to *implement autonomous adaptations* but poorly suited to effect cooperative adaptations. The set of complementary attributes that describes hierarchy is antipodal to the market mode (in that hierarchy uses low-powered incentives, considerable administrative control and the courts are deferential to the management), the effect of which is to reverse these adaptive capabilities.[7] The hybrid is a compromise mode that is located between market and hierarchy on all three attributes and works well, but not surpassingly well, in both autonomous and coordinated adaptation respects. The viability of the hybrid turns crucially on the efficacy of credible commitments (penalties for premature termination, information-disclosure and verification mechanisms, specialized dispute settlement and the like), the

[6]The implication is that choice of a different central problem will lead to a different dimensionalization.

[7]Expressed in binary terms (weak or strong), the syndrome that *describes the market is strong* incentive intensity, weak administrative command and control, and strong contract law regime (legal rules) whereas hierarchy is described by weak incentive intensity, strong administrative command and control, and weak contract law regime (forbearance, in that the firm is its own dispute settlement forum).

cost-effectiveness of which varies with the attributes of transactions (Williamson 1991; Menard 2004).

Predicted alignments: The discriminating alignment hypothesis out of which TCE works is this: transactions, which differ in their attributes, are aligned with governance structures, which differ in their adaptive strengths and weaknesses, so as to accomplish a transaction cost economizing result. The simple contractual schema summarizes.

Thus assume that a firm can make or buy a component and assume further that the component can be supplied by either a general purpose technology or a special purpose technology. Letting k be a measure of asset specificity, the transactions in Figure 1 that use the general purpose technology are those for which $k=0$. In this case, no specific assets are involved and the parties are essentially faceless. Transactions that use the special purpose technology are those for which $k>0$. Such transactions give rise to bilateral dependencies, in that the parties have incentives to promote continuity, thereby to safeguard specific investments. Let s denote the magnitude of any such safeguards, which include penalties, information disclosure and verification procedures, specialized dispute resolution (such as arbitration) and, in the limit, integration under unified ownership. An $s=0$ condition is one for which no safeguards are provided; a decision to provide safeguards is reflected by an $s>0$ result.

Node A in Figure 1 corresponds to the ideal transaction in law and economics: there being an absence of dependency, governance is accomplished through competition and, in the event of disputes, by court awarded damages. Node B poses unrelieved contractual hazards, in that specialized investments are exposed ($k>0$) for which no safeguards ($s=0$) have been provided. Such hazards will be recognized by farsighted players, who will price out the implied risks.

