Reading Instructions:

The following text provides a summary of Transaction Cost Economics.

The text is written by Oliver Williamson. Williamson is known as a writer of texts that are hard to understand. He tends to use long and complex sentences and he has a preference for unusual words. Thus, if you find the text hard to read, don't worry, it is not you, it is the text.

The whole paper is interesting, but there are some sections that are particularly important for the course. You should obviously feel free to read more if you wish to do so, but all of you should read the following sections:

Section 2 (pages 29-33, without subsection 2.5)
Section 3 (pages 35-39, without subsection 3.4)

TRANSACTION COST ECONOMICS: HOW IT WORKS; WHERE IT IS HEADED**

BY

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Key words: firms, transactions, governance, economizing, mechanisms, institutional economics

The transaction cost economics program that is described herein is the product of two recent and complementary fields of economic research. The first one is the New Institutional Economics; the second one has been described as the 'new economics of organization' (Moe (1984, 1990)). A key conceptual move for both was to push beyond the theory of the firm as a production function (which is a technological construction) into a theory of the firm as a governance structure (which is an organizational construction).

Work in both of these areas began to take shape in a concerted way in the 1970s and has grown exponentially since. The economics of organization is the more theoretical of the two and more closely relates to public policy issues traditionally associated with the field of industrial organization. The New Institutional Economics is more interdisciplinary and has applications to the contiguous social sciences.

Although transaction cost economics has a broad reach – any issue that arises as or can be reformulated as a contracting problem is usefully examined through the lens of transaction cost economizing – it does not tell you everything. Moreover, within the ambit of issues to which transaction cost economics is related, it has greater application value in some areas than in others. Transaction cost economics thus takes its place alongside other – partly rival, partly complementary – perspectives on the theory of firm and market organization. Jon Elster's dictum that 'explanations in the social sciences should be organized around (partial) *mechanisms* rather than (general) *theories*' (1994, p. 74; emphasis in original) is one to which transaction cost economics subscribes.

I begin with a sketch of the New Institutional Economics. Section 2 sets out a series of questions which any theory of economic organization should be ex-

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pected to address. Section 3 deals with implementation of the transaction cost economics project. Background conceptual moves out of which transaction cost economics works, some of which are still controversial, are examined in section 4. Extant and potential applications are sketched in section 5. Concluding remarks follow in section 6.

1 THE NEW INSTITUTIONAL ECONOMICS

1.1 *General*

The New Institutional Economics comes in two parts. Part one deals with the institutional environment – the rules of the game – and traces its origins to Ronald Coase's 1960 paper on 'The Problem of Social Cost.' Part two deals with the institutions of governance – the play of the game – and originates with Coase's 1937 paper on 'The Nature of the Firm.' Both parts got underway in the early 1970s (Davis and North (1971), Williamson (1971), and Alchian and Demsetz (1972)) and progressively took shape over that decade (North (1981), Williamson (1975, 1976, 1979), Klein, Crawford, and Alchian (1978)). Exponential growth occurred in the 1980s and since. Two Nobel Prizes – one to Ronald Coase in 1991; the other to Douglass North in 1994 – celebrate its influence.

In addition to major intellectual debts to Coase, both levels of analysis have benefited from interim developments. Especially important to the institutional environment was interim work in economic history during which cliometrics took shape (Fogel and Engerman (1971, 1974)). Related work on property rights (Demsetz (1969)) and path dependence (David (1985), Arthur (1989)) have also been important. Work on the institutions of governance benefited from the extensive market failure literature, as summarized in Kenneth Arrow's paper on 'The Organization of Economic Activity: Issues Pertinent to the Choice of Market *versus* Nonmarket Allocation' (1969), from research on organization theory, especially that done at Carnegi (March and Simon (1958), Cyert and March (1963)), and from business history (Chandler (1962)).[1]

The work at Carnegie aside, which took exception with economic orthodoxy but had much more influence on organization theory than on economics, the new economics of organization had no obvious predecessor. By contrast, there definitely was an earlier institutional economics movement – which had fallen on hard times.

Criticisms of the older style of institutional economics in America have been scathing. Unable or unwilling to offer a rival research agenda, the older institutional economics was given over to methodological objections to orthodoxy

1 As discussed below, the economics of property rights is also pertinent to the institutions of governance.

(Stigler (1983), p. 70, Coase (1984), p. 230, and Matthews (1986), p. 903). Like the American Legal Realism movement, with which older style institutional economics shares many common intellectual and public policy attributes, older style institutional economics 'ran itself into the sand.'[2] The problem was not that the economic and legal orthodoxies with which these two movements took exception were beyond legitimate criticism. Orthodoxy always needs good critics. The maxim that it takes a theory to beat a theory (Kuhn (1970)) nevertheless applies. Both older style institutional economics and American Legal Realism were remiss by failing to advance a positive research agenda.

Moreover, it does not suffice to prescribe a general approach – for example, 'study institutions' – or, for that matter, to describe institutions, such as the lumber industry in Wisconsin (Hurst (1964)) in detail. Focus is needed, whence issues of purposefulness and choice of the unit of analysis are important. Of the many purposes served by institutions, what is the 'main purpose'? Going beyond the proposition that institutions matter (with which now almost everyone agrees – although it was not always so) to demonstrate that *institutions are susceptible to analysis* has been the major challenge. Accepting and responding to that challenge is what distinguishes the NIE from its predecessors (Matthews (1986), p. 903). Arrow's overview is pertinent (1987, p. 734; emphasis added):

> Why ... has the work of Herbert Simon, which meant so much to us all, nevertheless had so little direct consequence? Why did the older institutional school fail so miserably, though it contained such able analysts as Thorstein Veblen, J.R. Commons, and W.C. Mitchell? ... [One answer is that] in fact there are important specific analyses, particularly in the work of the New Institutional Economics movement. But it does not consist primarily of giving new answers to the traditional questions of economics – resource allocation and the degree of utilization. Rather it consists of answering *new questions*, why economic institutions have emerged the way they did and not otherwise; it merges into economic history, but brings sharper [microanalytic] ... reasoning to bear than has been customary.

1.2 *A Framework*

Four levels of social analysis are distinguished in Figure 1.[3] The solid arrows that connect a higher with a lower level signal that the higher level imposes con-

2 This is the way John Henry Schlegel describes the demise of the American Legal Realism (1979, p. 459). For an overview of the older institutional economics, see the three volume collection of articles in Warren J. Samuels (ed.), *Institutional Economics* (1988).

3 This figure is not exhaustive. An evolutionary level in which the attributes of human actors have their origins in the pleistocene could also be introduced (Cosmides and Tooby, (1996)).

straints on the level immediately below. The reverse arrows that connect lower with higher levels are dashed and signal feedback. Although, in the fullness of time, the system is fully interconnected, for my purposes here, these feedbacks are largely neglected. The NIE has mainly concentrated on action at levels 2 and 3.