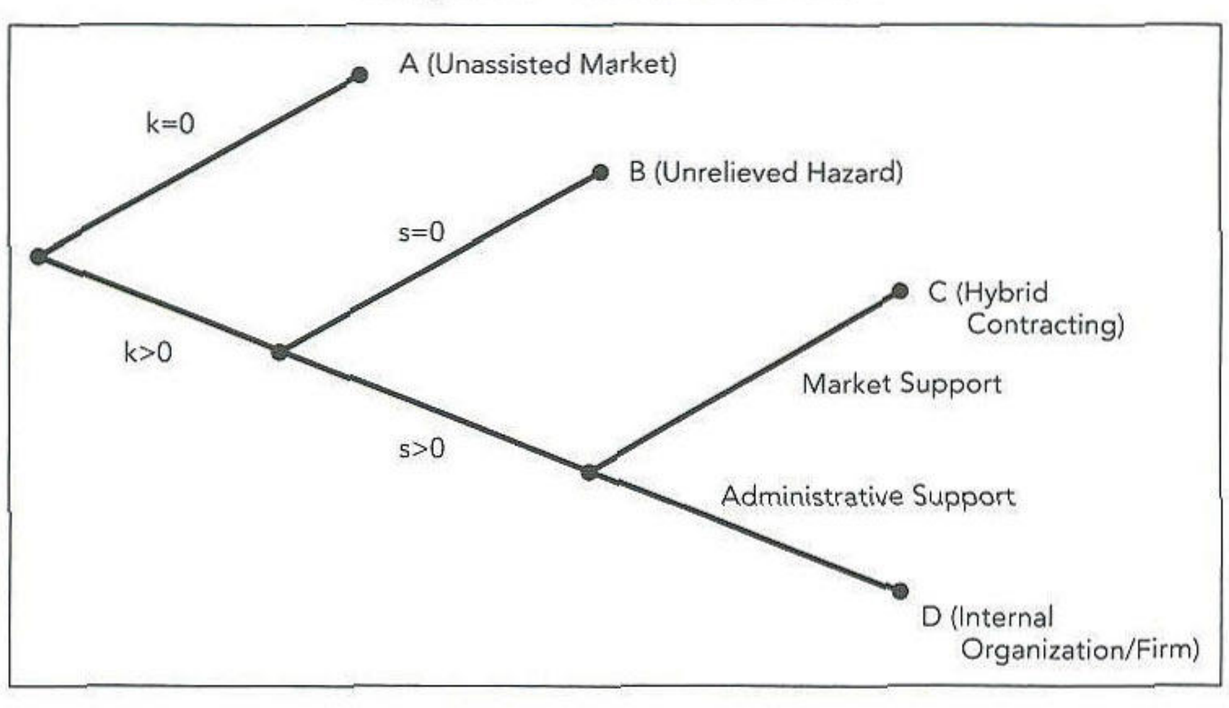
Added contractual supports ($s>0$) are provided at Nodes C and D. At Node C, these contractual supports take the form of interfirm contractual safeguards. Should, however, costly breakdowns continue in the face of best bilateral efforts to craft safeguards at Node C, the transaction may be taken out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

Note that the price that a supplier will bid to supply under Node C conditions will be less than the price that will be bid at Node B. That is because the added security features at Node C serve to reduce the contractual hazard, as compared with Node B, so the contractual hazard premium will be lowered. One implication is that suppliers do not need to petition buyers to provide safeguards. Because buyers will receive goods and services on better terms (lower price) when added security is provided, buyers have the incentive to offer credible commitments. Special cases aside, Node B is an inefficient mode of governance in relation to Node C and thus, in the competitive scheme of things, will not be viable.

Node D governance (hierarchy) involves (1) unified ownership of successive stages, (2) coordinated adaptation at the interfaces by the application of routines (to manage disturbances in degree) as augmented by the use of fiat (to manage disturbances in kind), (3) internal dispute resolution by a common superior (boss) for disputes at the interfaces that cannot be resolved by the parties and (4) the aforementioned bureaucratic cost burdens.

Empirical testing: The logic on which this simple schema relies thus assigns simple generic ($k=0$) transactions to Node A (the market mode where continuity is of no importance and disputes are settled in court), more complex transactions ($k>0$) to Node C (the hybrid

FIGURE 1
Simple Contractual Schema



mode where continuity matters and adaptations are accomplished with the support of credible contracting mechanisms) and very complex transactions ($k \gg 0$) are taken out of the market and organized within hierarchy at Node D. What is furthermore noteworthy is that empirical tests of the predictions of the theory have ensued and have been broadly corroborative. Indeed, "despite what almost 30 years ago may have appeared to be insurmountable obstacles to acquiring the relevant data [which are often primary data of a microanalytic kind], today transaction cost economics stands on a remarkably broad empirical foundation" (Geyskens, Steenkamp and Kumar 2006). This applies, moreover, not merely to tests of intermediate product market contracting (Whinston 2001; Lafontaine and Slade 2007) but to a vast variety of other phenomena that are interpreted as variations on a theme (Macher and Richman 2006). There is no gainsaying that TCE has been much more influential because of its broad and varied applications and the empirical work that it has engendered.