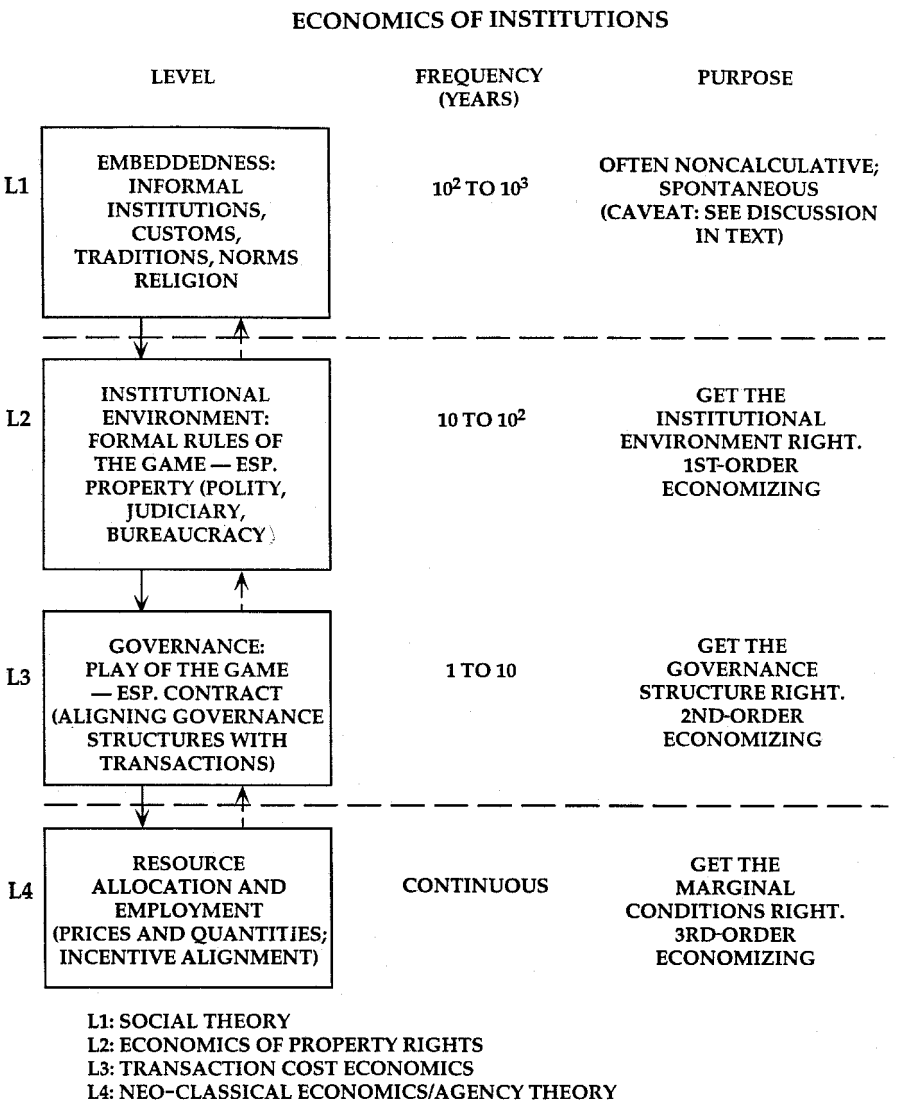

Figure 1

The top level is the social embeddedness level. This is where the norms, customs, mores, traditions, etc. are located. Religion plays a large role at this level. Although Level 1 analysis is undertaken by some economic historians and other social scientists (Banfield (1958), Putnam (1993), Huntington (1996), and Nee (1997)), Level 1 is taken as given by most economists. Institutions at this level change very slowly – on the order of centuries or millennia – whereupon Douglass North poses the query, 'What is it about informal constraints that gives them such a pervasive influence upon the long-run character of economies?' (1991, p. 111). An answer to this perplexing question is not attempted here, but I conjecture that the mainly spontaneous origin of these practices – deliberative choice of a calculative kind is minimally implicated – is a contributing factor. Be that as it may, the resulting institutions have a lasting grip on the way a society conducts itself. Some societies feel threatened by that and take measures to protect themselves against 'alien values.'[4]

The second level is what I referred to earlier as the institutional environment. The structures observed here are the product of politics and provide the rules of the game within which economic activity is organized. The polity, judiciary, and bureaucracy of government are all located here. The laws regarding property rights – their definition and enforcement – are prominently featured.

According to North, institutions are 'the humanly devised constraints that structure political, economic, and social interactions. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules (constitutions, laws, property rights)' (1991, p. 97). Elsewhere he argues that 'institutions consist of a set of constraints on behavior in the form of rules and regulations; and, finally, a set of moral, ethical, behavioral norms which define the contours and that constrain the way in which the rules and regulations are specified and enforcement is carried out' (North (1984), p. 8). So described, the informal constraints are located at Level 1 and the formal rules – the polity, judiciary, bureaucracy – are located at Level 2. First-order economizing – get the institutional environment right – is featured here. Such choices are vitally important to the economic productivity of an economy (Rosenberg and Birdzell

4 Note that the condition of embeddedness to which Mark Granovetter refers is a more microanalytic, ongoing, contractual kind. Granovetter's purpose is to understand 'the problem of the trust and order in economic life' (1985, p. 493), in relation to which culture is an 'ongoing process, continuously constructed and reconstructed during interaction' between the parties (1985, p. 486).

One way to interpret this is to introduce a network level of analysis and to recognize that reputation effects operate at three levels: the level of society, the level of the network, and the level of the transaction. All are pertinent to the governance of contractual relations – in that transactions that are embedded in a society and/or in an industry in which reputation effects work well have lesser needs for transaction-specific safeguards, *ceteris paribus*. More generally, the argument is this: transaction cost economizing does not proceed heedless of the social and industrial context but ought to be informed by all significant regularities whatsoever. Once identified and explicated, societal level and network level regularities are incorporated with the economizing calculus.

(1986), Coase (1992), North (1994), Levy and Spiller (1994), Olson (1996), and Henisz (1997)), but cumulative change of a gradual kind is difficult to orchestrate. Massive discontent – civil wars (the Glorious Revolution (North and Weingast, 1989)), or occupations (following World War II), or perceived threats (the Meiji Revolution), or breakdowns (Eastern Europe and the former Soviet Union), or a military coup (Chile), or a financial crisis (New Zealand) – will, however, occasionally produce a sharp break from established procedures. Rare windows of opportunity to effect broad reform are thereby opened. Such 'defining moments' are nevertheless the exception rather than the rule. Otherwise, major changes in the rules of the game occur in the order of decades or centuries.

Of the variety of factors that are brought in through Level 2 analysis, a considerable share of the analytic load is borne by the economics of property rights: 'Modern institutional economics focuses on the institution of property, and on the systems of norms governing the acquisition or transfer of property rights' (Furubotn and Richter (1991), p. 3). As between the various categories of property rights (Bromley (1989)), the right of ownership – which consists of the right to use an asset, the right to appropriate the returns from an asset, and the right to change its form, substance, or location (Furubotn and Richter (1991), p. 6) – is the most important.

Work on the economics of property rights flourished in the 1960s. Applications included the study of pollution, allocating the electromagnetic spectrum, dealing with tortious claims, understanding the military draft, defining hunting rights for North American Indians, and interpreting the modern corporation (Demsetz (1967)). A widely held premise was that 'A private-enterprise system cannot function properly unless property rights are created in resources, and, when this is done, someone wishing to use a resource has to pay the owner to obtain it. Chaos disappears; and so does the government except that a legal system to *define* property rights and to *arbitrate* disputes is, of course, necessary' (Coase (1959), p. 12; emphasis added). Property rights were thus viewed both as the conceptual key that unlocks many of the puzzles of economic organization and as the means by which to realize superior economic performance.

As it turned out, the study of property further needed to be joined by the study of contract, but that did not register for another decade. As Eirik Furubotn and Rudolf Richter observe, contract was neglected because, 'In effect, there was faith that ... all contracts would be guaranteed perfectly and costlessly by the functioning of the legal system' (1991, p. 7–8). With the benefit of hindsight, that is implausible and is the opening through which the governance of contractual relations walked in.

The third level is where the institutions of governance are located. Although property remains important, a perfectly functioning legal system in order to enforce contracts is not contemplated. Instead of costless court ordering, a comparison of costly court enforcement with costly private ordering is needed. Much of the relevant governance actions moves to the latter.

Transaction cost economics operates at Level 3. Taking the rules of the game at Level 2 as shift parameters, Level 3 deals with the play of the game. Alternative modes of organization are described as syndromes of attributes that differ in discrete structural ways. Second-order economizing applies: get the governance structures – markets, hybrids, firms, bureaus – right. The period over which such decisions come up for consideration is of the order of a year to a decade.

Level 4 moves from discrete structural to marginal analysis. This is the level with which neo-classical economics and, more recently, agency theory have been concerned. The neo-classical decision variables are price and output; agency theory deals with an efficient incentive alignment in the face of differential risk aversion (Holmstrom (1979)) and/or multi-task factors (Holmstrom and Milgrom (1991)) or multi-principal concerns (Dixit (1996)). Third-order economizing prevails, which entails getting the marginal conditions right. Adjustments in price and output are made in a (more or less) continuous way in response to changing market conditions.[5]

The remainder of this paper predominantly focuses on the discrete structural analysis of governance at Level 3.

2 WHAT ARE THE QUESTIONS?

How does transaction cost economics work? First and foremost, it works off of good ideas. Key ideas include comparative economic organization (Coase (1937)), private ordering (Llewellyn (1931)), adaptation as the central problem of economic organization (Barnard (1938); Hayek (1945)), behavioral attributes of human actors (Simon (1985)), and the distinction between the institutional environment and the institutions of governance (Davis and North (1971)). It will not go unnoticed that many of these good ideas have their origins in the 1930s, which appears to have been an unusually fertile decade for the social sciences.

Although the list of questions set out in this section is not exhaustive, they are, I think, questions that every theory of economic organization should be expected to answer. My response to the observation that the questions are ones to which transaction cost economics easily relates is this: Which questions should be deleted? What questions should be added?[6]

5 Alternatively, in a comprehensive (Arrow-Debreu) contracting set-up, decisions are reached once-for-all at the outset.

6 George Stigler observes that my *New Palgrave* entry on 'Vertical Integration' raises a 'large number of literal and figurative question marks in the portion dealing with other theories' but few in 'discussing his favorite variables, transaction costs and asset specificity' (1988, p. 1735). Actually, my discussion is symmetrical, in that I pose a common set of questions for all theories of vertical integration. Those who would pose different questions should name them.