STYLES OF HYBRID CONTRACTING

For the purposes of this section, both simple market exchange (at Node A) and hierarchy (Node D) will be set aside, thereby to focus on transactions of the middle kind (Node C) for which continuity is important, yet not to the degree that integration of successive stages is warranted. The question to be examined is this: How should the interface between buyer and supplier be mediated for hybrid transactions?

By way of an aside, note that outsourcing properly includes outside procurement both for generic goods and services (simple market exchange of a Node A kind) and for more complex transactions (hybrid contracting of a Node C kind). By dealing here strictly with the latter, where continuity of the exchange has value, I do not in the least mean to be dismissive of the importance and widespread use of simple market exchange (which often also gets short shrift in the supply chain literature).

The three leading styles of mediating the contractual interface for hybrid transactions are (1) muscular, (2) benign and (3) credible. Consider each.

The muscular approach assumes that one of the parties, usually the large buyer, deals with smaller suppliers in a peremptory way. Muscular buyers not only use their suppliers, but they often "use up" their suppliers and discard them. The muscular buyer simply tells suppliers that "These are the specifications for the good or service to be provided. Give me your best price." Albeit a workable style of contracting for generic goods and services, hybrid transactions are those for which investments in specific assets are required. That implies that the assets in question cannot be easily redeployed to alternative uses and users if unexpected developments arise. Out of respect for such nonredeployability, suppliers will recognize that they will be at risk if things "go wrong." Accordingly, they will ask the buyer to provide safeguards, thereby to mitigate the risks, or they will increase their price to reflect the added risk that they are being asked to assume, as at Node B.

The muscular approach to the outsourcing of goods and services for which investments in specific assets are made is myopic and inefficient. Real or imaginary power is nonetheless a myopic trap for those who believe that unused power is a waste — which applies to that subset of large manufacturers who lack the foresight to outsource in a more informed and restrained (Node C) way.

The benign approach assumes that the requisite cooperation to deal with unforeseen contingencies, thereby to promote continuity and realize mutual gains, will reliably be forthcoming. Trust supplants power as the key concept. But while most people will do what they say and some will do more most of the time, the concept of contract as reliably cooperative framework cannot be stretched indefinitely. If and as outliers arise such that there is a lot at stake, the aforementioned temptation to defect from the spirit of cooperation and insist on observing the letter of the contract presents itself. The general proposition here is this: when the "lawful" gains to be had from insistence upon the literal terms of the contract exceed the discounted value of continuing the exchange relationship, defection from the spirit of the contract can be projected.

To be sure, reputation effects deter such defections. But that is part of the calculus. If and as reputation effects break down or work poorly, cooperation eventually gives way to conflict and mutual gains are sacrificed unless countervailing measures have been put in place.

The credible contracting approach differs both from benign contracting, in that it is hardheaded (hence does not project benign behavior when outliers appear), and from muscular contracting, in that it is not mean spirited. Rather, out of awareness that all complex contracts are incomplete and thus pose cooperative adaptation needs, the parties exercise feasible foresight — by which I mean that they look ahead, uncover potential hazards, work out the mechanisms and factor these back into the contractual design. Credible commitments are thus introduced to effect hazard mitigation.

Interestingly, history records that safeguards sometimes take very unconventional forms, as in Mesopotamia in 1750 BC where self-inflicted curses were used to deter breach of treaties. One of these reads as follows:[8]

> When you ask us for troops, we will not withhold our best forces, we will not answer you with evasions, we shall brandish our maces and strike down your enemy. . . .

[8]As reported in the *China Daily*, March 22, 1988, p. 1.

> As wasted seeds do not sprout, may my seed never rise, may someone else marry my wife under my very eyes, and may someone else rule my country.

This is not to suggest that credible commitments take this form today. It is, however, interesting that the need to fortify agreements was recognized in ancient Mesopotamia.[9] Moreover, the possibility that credible commitments take nonstandard forms should not be out-ruled today.[10] Whatever the form, *credible* commitment governance supports should everywhere be introduced in cost-effective degree.