2.1 *What Are the Phenomena of Interest?*

'Why are there so many kinds of organization?' (Hannan and Freeman (1977), p. 936). This is a variant on the earlier Coasian question: Given that there are markets, why are there firms? (1937, pp. 387–388). The broader query goes beyond the market and firm dichotomy to include hybrid contracting, regulation, non-profits, public bureaus, and so on and invites the study of variations within categories (especially hierarchical variants within firms) as well.

In order to answer this question one needs to start somewhere. Working up an archetypal problem, if such exists, is the obvious place to begin. Vertical integration – or, in more mundane terms, the make-or-buy decision (Coase (1937), Williamson (1971, 1979, 1991), Klein, Crawford, and Alchian (1978), Grossman and Hart (1986), and Baker, Gibbons, and Murphy (1997)) – has been the archetypal problem for transaction cost economics.

As compared with other interesting contracting issues – for labor, with consumers, or for capital – contracts between firms in intermediate product markets have the advantage that the two parties can be presumed to be risk-neutral and, roughly, to be dealing with each other on a parity. Each has extensive business experience and has or can hire specialized legal, technical, managerial, and financial expertise. Attention can therefore be focused on the attributes of the transaction and the properties of alternative modes of governance – rather than be deflected by differential risk aversion or by competence disparities between the parties (as might arise, for example, with contracts between firms and inexperienced consumers). Intermediate product market transactions are simpler in these respects and therefore easier to unpack. Assuming that economic organization works out of variations on a few key themes, working from simple to more complex, in which added complications are folded in, has obvious advantages.

2.2 *How Are Human Agents Described?*

Although economists often ascribe analytically tractable attributes (such as hyperrationality) to human agents, Herbert Simon advises social scientists to be more circumspect: 'Nothing is more fundamental in setting our research agenda and informing our research methods than our view of the nature of the human beings whose behavior we are studying' (1985, p. 303). The two key attributes to which Simon thereafter refers are the cognitive ability and the self-interestedness of human actors. Bounded rationality – behavior that is *intendedly* rational but only *limitedly* so – is the cognitive condition to which Simon refers. 'Frailties of motive' describes the condition of self-interestedness (Simon (1985), p. 303).

Transaction costs economics subscribes to bounded rationality and urges that the crucial importance of bounded rationality for economic organization resides

in the fact that *all complex contracts are unavoidably incomplete.*[7] Also, transaction cost economics describes self-interestedness not as frailty of motive but as opportunism, whereupon additional contractual complications are posed. Not only does an incomplete contract contain gaps, errors, and omissions (by reason of bounded rationality), but mere promise, unsupported by credible commitments, is not self-enforcing by reason of opportunism.

Although opportunism is an unflattering attribute, it is nonetheless basic to the logic of organization – in that, absent opportunism, there is no contractual reason to supplant market by hierarchy (Williamson (1985), pp. 30-32, 64-67). Thus, although it is unnecessary to assume that all human agents are identically opportunistic, much less continuously opportunistic, it is truly utopian to presume unfailing stewardship. (Even the saints are known to be fallible; and most of us are better described as mere mortals.)

It is useful in this connection to distinguish between day-to-day routines and occasional disturbances of less familiar or nonstandard kinds. As between frailty of motive and opportunism, which applies where?

I submit that frailty of motive adequately describes day-to-day activity most of the time. People usually will do what they say (and some will do more) without self-consciously asking whether the effort is justified by expected discounted net gains. If they slip, it is a normal friction and often a matter of bemusement.

Suppose, however, we should ask another question: Which assumption better takes us into the deep structure of economic organization? Specifically, if our concern is not with day-to-day affairs but with long-term contractual relations, how should we proceed?

An important part of the exercise now is to look ahead, perceive hazards, and fold these back into the organizational design – in all significant contractual contexts whatsoever (intermediate product market, labor market, capital market, etc.). If candid reference to opportunism alerts us to avoidable dangers, which the more benign reference to frailties of motive would not, then there are real hazards in the more benevolent construction. Attenuating the *ex post* hazards of opportunism through the *ex ante* choice of governance is central to the transaction cost economics exercise.

The parallel between the concept of opportunism, as it applies to contract, and that of oligarchy, in relation to democracy, is striking. Robert Michels concluded in his famous book, *Political Parties*, with the observation that 'nothing but a serene and frank examination of the oligarchical dangers of democracy will enable us to minimize these dangers' (1966, p. 370). The corresponding proposition on opportunism is this: Nothing but a serene and frank examination of the hazards of opportunism will enable us to mitigate these hazards.

7 Others emphasize that individual decision makers (consumers) often have problems making informed choices. I do not disagree, but I would observe that 'organization' can and does relieve the limits to which individual decision makers are subject.

2.3 *How Is the Firm Described?*

As David Kreps has put it (1990, p. 96):

> The [neo-classical] firm is like individual agents in textbook economics, which finds its highest expression in general equilibrium theory (see Debreu (1959), Arrow and Hahn (1971)). The firm interacts with other firms and with individuals in the market. Agents have utility functions, firms have a profit motive; agents have consumption sets, firms have production possibility sets. But in transaction-cost economics, firms are more like markets – both are arenas within which individuals can interact.

Thus whereas neo-classical economics describes the firm as a production function, which is a technological construction, transaction cost economics describes the firm as a governance structure, which is an organizational construction.

Upon describing firms and markets as *alternative* modes of governance, new answers to old questions can be attempted. Rather than view the efficient boundaries of the firm in terms of technology (economies of scale and scope), the efficient boundaries can be derived by aligning different transactions with governance structures (firm or market) in a discriminating way. Both of the original Coasian questions – Why are there firms? and Why is not all activity organized in one large firm? – can be addressed.

2.4 *What Main Purpose Is Served by Economic Organization?*

Economic organization is very complex and services many purposes. It is nonetheless useful to focus on the main purpose, in relation to which other purposes are treated as extensions or refinements. Transaction cost economics concurs with Friedrich Hayek (1945) and Chester Barnard (1938) that adaptation is the central problem of economic organization.

According to Hayek, 'economic problems arise always and only in consequence of change' (1945, p. 523), whence 'the economic problem of society is mainly one of rapid adaptation in the particular circumstances of time and place' (1945, p. 524). Barnard likewise featured adaptation, albeit of a different kind. On Barnard's reading, 'the survival of an organization depends upon the maintenance of an equilibrium of complex character... [This] calls for readjustment of processes internal to the organization..., [whence] the center of our interest is the processes by which [adaptation] is accomplished' (1938, p. 6). Whereas the adaptations to which Hayek refers are *autonomous* adaptations in which individual parties respond to market opportunities as signaled by changes in relative prices, the adaptations of concern to Barnard are *cooperative* adaptations accomplished through administration within the firm.

Transaction cost economics recognizes that a high performance system needs adaptive capacities of both kinds. As described in section 3, alternative modes of governance are described in terms of their differential competence to deliver adaptations of both kinds. What I should like to emphasize here are that (1) theories of organization that feature adaptations should not be described as 'static,' and (2) theories of organization that rely on administration to accomplish cooperative adaptation (sometimes by fiat) are very definitely concerned with 'management.' The upshot is that transaction cost economics is very much an intertemporal, adaptive, managerial exercise – although this is not to say that more dynamic theories or more prominent provisions for management are unneeded.

2.5 *Does the Theory Scale Up?*

Like other theories of the firm, the transaction cost theory of the firm as governance structure works out of a highly simplified set-up. A key issue for all candidate theories of the firm is how do they explain the boundaries of the firm? One possibility is that successive application of the same underlying mechanism is what defines the boundary. Alternatively, a theory may appeal to other forces or factors to explain the boundary.

Under the firm-as-a-production function set-up, 'the cases of clear economies of integration' were long believed to 'involve a physical or technical integration of the processes in a single plant' (Bain (1968), p. 381). In that event, what explains the joinder of successive technologically separable stages of production, the multi-plant firm, and/or forward integration out of production into distribution? Appeal to a non-technological force was needed, of which market power was the obvious candidate.[8] However, as few firms possess market power of a durable kind, integration to effect monopoly purpose (of both price discrimination and strategic entry impeding kinds) has limited explanatory power. Given that narrow technological grounds and the implausible monopoly grounds out of which the neo-classical set-up works provide a very incomplete explanation for the boundary of the firm, there is a need to turn elsewhere.

Consider the more recent property rights theory of the firm associated with Sanford Grossman and Oliver Hart (1986). According to Grossman and Hart, the integration of a supplier (stage A) and a buyer (stage B) entails *directional ownership*. Thus, whereas the usual view of vertical integration is that of *unified* ownership, according to which both stages report to a common peak coordinator who

8 According to Joe Bain, 'the trained observer tends to form a considerable suspicion... that there is a good deal of vertical integration which... [is] not justified on the basis of any cost savings. This is apparently true in particular of the integration of distributive facilities... [where] the rationale of the interaction is evidently the increase of the market power of the firms involved' (1968, p. 381). As Coase notes, this was a widely shared opinion (1972).

manages the two stages so as to promote coordinated investment and adaptation, that is not an option under Grossman and Hart. Instead, either A buys B (in which event A has residual rights of control) or B buys A (in which event B has residual rights of control), and it matters which way the ownership goes. Indeed, directional ownership is what most clearly distinguishes Grossman and Hart from other theories of vertical integration.

Inefficiency, in the Grossman and Hart set-up, is entirely attributable to *ex ante* investment distortions that are induced by alternative ownership arrangements. Grossman and Hart further maintain that each stage makes its own investment decision under directional integration, that each stage appropriates its own net receipts, and that management is never called upon to manage. Except as they grant that all contracts are unavoidably incomplete, theirs is a theory of property rights and of property rights only (Holmstrom (1996)).

Whether or how this management-free firm would scale up from two stages to include the directional integration over many has never been addressed – although Hart (1995) makes frequent references to the modern corporation, the suggestion being that these fall within the ambit. Given that the logic out of which this set-up works is implausible (Kreps (1996)) or mistaken (Maskin and Tirole (1997)), scaling up from two to *N* stages only compounds the difficulties. (To date, no such attempt has been made.)

The transaction cost economics approach to the boundary of the firm begins with a 'core technology' (Thompson (1967)), within which integration is treated as unproblematic. Forward, lateral, and backward integration in relation to the core (Williamson (1985), pp. 96-98) are then examined. Will the firm integrate backward into raw material (e.g., plastics and chemical feedstocks) or will it procure raw materials from others? Will the firm produce its own components (e.g., electrical switches) or will it buy these in the market? Will the firm integrate forward into distribution or will it rely on the wholesale and retail capacities of others? The transaction in each case is between technologically separable stages – which is to say that a buffer inventory could be introduced to effect temporal separation between adjacent stages in the transaction.

Sometimes economies of scale and scope will be such that the decision will be easy: if the firm is too small to produce efficiently to its own needs, the make-or-buy decision is obvious. For many transactions, however, either market procurement or own-production is technologically feasible and the choice is predominantly decided by comparative transaction cost considerations. This is the microanalytic exercise described in section 3 below, in which the action resides in the attributes of transactions in relation to the cost on the one hand and competencies of alternative modes of governance on the other.

With respect to intermediate product market transactions, the boundary of the firm is the inclusive set of stages for which the make-or-buy calculus is resolved by supplanting market by hierarchy (Williamson (1985), pp. 96-98). Within the firm so described, the ownership of all stages is unified (as against directional),

investments and strategic decisions are coordinated by hierarchy, and those disputes for which adjacent stages are unable to reach agreement are decided by fiat (the firm is its own court of ultimate appeal). This same contractual calculus, moreover, extends to the organization of labor within the firm and to the choice between debt and equity – where debt is the more market-like instrument and equity is more akin to hierarchy. The upshot is that something resembling the modern corporation unfolds from the successive application of transaction cost economics to the series of comparative contractual choices that the firm is required to make. So, repeated application of the same contractual calculus does, as it were, scale up.

Consider finally the agency theory set-up. Agency theory is predominantly a theory of the employment relation in which output is jointly determined by the state realization and the effort expended by the agent. Complications arise by reason of asymmetric information and risk aversion (where the agent has better information about effort expenditure and is normally assumed to be more risk-averse), whereupon a trade-off between incentive intensity and efficient risk-bearing is posed, and/or by the need to induce efficient effort expenditure across multiple tasks. Although Bengt Holmstrom (1996) contends that boundary of the firm issues are usefully informed by this framework, applications to date are limited. Forward integration into distribution – choice of an in-house sales office or an independent distributor – as a function of the difficulty of measuring a sales person's performance, especially with multiple brands, is one example where agency theory fits (Holmstrom (1996), p. 32). Integration into stages for which quality is difficult to measure is another possibility (Holmstrom (1996), pp. 32-33), although quality can often be interpreted as a hazard to brand name capital and can be folded into the asset specificity set-up.

Indeed, as Holmstrom observes, agency theory and transaction cost economics are not mutually exclusive (1996, p. 32). Be that as it may, it is noteworthy that the agency theory approach needs to move away from its long preoccupation with efficient risk-bearing in favor of interfirm contractual hazards (which has been the transaction cost economics focus from the outset) in order to engage the make-or-buy issue in an interesting way. Awaiting further developments, these two approaches can be regarded as complementary – each applying to different circumstances.

3 HOW IS IT IMPLEMENTED?

Many would-be theories of economic organization are primarily retrospective, in that they offer an *ex post* explanation for what has transpired. Although such rationalizations can be interesting and informative, plausible theories proliferate and there is a need to sort the wheat from the chaff. As Nicholas Georgescu-Roegen has put it, even though the 'purpose of science in general is not prediction, but knowledge for its own sake,' prediction is nevertheless 'the touchstone of scien-

tific knowledge' (1971, p. 37). Sooner or later, candidate theories of economic organization must go beyond *ex post* rationalization and offer predictions.

Although the concept of transaction cost is attractive – it has obvious relevance and is connected with a huge number of phenomena – it is also an elastic concept and, unless delimited, could be and was invoked as an *ex post* rationalization: for every anomaly there is an easy transaction cost explanation (Alchian and Demsetz (1972), Fischer (1977), p. 322, n. 5). Predictive content required operationalization. As herein described, this entailed (1) naming and dimensionalizing the unit for which organization was needed, (2) naming and dimensionalizing the structures through with organization was realized, (3) effecting a discriminating alignment between the two, after which (4) empirical testing could be done (and rapidly followed).

3.1 *Unit of Analysis*

According to John R. Commons, 'the ultimate unit of activity... must contain in itself the three principles of conflict, mutuality, and order. This unit is the transaction' (1932, p. 4). Not only does transaction cost economics subscribe to the idea that the transaction is the basic unit of analysis, but the triple to which Commons refers – conflict, mutuality, order – is very much what governance is all about.

Declaring that the transaction is the basic unit of analysis usefully moves economics in the direction of being a science of contract, as against a science of choice (Buchanan (1975), p. 229), but the transaction takes on operational significance as a unit of analysis only when the factors that distinguish transactions from one another are identified. Given that all complex contracts are incomplete, by reason of bounded rationality, and that many pose maladaptation hazards, by reason of opportunism, *what are the attributes of transactions* to which contractual hazards accrue and how can they be mitigated?

Of the many attributes for describing transactions, the three dimensions that have been especially instructive to the study of commercial transactions[9] are the frequency with which transactions recur, the uncertainty (disturbances) to which they are subject, and the condition of asset specificity. The last dimension gives rise to a condition of bilateral dependency, whereupon what may have been a large numbers supply condition at the outset gets transformed into a small numbers exchange relation thereafter. Asset specificity takes a variety of forms – physical assets, human assets, site specificity, dedicated assets, brand name capital, and temporal specificity – to which individuated governance structure responses accrue. It is the big locomotive to which transaction cost economics owes much of it predictive content.

9 As discussed in section 5, additional considerations arise when the public sector is brought under review.

3.2 *Governance*

Transaction cost economics regards the firm not as a production function but as a governance structure. Indeed, the concept of governance is precisely responsive to the triple to which Commons referred: governance is the means by which *order* is accomplished in a relation in which potential *conflict* threatens to undo or upset opportunities to realize *mutual* gains.

Engaged, as it is, in comparative institutional analysis, the firm is but one of several alternative modes of governance. Others include market, hybrid contracting, and public bureau modes of governance. The question which then presents itself is what are the critical dimensions with respect to which alternative modes of governance are described?

As discussed in section 4, transaction cost economics maintains that each generic mode of governance is supported by a distinctive form of contract law. In that event, the pertinent law of contract needs to be addressed. Additionally, if adaptation (of both autonomous and cooperative kinds) is the central purpose of economic organization, then the comparative efficacy of alternative modes of governance in both adaptive respects needs to be described. Further, since governance works through instruments, of which incentive intensity and administrative controls are basic, then governance structure differences of these two kinds need to be developed.

The ways and reasons whereby alternative generic modes of governance differ in these five respects are developed elsewhere (Williamson (1991, 1997)). With reference to markets and firms, the salient differences are these:

(1) incentive intensity: the high-powered incentives of markets give way to low-powered incentives in firms;
(2) administrative controls: firms are supported by a more extensive array of administrative rules and procedures;
(3) adaptation: markets enjoy the advantage in effecting autonomous adaptation in response to changes in relative prices, but the advantage accrues to firms as more cooperative adaptations are needed; and
(4) contract law: the contract law of markets is legalistic and relies on court ordering whereas the firm supplants court ordering by private ordering and settles disputes by fiat (in effect, the firm is its own court of ultimate appeal).