Critics of credible contracting nevertheless complain that efforts to provide graduated (cost-effective) supports that vary among transactions run the risk that a calculative orientation will develop and that the relationship will spin out of control. That is a legitimate concern and is illustrated by the widely repeated dictum to "never leave money on the table." The rationale for this dictum is that money left on the table is inefficient. Because the elimination of the inefficiency is always "good," money left on the table presumably reflects carelessness or ignorance. As discussed below, that oversimplifies.

EXTENSIONS AND QUALIFICATIONS

General

TCE holds that there is a place for each generic mode of contracting and that each should be kept in its place. The strengths and weaknesses of each mode need to be understood and the overuse of any is to be avoided. The widely celebrated "marvel of the market" thus needs to be joined with an appreciation for the "marvel of hybrids" and the "marvel of hierarchy."

Given the burdens of bureaucracy to which internal organization is subject, the use of hybrid contracting — as a means by which to support continuity while preserving incentive intensity — can be thought of as a means by which to hold the burdens of bureaucracy (hierarchy) in abeyance. As, however, the needs for coordinated adaptation build up, the efficacy of hybrid contracting is compromised. Taking transactions out of the market and organizing them internally thus becomes appropriate as these latter burdens are prospectively great. The marvel of credible contracting notwithstanding, the hybrid too must be kept in its place.[11]

Disequilibrium Contracting

Implicit in the foregoing is an assumption that the goods and services to be provided have reached an advanced if not mature stage of development. Does the same analysis apply to goods and services in early stages of development? In many ways the answer is yes, in that a transaction cost economizing purpose with emphasis on adaptive efficacy carries over. The parties to some of these transactions will often be confronted, however, with the need to craft ad hoc structures that differ from those that would be recommended if real-time events were less pressing. Capabilities that, in the fullness of time, could be "home grown" (successively built up) may simply be unattainable (except by creating alliances, joint ventures and the like) as the urgency of real-time responsiveness becomes great.

The high-technology sector where a race to be first is underway and few firms possess the requisite set of capabilities at the outset often displays these real-time responsiveness needs. Assembling a team that possesses those capabilities and providing the membership with high-powered incentives that are geared to timeliness is the challenge. These issues do not fall neatly into any of the equilibrium modes of contracting set out in the simple contractual schema.[12]

A related but less complicated intertemporal issue is posed by the problem of "nonconvergent expectations," as described by Harold Malmgren (1961). The issue here is that outsourcing is feasible but the parties are bilaterally dependent and need to coordinate their investments. Lacking similar expectations and unable to communicate and pool information so as to reach agreement, an otherwise viable hybrid contracting relation may give way to unified ownership (hierarchy), added bureaucratic burdens notwithstanding.

Differences in the Institutional Environment

The foregoing assumes implicitly that the issues of governance under discussion occur within the boundaries of an advanced western economy, such as the United States. That simplifies, in that the informal and formal rules of the game are held constant and, as compared with many other nation states, are known to work reasonably well. Feedback aside, the play of the game (governance) takes place within known rules of the game. Figure 2 sets out the implied three-level setup where L1 is the embeddedness level where the informal