3.3 *Predictions*

Transaction cost economics invokes the discriminating alignment hypothesis, according to which transactions, which differ in their attributes, are aligned with governance structures, which differ in their cost and competence, so as to effect a (mainly) transaction cost economizing result. The simple contractual scheme set out in Figure 2 invites comparative contractual reasoning in which differences in technology give rise to different contractual hazards which in turn elicit safe-

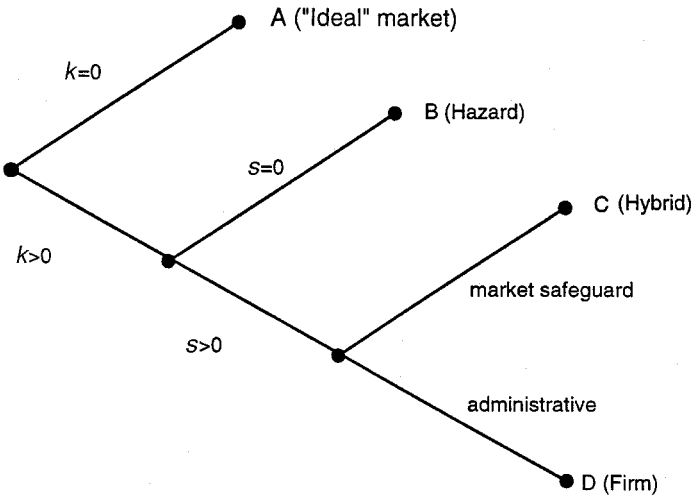

Figure 2 – Simple contracting schema

guards, the effects of which are priced out. Price, technology, and governance are thus all determined simultaneously.

Assume that a good service can be supplied by either of two alternative technologies. One is a general purpose technology, the other a special purpose technology. The special purpose technology requires greater investment in transaction-specific durable assets and is more efficient for servicing steady-state demands. Contractual complications, however, arise when there is a need to adapt to disturbances.

Using k as a measure of transaction-specific assets, transactions that use the general purpose technology are ones for which $k = 0$. If instead transactions use the special purpose technology, a $k > 0$ condition exists. Assets here are specialized to the particular needs of the parties. Productive values would therefore be sacrificed if transactions of this kind were to be prematurely terminated. A bilateral dependency condition applies to such transactions. Parties have an incentive to devise safeguards to protect investments for transactions of the latter kind. Let s denote the magnitude of any such safeguards. An $s = 0$ condition is one in which no safeguards are provided; a decision to provide safeguards is reflected by an $s > 0$ result.

Safeguards can take either of two forms. One would be to craft added supports into the contract, whereby penalties to deter breach are introduced, added information disclosure is provided, and specialized dispute settlement machinery (e.g., arbitration) is devised. This is the credible interfirm commitment option. A second be to take transactions out of markets and organize them under unified ownership within which hierarchy (to include fiat) is used to effect coordination.

Node A corresponds to the ideal transaction in law and economics: there is both an absence of dependency ($k = 0$) and such transactions benefit from the safeguard of competition. Node B presents contractual hazards, in that specialized investments are exposed ($k > 0$) for which there are no safeguards ($s = 0$). Such hazards will be recognized by farsighted players, who will price out the risk in the contract. Nodes C and D are nodes to which additional contractual support has been provided, either in the form of contractual safeguards (node C) or unified ownership (node D).

Because of the added bureaucratic costs that 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 firm, thus comes in only as transactions have especially high degrees of asset specificity and as added uncertainty pose greater needs for cooperative adaptation. Also, as discussed in section 5, the schema can be extended to include regulation and public bureaus. As heretofore remarked, the study of contract involves variation on a few key themes.

3.4 *Empirical Testing*

Some theories of economic organization make little effort to advance refutable implications. Among those that do, few are empirically tested. Simon evidently believes that transaction cost economics is remiss in empirical respects: awaiting empirical testing, 'the new institutional economics and related approaches are acts of faith, or perhaps of piety' (Simon (1991), p. 27).

Coase had registered similar concerns about the dearth of empirical work on contract and organization twenty years earlier (Coase (1972)), but that was before the operationalization of transaction cost economics had begun and predicted alignments were advanced. Empirical applications of transaction cost economics got under way in the US in the 1980s and have grown exponentially since: the number of published studies exceeds 400 and involves scientists in Europe, Japan, India, Mexico, South America, New Zealand, and the list goes on.

Although the empirical phenomena with which transaction cost economics is concerned are often of a simple, discrete structural kind – such as vertical integration (whether to make or buy), vertical market restrictions (when contracts require non-standard – and hitherto suspect – contractual supports), the differential efficacy to be expected of deregulation (as between natural monopoly industries within a country) and of privatization (of a common industry, such as telecommunications, between countries), when to use debt and equity, and so on – transaction cost economics does generate many refutable implications. It could have been otherwise, but the theory and evidence display a remarkable congruity (Mas-

ten (1995), p. xi). Recent empirical surveys include Howard Shelanski and Peter Klein (1995), Bruce Lyons (1996), and Keith Crocker and Scott Masten (1996).[10]

Not only has this research been broadly corroborative of the predictions of transaction cost economics, but the importance of risk aversion to commercial contracting has been placed in doubt. To be sure, transaction cost economics, like everything else, will benefit from more and better empirical work. I have no hesitation, however, in declaring that transaction cost economics is an empirical success story. Paul Joskow concurs: 'this empirical work is in much better shape than much of the empirical work in industrial organization generally' (1991, p. 81).

4 SUPPORTING CONCEPTUAL CONCEPTS

4.1 *From Property to Contract*

The economics of property rights hold that the central problem of economic organization is one of defining and enforcing property rights. Because the court ordering of contracts was assumed to be costless and efficacious, problems of contracting vanished.

Transaction cost economics proceeds differently. Especially in developed economies, where property rights can be assumed to be reasonably well defined and secure against expropriation by the state, the principal problem of organization is that of aligning transactions with governance structures so as to support a high performance result. This does not in the least dispute that property is important everywhere. Much of the analytical action, however, moves from property to contract as development progresses. As Allan Farnsworth observes, 'exchange of promises did not become important in practice until a relatively advanced level of economic development had been attained... Indeed, a general theory of contract would have been something of a luxury in a society concerned with the basic protection of life and property' (1990, p. 10). Kenneth Scott concurs (1996, p. 57):

> In primitive societies... there would be a role for the principles of tort law, but not much of a role for contract principles. Cooperation and exchange would be very immediate and short-term... With the Industrial Revolution, production becomes, by orders of magnitude, more complex and interdependent... Long-range planning and coordination require the ability to rely on long-term promises.

10 Reprints of some of the leading empirical articles are in Williamson and Masten (1995, volume II).

A greater need to examine contract, in the context of property rights, thus takes shape as development progresses. The study of economic organization moves to Level 3, taking Level 2 institutions as a constraint.

Transaction cost economics makes that move by studying contract laws (plural) rather than contract law (singular). This entails going beyond legal rules and legal centralism to include *private ordering*. Karl Llewellyn's concept of contract as a framework, as opposed to legal rules, is pertinent (1931, pp. 736-737):

> ... the 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.

Ultimate appeal is important, in that it delimits threat positions, but the main contractual action nevertheless takes place in the context of private ordering. Most disputes, including many that under current rules could be brought to a court, are resolved by avoidance, self-help, and the like (Galanter (1981), p. 2). That is because in 'many instances the participants can devise more satisfactory solutions to their disputes than can professionals constrained to apply general rules on the basis of limited knowledge of the dispute' (Galanter (1981), p. 4). The assumption that 'the courts will get it right' is a convenient but overweening simplification (Tullock, 1996, p. 5). The study of economic organization needs to make provisions for governance in all of its forms.

Such a project is facilitated by moving beyond the convenient idea of a single, all-purpose law of contract to consider contract laws plural (Summers (1969)). Ian Macneil's distinctions between classical, neo-classical, and relational contract law (1974, 1978) are pertinent. The first of these refers to the ideal transaction in law and economics, according to which the identity of the parties is irrelevant (asset specificity is zero) and a legal rules approach prevails. What he refers to as neo-classical contract law moves from spot market to long-term contracting in which continuity is valued and is closer in spirit to Llewellyn's concept to 'contract as framework.'

Although the third type of contract law to which Macneil refers – relational contracting – has attracted wide support and has considerable intuitive appeal, Macneil concedes that 'no such system as yet exists in American contract law' (1978, p. 889). Inasmuch as the object is to support more efficacious modes of contracting/organization, rather than devise an ever more elastic form of contract law, the apparent failure of relational contracting is not necessarily to be regretted. As Macneil goes on to observe, 'the spin-off of many subject areas from the classical, and later the neo-classical, contract law system, e.g., much on corporate

law and collective bargaining' (1978, p. 885) can and has afforded relief from the incapacity of contract law (narrowly conceived) to respond to the felt needs. Corporate law and collective bargaining can thus be regarded as extensions upon the contractual approach (broadly conceived) to deal with governance more broadly. If contract really is the seminal and classical subject of American legal education (Rubin (1996)), we ought to be able to build out from that foundation.

Transaction cost economics advances the argument that each generic mode of governance is supported by a distinctive form of contract law and holds that the implicit law of hierarchy is that of forbearance. Thus whereas courts routinely grant standing to firms should there be disputes over prices, the damages to be ascribed to delays, failures of quality, and the like, courts will refuse to hear disputes between one internal division and another over identical technical issues. The firm becomes its own court of ultimate appeal in this way, which explains why markets and hierarchies differ significantly in dispute settlement (fiat) respects.

4.2 *Far-Sighted Contracting*

Although transaction cost economics maintains that all complex contracts are unavoidably incomplete by reason of bounded rationality, such incompleteness should not be confused with myopia. On the contrary, transaction cost economics maintains that intendedly rational economic agents are far-sighted – in that they will look ahead, perceive hazards, and fold these back into the contractual calculus. As Pieter Hennipman has put it, 'the general characteristic of economic efficacy is seen to lie in the fact that the decisions are taken on the basis of... [informed] insight into the economic phenomena and their interrelationships' (1995, p. 29). George Schultz's reflection on the importance of his training in economics is pertinent: 'my training in economics has had a major influence on the way I think about public policy tasks, even when they have no particular relationship to economics. Our discipline makes one think ahead, ask about indirect consequences, take note of variables that may not be directly under consideration' (1995, p. 1). That is an exercise in far-sighted contracting – according to which incomplete contracts are examined in their entirety.

The contrast between Machiavelli's advice to his Prince to breach contracts with impunity and the concept of credible commitment out of which transaction cost economics works illustrates the differences. Whereas the former is a myopic concept of contract – get them before they get us – the latter is a far-sighted construction. Rather than reply to opportunism in kind, the wise prince is advised to give and receive credible commitments. Order is thereby realized, potential conflict is mitigated, and expected mutual gain results.

4.3 *Efficiency/Remediableness*

The analytical ease of working out of a hypothetical set-up (zero deadweight losses, zero transaction costs, benign governance) notwithstanding, the pressing need, always and everywhere, is to 'study the world of positive transaction costs' (Coase (1992), p. 717). Thus although contemplation (Coase (1964), p. 195; emphasis added):

> ... of an optimal system may provide techniques of analysis that would otherwise have been missed,... in general its influence has been pernicious. It has directed economists' attention away from the main question, which is *how alternative arrangements will actually work in practice*. It has led economists to derive conclusions for economic policy from a study of an abstract of a market situation. It is no accident that in the literature... we find a category 'market failure' but no category 'government failure.' Until we realize that we are choosing between social arrangements which are all more or less failures, we are not likely to make much headway.

Nirvana economics (Demsetz, 1969) carries a similar message.

As against a hypothetical ideal, transaction cost economics advances *the remediableness criterion*, according to which an extant mode of organization for which no superior feasible alternative can be described and implemented with expected net gains is presumed to be efficient. Note with respect to this criterion that, except when comparisons are made between *de novo* alternatives, remediableness makes reference to an extant alternative, which, in effect, is privileged in relation to rival alternatives that arrive later. This has major ramifications for reinterpreting the purported inefficiencies that accrue to 'path dependency.' Relatedly, even if a proposed alternative is superior to an extant alternative on a side-by-side comparison, there is a further need to examine implementation obstacles. If it is very costly to overcome pre-existing conditions, of either economic or political kinds, then implementation with net gains may not be possible (Hennipman (1995), p. 37). In effect, the remediableness criterion treats the efficiency of the extant mode as a rebuttable presumption (Williamson (1996), chapter 8).

The readiness with which economists ascribe welfare gains to proposed reforms is thereby questioned. As against the usual practice of 'claiming' that allocative efficiency will be enhanced 'upon supplanting price supports with lump-sum subsidies and taxes,' remediableness in addition requires that (1) the requisite information upon which to base the lump-sum taxes be displayed, (2) the pay-out mechanisms be described, and (3) political resistance be factored in if the political purposes served by ongoing price supports cannot be replicated. This does not deny that economic reforms that ignore practicalities and politics can be in-

formative; but they can also be misleading. Economics rarely trumps but operates in the service of politics (Stigler (1992)).

4.4 *Selective Intervention*

Why cannot a large firm do everything that a collection of small firms can and more? It is widely believed, for example, that large, established firms have advantages over smaller potential entrants because (Lewis (1983), p. 1092):

> ... the leader can at least use [inputs] exactly as the entrant would have..., and earn the same profit as the entrant. But typically, the leader can improve on this by coordinating production from his new and existing inputs. Hence [the same inputs] will be valued more by the dominant firm.

A similar argument can be applied to vertical integration with the following result: if large firms can, in all respects, do as well as a collection of smaller firms, through replication, and can sometimes do better, through selective intervention, then large firms ought to grow without limit.

Working this through is tedious and is reported elsewhere (Williamson (1985), chapter 6). The core arguments are these: (1) internal organization (the large firm) cannot replicate small firms (market procurement) in incentive intensity respects, and (2) the agreement to always intervene but only for good cause (selective intervention) is fatuous because it is unenforceable. The upshot is that the hypothetical advantages of combining replication with selective intervention cannot be realized, on which account the move from market to hierarchy (and the reverse) *is always attended with a trade-off* between the benefits of added coordination/cooperation on the one hand and the costs of added bureaucracy on the other. Which way that trade-off goes depends on the attributes of transactions in relation to the costs and competencies of alternative modes of governance. This is an exercise in discrete structural analysis, whereby alternative modes of organization are described as *syndromes* of related attributes – distinctive strengths and weaknesses – that cannot be replicated.

5 APPLICATIONS AND EXTENSIONS

5.1 *Successive Developments*

From its origins in the archetypal problem of vertical integration, transaction cost economics has successively examined the organization of labor (in teams and peer groups and unions), dominant firms and the oligopoly problem, technical and organizational innovation, the organization of work, the modern corporation (of multidivisional, conglomerate, multinational, and Japanese kinds), problems of

contracting for natural monopoly (especially in relation to the efficacy of franchise bidding), various non-standard forms of contracting in which issues of credibility are posed (to include quality assurance, franchising, customer and territorial restrictions, reciprocity and exchange relations, take-or-pay purchase agreements, two part pricing schemes, and the like), corporate governance and corporate finance, the use and limits of reputation effect mechanisms and corporate culture, and the ramifications of all of the above for public policy toward business (virtually all of antitrust and much of regulation). Still more recent applications combine both parts of the New Institutional Economics – the institutions of governance and the institutional environment – to examine the efficacy of privatization and reform in relation to credible commitments. As Brian Levy and Pablo Spiller put it, examining privatization 'through the lens of transaction cost economics – with its microeconomical perspective, its emphasis on discriminating alignment and remediableness, and its view of regulation as a contracting problem – provides an understanding of the determinants of performance of privatized utilities in different political and social circumstances' (1994, p. 202). Much more work of this kind is in progress and more is in prospect. Applications to public bureaus and strategic management are sketched here.

(a) public bureaus

The public bureau has had a mixed reputation within economics. At the one extreme is the older (now discredited) public finance tradition, where the public bureau (and the government to which it reported) was treated as an 'omnipotent, omniscient, and benevolent' actor (Dixit (1996), p. 8). Condemnation from the other extreme comes from the property rights view that the public bureau is a haven for inefficiency, relief from which will be realized only if property rights are correctly assigned and the activity in question privatized.

Transaction cost economics views the public bureau instrumentally, as an alternative mode of governance that is well-suited for some purposes, poorly suited for others. For which transactions is the public bureau well-suited and why? Where does the public bureau fit into the overall scheme of economic organization?

Several moves are needed to answer these questions, the first of which is to supplant the idea of the public bureau as a benign, technical entity (in which production costs are featured) with the concept of the public bureau as a flawed, organizational entity (in which transaction costs are featured). Just as the study of business organization benefited from recognizing 'the inadequacy of the neoclassical view of the firm and [developing] richer paradigms and models based on the concepts of various kinds of transaction costs..., [so does] policy analysis... stand to benefit from... opening up the black box and examining the actual working of the mechanism inside' (Dixit (1996), p. 9).

The second move is to entertain the possibility that transactions to which public sector governance is assigned pose added complications to which the at-

tributes of the public bureau afford a (comparatively) efficacious response. The attributes that distinguish public sector transactions thus need to be identified and explicated.

Third, the discrete structural attributes that define and distinguish the public bureau and are responsible for its powers and limitations need to be identified and explicated. Relatedly, the puzzle of why a private firm is unable to replicate the public bureau needs to be addressed.