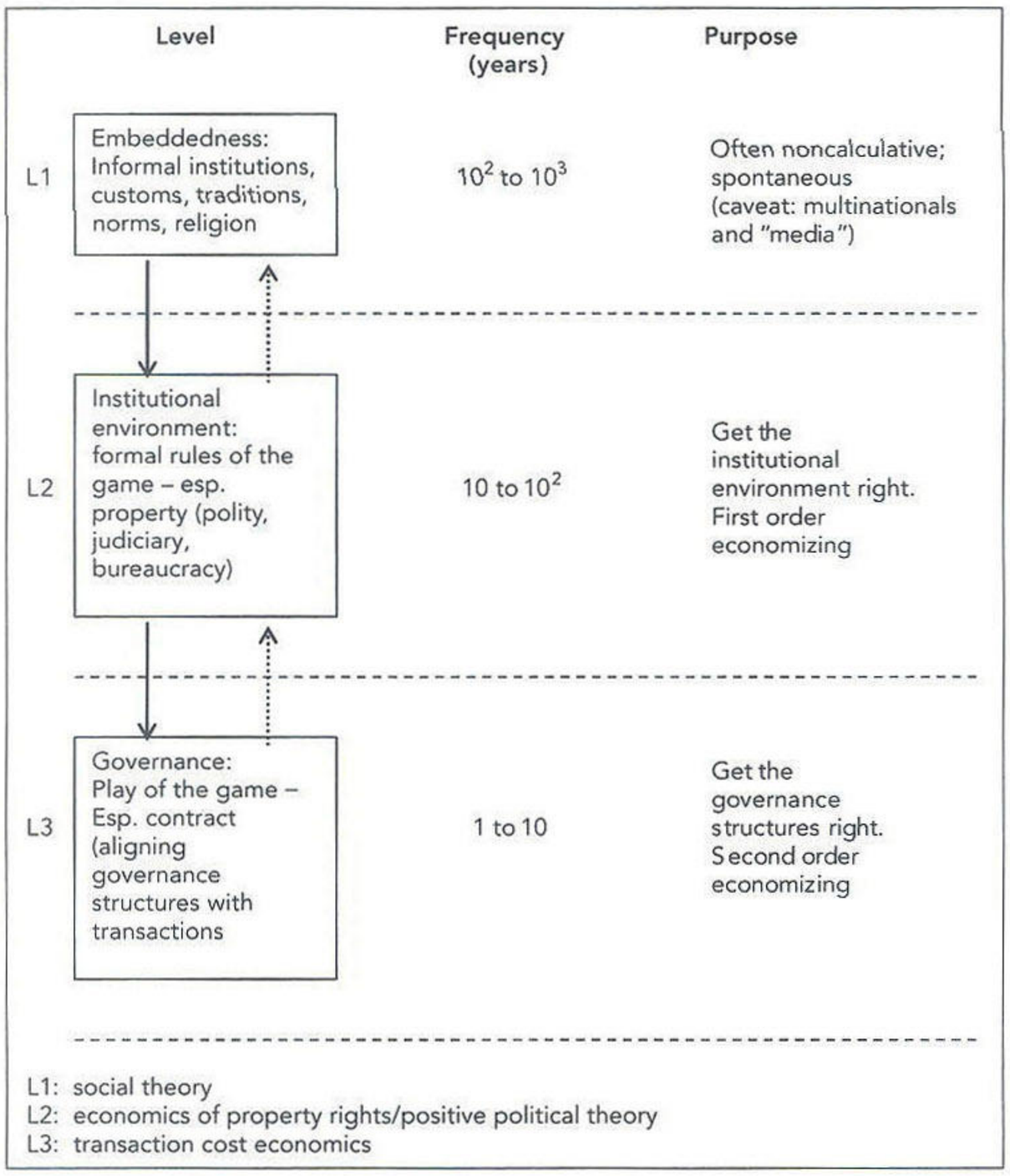
[9]Indeed, I conjecture that many unusual, even strange, contracting practices can be interpreted in part as efforts to reduce the escalation of conflict. Revisiting arcane contracting practices through the lens of credible contracting can be a rewarding exercise.

[10]As I discuss elsewhere, many nonstandard practices that were long believed to have anticompetitive purpose and effect often have credible contracting purposes — as well or instead (Williamson 2007a, b).

[11]Note that hybrid contracting is sometimes believed to be the ideal and that simple market exchange is a relic; hence, simple market exchanges should be transformed into hybrids. TCE holds otherwise: it is not cost-effective, indeed can degrade generic transactions, to re-organize these as hybrids.

[12]For a discussion, see Williamson (1991, 2008).

FIGURE 2
Economics of Institutions



rules (which change very slowly) are located, L2 is the institutional environment where the formal rules (especially the polity and judiciary) change gradually and L3 is the governance level, which is the play of the game where transaction cost economizing realignments are made more frequently.