Some of the pertinent issues have been addressed in conjunction with regulation (Williamson (1976), Goldberg (1976), and Priest (1993)). Others arise in relation to redistribution (Krueger (1990), Williamson (1996), chapter 8). And still others arise for transactions where the integrity of the state is at risk (Williamson (1997)). Transactions of the last kind are sometimes described as 'sovereign,'[11] of which the foreign affairs transaction is an example. Such transactions are in especially great need of probity, for which very low-powered incentives and social conditioning to the mission of the bureau are responsive governance attributes. Because private bureaus are unable to replicate the attributes of public bureaus in these respects,[12] the putative gains of privatization would, for such transactions, come at a great cost.

It bears repeating that there is no one, all-purpose, superior form of organization. Transactions vary in their attributes; governance structures vary in costs and competencies; efficient alignment is where the predictive action resides. The unchanging lesson of transaction cost economics for all feasible forms of organization, of which the public bureau is one, is this: a place needs to be made for each generic form, but each form needs to be kept in its place.

Note that the common practice of condemning public bureaus because they have lower-powered incentives, more rules and regulations, and greater job security than are associated with a counterpart private bureau completely misses the point. Those features have been *deliberately crafted* into the public bureau, thereby giving it the desired governance result. The appropriate concern is not that public bureaus have these properties but that public bureaus will overreach – in that they will be used to govern both those transactions for which they are well-suited and those for which they are poorly suited. Vigilance in this latter respect is continuously needed – lest those with planning predilections will overprescribe use of the public bureau. As shown in Figure 3, the public bureau is

11 Wilson describes sovereign transactions as follows: 'there are certain tasks that we expect the government to perform, not because government is cheaper or more efficient, but because it alone embodies the public's authority. Certain tasks are sovereign' (1989, p. 359).

12 Assuming, *arguendo*, that very low-powered incentives and a civil service employment relation are the crucial features, the question arises as to why not redesign the private bureau to replicate the public bureau in these respects. As it turns out, it is impossible to replicate these features in an organization that maintains ownership autonomy – which is what outsourcing to a private bureau implies. (The argument parallels that of the impossibility of selective intervention in comparing market and hierarchy to which I refer above.)

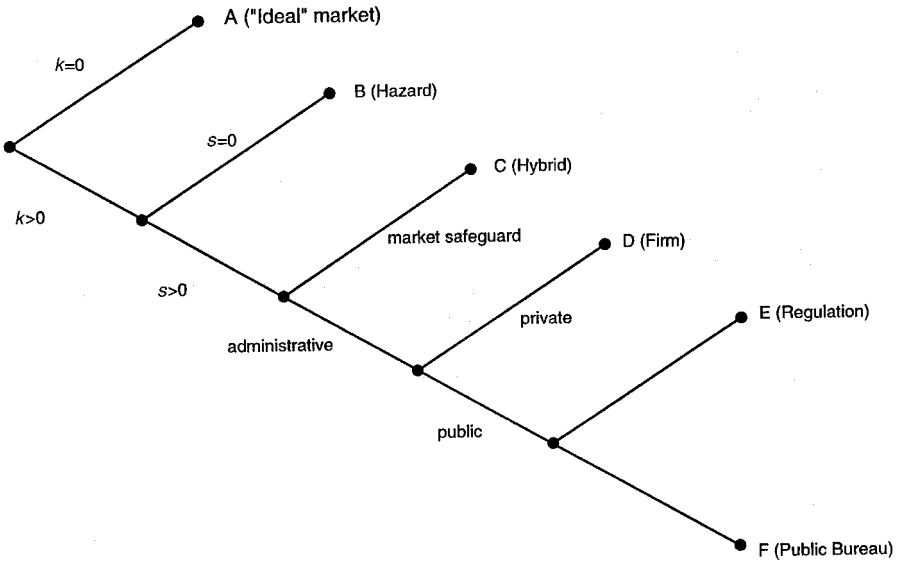

Figure 3 – Simple contracting scheme extended

usefully thought of as the organization form of *very* last resort: try markets, try hybrids, try firms, try regulation, and resort to public bureaus only when all else fails (comparatively).

(b) strategic management

'The fundamental question in the field of strategic management is how firms achieve and sustain competitive advantage' (Teece, Pisano, and Shuen (1996)). That is an ambitious undertaking and a huge literature – on competitive forces, strategic conflict, the resource-based perspective, and dynamic capabilities – has taken shape over the past decade.

Much of this literature is preoccupied with *ex post* rationalizations of 'successes' (the object being to uncover what explains 'excellence'). Although this can be informative, efforts to *predict* success are rarely made. Empirical work on success management rarely gets beyond cases and anecdotes.

Transactions cost economics views strategic ploys and positioning as of second order of importance. Clever gambits will rarely save a firm in which serious governance misalignments are observed (Williamson (1996), chapter 12). Because, however, the economizing/discriminating alignment hypothesis operates at the generic level, it does not engage the strategic concerns of individual firms. Can transaction cost economics be brought into greater contact with strategic management issues? Applications to the resource-based perspective are sketched here.

According to the resource-based perspective, firms are described by their 'resourses/capabilities/endowments' and 'at least in the short run, firms are to some degree stuck with what they have and may have to live without what they lack' (Teece, Pisano, and Shuen (1996), p. 6). But how are these resource capabilities described? What strategic lessons accrue?

The strategic management literature responds to the first of these by developing a long list of 'isolating mechanisms' – which, predominantly, are barriers to imitation (Mahoney and Pandian (1992), pp. 371–373). That is an important step, but the long list needs to be prioritized and its key features uncovered and explicated. The crucial question put by Joseph Mahoney and Ranjendram Pandian is 'What is the generalizeable insight'? (1992, p. 371). Their response is that 'isolating mechanisms exist because of *asset specificity* and *bounded rationality*.' In the language of strategic management, these two transaction cost concepts translate into '*uniqueness* and *causal ambiguity*,' respectively (Mahoney and Pandian (1992), p. 373; emphasis in original).

A key move, if transaction cost economics is to more fully engage strategy, is to push beyond the generic level at which it now operates and to consider particulars. Thus rather than ask the question 'What is the best generic mode (market, hybrid, firm, or bureau) to organize *X*?,' which is the traditional transaction cost query, the question to be put instead is 'How should firm A – which has pre-existing strengths *and* weaknesses (core competencies *and* disabilities) – organize *X*?'

Not only does this latter question focus explicitly on firm A, but it requires that we describe both the strengths (competencies) and weaknesses (disabilities) of firm A. This last is typically neglected in the usual inventory of firm attributes.

Further, because transaction cost economics is relentlessly comparative and because a strategy is being devised in relation to a market in which current and potential competition need to be taken into account, transaction cost economics counsels that these assessments be done *comparatively*.[13] How does firm A compare with extant and potential rivals with reference to the market niche (*X*) in question?

Note, moreover, as shown in Table 1, that niches other than *X* can be considered. What I describe in the table as 'resource-based perspective: level II' examines a variety of niches – to be assessed both in relation to rivals and between

13 Implementing such assessments will require that comparative measures of asset specificity be taken. Note in this connection that asset specificity takes several forms – including human asset specificity, physical asset specificity, site specificity, dedicated assets, brand name capital, and temporal specificity.

An advantage of doing this comparatively is that the need to take absolute measurements can sometimes be avoided. In the degree to which crude qualitative assessments will get the job done, only differences rather than absolute magnitudes need to be determined. Simple rank orderings will sometimes suffice, although that is a considerable simplification.

TABLE 1 – TRANSACTION COST ECONOMICS AND STRATEGY

generic level	How do alternate generic modes (markets, hybrids, firms, bureaus) compare for purposes of organizing transaction *X*?
resource-based: level I	How should firm A, with its pre-existing strengths and weaknesses (core competencies and disabilities), organize transaction *X*?
resource-based: level II	How should firm A, with its pre-existing strengths and weaknesses, proceed with respect to market niches described by (X_1, X_2, Y_3; Z)?
resource-based: level III	How should firm A, with its pre-existing strengths and weaknesses, reposition for the future in relation to the strategic situation (actual and potential rivalry; actual and potential market niches) of which it is a part or to which it can relate?

one another. The question therefore becomes 'How should firm A, with its pre-existing strengths and weaknesses, proceed with respect to market niches described by (X_1, X_2; Y_1, Y_2, Y_3; Z)'? Repositioning the firm to build up core competencies and/or relieve disabilities is what level III contemplates. The question at this level is 'How should firm A, with its pre-existing strengths and weaknesses, reposition for the future in relation to the strategic situation (actual and potential rivalry; actual and potential market niches) of which it is a part or to which it can relate'?