Suppose, instead of a common boundary, that the exchange in question is between a U.S. firm and a foreign supplier or buyer. Additional complications arise if property rights are less secure and/or courts are less reliable in exchanges across boundaries. Such hazards need to be factored into the transaction cost calculus (Anderson and Gatignon 1988; Murtha 1991; Oxley 1999; Henisz 2000).

Differences in the organization of economic activity among nation states also arise by reason of differences in the institutional environments, an example of which is the difference between Japanese and U.S. automobile firms in outsourcing for parts. In comparison with Japanese subcontracting practices for automobile parts in the 1980s, U.S. automobile manufacturers were much more muscular (Dore 1983). At least in part by reason of L1 and L2 differences, Japanese automobile firms displayed greater confidence in and provided added private ordering supports for outsourcing (Williamson 1985, pp. 120–123).

The cumulative forces of competition nevertheless serve as a check upon excesses of muscular contracting. Thus if many firms lack an appreciation of the benefits of credible contracting whereas some firms perceive that credible contracting is more efficient for the transactions in question, then muscular firms will find that, here as elsewhere, inefficiency invites its own demise. As U.S. firms progressively lost market share, some learned that they both could and should outsource more components (rather than make to their own needs) and contract with their suppliers in a smarter (credible contracting) rather than muscular way.

I do not, however, mean to suggest that outsourcing is an elixir. As Steven Tadelis reports, a recent Deloitte Consulting survey of 25 world-class firms found that "many companies learned that unexpected complexity, lack of flexibility among outsource providers, and other unforeseen problems added costs as well as friction, ultimately translating into higher total costs than anticipated" (2007, pp. 261–262). One quarter of the outsourced transactions were brought back in-house.

Factors that contribute to such "disappointments" include: (1) a failure to correctly assess the comparative efficacy of self-supply (Node D) versus outsourcing at the outset; (2) a failure to provide outsourcing with the requisite supports (e.g., to provide Node C safeguards); (3) a propensity to look for a scapegoat whenever things go badly, even if no superior feasible alternative can be described; and (4) the possibility that conditions have changed, such that an earlier decision should be reversed. To be sure, there could be other reasons as well. My point is that the TCE perspective can and frequently does help to uncover and illuminate the issues.

Excesses of Calculativeness

Consider the economic aphorism to which I referred earlier "never leave money on the table," because money left on the table signifies waste that can be converted to mutual gains by perfecting the bargain. That is an important lesson. As with many aphorisms, however, there can be too much of a good thing.

Interestingly, the economists' dictum never to leave money on the table has been disputed by some investment bankers and businessmen who advise "always leave money on the table." But that sounds foolish. How could this be? As sometimes happens, good theory (for one purpose) and good practice (for another) divide.

Implicitly, these practitioners recognize that constructive and strategic contractual refinements are sometimes difficult to distinguish. If the latter is suspected, and if real or suspected strategic ploys invite replies in kind, then what could have been a successful give-and-take exchange could be compromised.

Thus suppose that terms and mechanisms of three kinds can be distinguished: those that both parties unambiguously perceive to have the purpose of improving the bargain, thereby to realize mutual gains; those that are deeply problematic in mutual gain respects; and those for which there is asymmetric knowledge of the consequences. Plainly, terms and mechanisms of the first kind will be approved by both. Mechanisms of the second kind that are perceived to benefit one of the parties at the expense of the other will be priced out and withdrawn (or will not even be proposed). The third kind is where the opportunities for strategic behavior reside: one party proposes a contractual refinement the prospective gains from which are skewed in its favor, yet represents otherwise, while the other party is unable to ascertain the true ramifications. Out of concern that adverse strategic purposes could be lurking, the vulnerable party responds with a refinement proposal of its own where the asymmetry runs the other way.

Successive ploys and counterploys of this kind could plainly jeopardize the joint gains from a simpler and more assuredly constructive contractual relationship. Always leaving money on the table can thus be interpreted as a signal of constructive intent to work cooperatively, thereby to assuage concerns over relentlessly calculative strategic behavior. To be sure, efficacy will vary with perceptions of authenticity, to which the behavioral economics literature on face-to-face meetings can be instructive. Also, little money will be left for Node A transactions.

The upshot is that, by contrast with one-sided muscular contracting and idealistic benign contracting, credible contracting is both more hardheaded and wise. The parties are hardheaded in that they expressly provide for credible commitment mechanisms to which mutual benefits can be confidently ascribed. They are wise if and as the parties forbear the introduction of mechanisms, which, in a world of asymmetric knowledge, invite the escalation of strategic behavior with net negative effects.

RELATION TO THE SUPPLY CHAIN LITERATURE

Some cross-referencing between the TCE and supply chain literatures notwithstanding, these two are mainly disjunct. Arguably, the complementarities and tensions between them should be more fully worked up, but that is too large a project to undertake here. What I do instead is look at SCM from the TCE perspective on the possibility that this could be the beginning of a constructive conversation. I start with a sketch of the encompassing nature of SCM.

SCM as an Encompassing Perspective

The encompassing nature of the SCM literature is widely regarded as a virtue, as illustrated by the influential survey paper on "Defining Supply Chain Management" (Mentzer, deWitt, Keebler, Min, Nix, Smith and Zacharias 2001). Thus Mentzer et al. hold that the object of SCM is "to integrate and manage the sourcing, flow, and control of materials using a total systems perspective across multiple functions and multiple tiers of suppliers" (2001, p. 6). Indeed, SCM "extends the concept of partnerships into a multiform effort to manage the total flow of goods from the suppliers to the ultimate customer" (2001, p. 7). The "key processes" through which SCM works "typically include customer relationship management, customer service management, demand management, order fulfillment, manufacturing flow management, and product development and commercialization" (2001, pp. 10–11).

Others concur. Thus whereas the Council of Logistics Management (1998) defined logistics as "that part of the supply chain process that plans, implements, and controls the efficient flow and storage of goods, services, and related information from the point of origin to the point of consumption in order to meet customers' requirements" (as quoted in Mentzer et al. 2001, p. 16), the scope of SCM goes further to include "planning and control, work structure, organization structure, product

flow facility structure, information flow facility structure, product structure, management methods, power and leadership structure, risk and reversal structure, culture and attitude" (Cooper, Lambert and Pagh 1997, p. 10). Indeed, SCM is referred to as an "integrative philosophy" (Cooper and Ellram 1993, p. 13) by some and as a "management philosophy" (Mentzer et al. 2001, p. 7) by others. As reported in Mentzer et al. (2001, pp. 15–18), this encompassing view of SCM is shared by many others.[13] Expansive reliance on "trust" is also featured (Morgan and Hunt 1994; Mentzer et al. 2001, p. 12). And the idea that the supply chain can be mobilized in the service of collaborative innovation enjoys growing support.

The Simplicity Precept

The first precept of pragmatic methodology is to keep it simple. The SCM literature not only makes no reference to this precept but, as discussed above, much of it approves of its encompassing character. Among the questions that arise in this connection are these: (1) Does the encompassing nature of SCM introduce so many degrees of freedom that any outcome whatsoever can be explained by SCM after the fact? (2) Were SCM to be reduced to its rudiments, which features would go and which would remain? And (3), how far can TCE be pushed to make allowance for SCM concerns? I leave the first two questions for SCM community to address, should it see fit. In a very preliminary and tentative way, I focus on the last.

I begin with the boundary of the firm issue as addressed by TCE (Williamson 1985, pp. 96–98), where the "core technology" (Thompson 1967, pp. 19–23) is taken as given. The question as posed there is whether the core firm should integrate backwards into raw materials, laterally into components, and forward into distribution. Lateral integration into components is what I mainly emphasize here.