Each of the moves shown in Table 1 pushes transaction cost economics to orient more fully to the needs of strategic management. Level III analysis is especially ambitious and may often be implemented piecemeal rather than as a comprehensive plan (in which mergers and acquisitions, investments, contracting, finance, marketing, etc. are all considered simultaneously). Be that as it may, transaction cost economics has an important role to play in taking an inventory of a firm's assets (and those of its rivals) and in assessing the hazards associated with alternative planning scenarios.[14]

14 Jack Nickerson describes such an undertaking in his dissertation (1997).

5.2 *Future Challenges*

(a) fully-formal analysis

A continuing challenge to transaction cost economics is to move beyond semi-formal analysis of a reduced-form kind to do fully-formal analysis – in the spirit of the work by Grossman and Hart (1986), but to place greater emphasis on plausible constructions. As hitherto remarked, the leading formal models of an incomplete contracting kind work out of implausible assumptions (Kreps, 1996) and/or have logical lapses (Maskin and Tirole, 1997). Be that as it may, the formal modeling of incomplete contracts is a difficult undertaking for which those who have pioneered the formal study of incomplete contracts deserve enormous credit.

(b) real-time responsiveness

Masahiko Aoki's (1990) distinction between *H*-form (Western hierarchy) and *J*-form (Japanese hierarchy) invites attention to a third form of organization, the *T*-form, where *T* denotes temporary or transitional or, especially, timely. This last, timeliness, plays a huge role in the success and failure of firms that are operating in newly developing markets where technology and rivalry are undergoing rapid change. Chance – being in the right place at the right time – is important in these circumstances, but not to the exclusion of foresight. Firms that are flexibly positioned and responsive have the edge. Best efforts notwithstanding, large, mature and diffusely owned firms are at a disadvantage to smaller, younger and more enterpreneurial (concentrated ownership) firms in these respects (Williamson (1975), pp. 196–207).

Also, what may be thought of as 'disequilibrium' forms of organization can be important in real-time responsiveness respects. Joint ventures and alliances should sometimes be thought of as *T*-forms of organization that permit the parties to remain players in a fast-moving environment. Each party being unable, by itself, to assemble and deploy the requisite resources in a timely way, the requisite resources are instead assembled by pooling. Thus construed, both successful and unsuccessful joint ventures will commonly be terminated when contracts expire. Successful joint ventures will be terminated because the combined effort has permitted each to remain viable and learn enough and/or buy time to go alone. Unsuccessful joint ventures will be terminated because the opportunity to participate will have passed them by.

Our understanding of *T*-forms of organization is not good but is steadily improving (Nelson and Winter (1982), Dosi (1988), Teece (1992), Barnett and Carroll (1993), and Teece, Rumelt, Dosi, and Winter (1993)) – which is good news to the study of strategy.

(c) intractable transactions

Intractable transactions are complex transactions for which there are no good solutions. Upon adopting a comparative orientation, however, the absence of good solutions is neither here nor there. It suffices that there are better and worse solutions. Choice of the best from the feasible lot, all of which are flawed, is a significant accomplishment.

What I refer to as intractable transactions are transactions for which one of the parties enjoys a significant strategic information advantage. They are also transactions which often, but not always, are dimensionally complex (hard to describe). Third, at least for several of the transactions referred to here, intractable transactions are ones for which it is relatively easy to recover costs by passing them through (in a cost-plus or related way) or otherwise shedding legal responsibility (possibly through bankruptcy).

The governance of natural monopoly is one such transaction (Williamson (1976), Goldberg (1976)). Regulatory transactions of a health and safety kind are also troublesome – especially transactions where consumers or workers are poorly informed, hazards have long-latency, and reputation effects are weak (Thalidomide and PCBs and gypsum are candidates).

Defence procurement often poses similar problems. One option is for the government to produce to its own needs. However, with the exception of very special circumstances (the 'Manhattan Project' in World War II), that option is rare. The incentive deficits of the government in managing production (as against early-stage research) are simply overwhelming. And phasing out a government facility (e.g., an arsenal) is a tortured political exercise.

Although outside procurement yields comparative advantages, specialized weapons procurement is often beset by problems akin to natural monopoly: competition among large numbers of qualified suppliers is impossible. The specialized investments in question and associated learning by doing (human asset specificity) quickly convert these relations into ones of bilateral dependency. Further, the contracting officers who manage these contracts often develop a sympathetic relation with the defence contractor. Moreover, cost-plus contracting (*de facto* if not *de jure*) often occurs as changes are made (and renegotiated) and because auditing problems are severe. A quasi-regulatory relation develops; something akin to capture often results.

Many health care transactions also have the indicia of an intractable transaction – in that such transactions (1) are embedded in a contractual relation in which physicians enjoy a huge information advantage over patients (Arrow (1963)), (2) are complex, and (3) can be subverted by pass-through.

Regarding this last, James Robinson describes the relation between physicians and hospitals in the period from 1920 through 1980 as being that of a 'doctor's workshop' in which effective 'control of the community hospital rested with physicians' (1996, p. 5). That worked for a long time but contained the seeds of its own demise: 'The clinical autonomy and *de facto* budgetary control exerted by the procedure-oriented physicians who dominated the medical staffs produced a

feeding frenzy [in the United States] when the Medicare and Medicaid programs loosened the pecuniary limits of what could be done and at what price' (Robinson (1996), p. 6). Given the resulting ease of pass-through, the cost of medical care spiraled. Attempting to craft a superior governance structure response to this condition explains much of what is going on in health care organization presently.[15]

The non-profit mode of organization is yet another form that is often complex, is beset by information asymmetries, and is sometimes subverted by pass-through. Many of the issues have been examined by Henry Hansmann (1980), Estelle James (1987), and Susan Rose-Ackerman (1996). A thorough transaction cost economics treatment of the non-profit form has yet to be attempted – in part because that is a difficult undertaking.

(d) informal organization

The study of 'informal organization' poses a continuing challenge to students of organization. Thus, although Barnard (1938) made early and prominent reference to the importance of informal organization and discussed some of the mechanisms through which it worked, our understanding of informal organization is still primitive (Kreps (1990)). Simon (1991) avers that considerations of identity and docility are important, but these arguments need to be worked out more fully. The economics of atmosphere (Williamson (1996), pp. 270–272) is similarly underdeveloped.

6 CONCLUDING REMARKS

The current level of interest in the New Institutional Economics and the economics of organization represents a sea of change. As of 1970, institutional economics had been relegated to the field of economic thought and, except at the level of nation-states (comparative economic systems), the study of comparative economic organization was something for other social scientists – sociologists or political scientists or organization theorists. The 1974 conference on 'The Economics of Internal Organization' helped to secure a place for organization on the economics research agenda[16] from which it has continued to grow. Moreover, the revival of interest in institutional economics has been such that R.C.O. Matthews, is his 1986 presidential address to the Royal Economic Society, declared that the

15 Robinson observes in this connection that the 'spiral of utilization, intensity, and expenditure led to a backlash from the payers through what is now known as managed care. Health plans rather than individual physicians have come to stand between hospitals and their prospective patients... As consumers vote with their feet in favor of managed care plans with lower premiums, the traditional edifice of physician-hospital relations is collapsing' (Robinson (1996), p. 6).

16 The papers from this conference – by Kenneth Arrow, Scott Booman, Leonid Hurwicz, Harvey Leibenstein, James Mirrlees, Joseph Stiglitz, Williamson, Wachter, and Harris, and Robert Wilson – were published in successive issues of the *Bell Journal of Economics* (1975 and 1976).

New Institutional Economics had become 'one of the liveliest areas in our discipline' (1986, p. 903).[17]

Transaction cost economics relates to both of these projects. As herein described, transaction cost economics (1) is an interdisciplinary joiner of law, economics, and organization in which economics is the first among equals, (2) is a comparative institutional exercise in which economizing is the main case and the action resides in the details of transactions and governance, (3) generates numerous refutable implications in relation to which the data are broadly corroborative, and (4) has many public policy ramifications. Much of transaction cost economics can be digested by orthodoxy, and this has been happening. New problems and challenges appear, however, to be unending. A healthy tension between transaction costs economics and each of the parts on which it stands – law, economics, and organization – can be safely projected into the future (Kreps (1996), Williamson (1993a, 1993b, 1996b)).

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17 See also Claude Menard (1996).

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Summary

TRANSACTION COST ECONOMICS: HOW IT WORKS; WHERE IT IS HEADED

This paper begins with a sketch of the New Institutional Economics, with special emphasis on the 'institutional environment' (North and others) and the 'institutions of governance' (Coase and others). Thereafter the paper mainly emphasizes the applications of transaction cost economics to the study of governance, the object being to effect an economizing alignment between transactions, which differ in their attributes, and governance structures (firms, markets, hybrids, bureaus), which differ in their cost and competence. I raise a series of issues – phenomena of interest, describing human agents, describing firms, purposes served, scaling up – to which any would-be theory of the firm should be expected to speak and indicate how transaction cost economics responds to each. I thereafter describe the mechanisms through which transaction cost economics is implemented and develop some of the core conceptual supports out of which it works. Applications to public bureaus, strategic management, and intractable transactions are sketched.