As discussed in the second section and displayed in Figure 1, TCE aligns individual transactions (which differ in their attributes, of which asset specificity differences are especially consequential) with modes of governance so as to effect a transaction cost economizing match. Buffer inventory differences are ignored for this purpose, although this does not imply that buffer inventories do not vary among transactions. For any given transaction, however, buffer inventory differences are implicitly assumed to be nil across modes. And buffer inventory interactions among transactions are likewise set aside.

Buffer inventories play a much more prominent role in the SCM literature. Rather than treat each transaction separately, the systems benefits of organizing clusters of related transactions as supply chains are introduced. In the degree to which buffer inventory outages (or quality defects) at any stage in the supply chain ramify across other stages, the boundary of the firm could sometimes differ by reason of SCM considerations.

My suggestion for proceeding with this last would be to take the initial TCE assignments of make-or-buy as provisional and ask whether some of these should be revised by reason of systems considerations. The simplicity precept will be served if attention is focused on what are regarded as the key systems considerations. Which are the key features, what are their defining attributes, and what are the governance ramifications. My conjecture is that some transactions that were originally assigned to Node A will be provided with (reasonably simple) Node C supports, that some at Node C will be taken out of the market and organized internally (as Node D) and that the creation of "associations" that permit outside suppliers to share their experiences will sometimes be perceived to have mutually beneficial reputation effects by suppliers and buyers alike.[14]

This pulls up well short of the encompassing perspective of the SCM literature. Such a simple setup could, however, help to provide SCM with predictive content (thereby to relieve the criticism that SCM has too ready recourse to ex post rationalizations) and be an instructive place to begin.

TCE Queries for SCM

Given the foregoing description of TCE and its methods and research agenda, I suggest that SCM confront the following issues:

(1) TCE subscribes to pragmatic methodology. What is the methodology of SCM?
(2) What views of human nature are associated with SCM? What are the ramifications for the research methods and research agenda of SCM?
(3) TCE examines economic organization through the lens of contract; the make-or-buy decision is the paradigm transaction; and any issue that arises as or can be reformulated as a contracting problem can be examined to advantage in TCE terms. What is the lens through which SCM works? What is the paradigm problem? And does the approach have broad application to other phenomena that are viewed as variations on a theme?
(4) TCE takes economizing on transactions costs, mainly with respect to maladaptation, to be the main case. What is the main case for SCM?
(5) The unit of analysis for TCE is the transaction. The corresponding unit of analysis for SCM is what?
(6) TCE views governance as the means by which to infuse order, thereby to mitigate conflict and realize mutual gains. TCE also describes governance

[13] The Wikipedia discussion of "Supply Chain" and related topics is very much in this encompassing tradition.

[14] Toyota's use of supplier associations is mentioned in Williamson (1985, p. 121).

structures — mainly markets, hybrids and hierarchies — as discrete structural alternatives that possess distinctive strengths and weaknesses in autonomous and coordinated adaptation respects. What purpose does SCM ascribe to governance? How are alternative modes of governance described?

(7) The operationalization of TCE is accomplished by naming the key attributes with respect to which transactions differ, describing governance structures similarly and invoking the discriminating alignment hypothesis — according to which transactions, which differ in their attributes, are aligned with governance structures, which differ in their costs and competences, in a transaction cost economizing way. How is SCM operationalized?

(8) TCE gives prominence to empirical testing of predictions with microanalytic data. How does SCM come out in these respects?

(9) TCE eschews appeal to user-friendly concepts, such as the illusive concept of trust. What benefits accrue to the more widespread use of trust among SCM practitioners? What are the costs?

SCM Queries for TCE[15]

In the spirit of give and take, TCE stands to benefit if SCM specialists present it with comments and questions from the SCM perspective. What are they?

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[15]My main contact with SCM was as a committee member on the supply chain integration project sponsored by the National Academy of Sciences/National Research Council, 1997–99. I leave it to others to pose the relevant questions.

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