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Transaction Cost Analysis: Past, Present, and Future Applications

Over the past decade, transaction cost analysis (TCA) has received considerable attention in the marketing literature. Marketing scholars have made important contributions in extending and refining TCA's original conceptual framework. The authors provide a synthesis and integration of recent contributions to TCA by both marketers and scholars in related disciplines, an evaluation of recent critiques of TCA, and an agenda for further research on TCA.

Over the past decade, transaction cost analysis (TCA) has received an increased amount of attention from a broad range of audiences. Evidence of this attention takes many forms, the most visible being the recent Nobel award in Economics given to Ronald Coase for his early work on transaction costs (Coase 1991). Although most strongly advocated by economists such as Oliver Williamson and Paul Joskow, TCA has generated considerable interest in other academic disciplines beyond economics, including sociology (e.g., Granovetter 1985), political science (e.g., Moe 1991), organization theory (e.g., Barney and Hesterly 1996), contract law (e.g., Palay 1984), business strategy (e.g., Hennart 1988), corporate finance (e.g., Smith and Schnucker 1994), and marketing (e.g., Anderson 1985).

A particular manifestation of recent interest in TCA is a large number of empirical applications. Much of the empirical work has been conducted by marketing scholars. There are at least two reasons for this: First, TCA's substantive focus on exchange makes it relevant to a wide range of marketing phenomena, including vertical integration decisions (e.g., Anderson 1985; John and Weitz 1988), foreign market entry strategy (e.g., Anderson and Coughlan 1987; Klein, Frazier, and Roth 1990), sales force control and compensation issues (e.g., Anderson 1988; John and Weitz 1989), industrial purchasing strategy (e.g., Noordewier, John, and Nevin 1990; Stump and Heide 1996), and distribution channel management (e.g., Anderson and Weitz 1992; Heide and John 1988). Second, marketing's rich tradition in construct measurement and survey research techniques has contributed to the operationalization and testing of important parts of the TCA framework. As has been noted by several scholars, measures of TCA's central constructs often are not

available from secondary data, and valid empirical tests often require that "micro-level data" be collected at the level of the actual decision maker (Calfée and Rubin 1993; Joskow 1991; Williamson 1985).

In spite of this recent attention, insights from TCA applications still appear to be somewhat underutilized. Two particular problems exist: First, though the extant empirical research has led to important refinements of early versions of the TCA framework (e.g., Coase 1937; Williamson 1975, 1985), many of these refinements are not well known. This is evidenced by a tendency among TCA's critics to focus on its initial versions (e.g., Ghoshal and Moran 1996; Hill 1990). Many scholars view TCA as synonymous with Williamson's (1975) *Markets and Hierarchies* and ignore subsequent empirical work. Consequently, it is difficult to evaluate the merit of such critiques, and empirical refinements have a reduced impact on the development of TCA's theoretical framework.

Second, TCA's empirical research is not well integrated. Considered as a whole, the literature has identified a set of distinct antecedent conditions or governance *problems*, such as safeguarding specific assets. These are TCA's independent variables. Transaction cost analysis's dependent variables are the governance *mechanisms*, which are used to manage these problems. A variety of mechanisms have been identified in previous research, including pledges (Anderson and Weitz 1992), qualification procedures (Heide and John 1990), monitoring (Stump and Heide 1996), and contracts (Joskow 1987).

Unfortunately, the TCA literature lacks a thorough review that organizes and summarizes the empirical evidence regarding governance problems and mechanisms. As a result, it is unclear what exactly has been learned by the extant TCA research and what unresolved questions remain. Our purpose is to address this concern by providing such a review. We begin with a brief overview of TCA, its origins, underlying assumptions, and key constructs. By addressing issues of interest to marketing scholars, we then provide a review that synthesizes and integrates the findings of 45 key empirical TCA studies across a broad range of disciplines. We end with a discussion of TCA's unresolved theoretical issues and offer directions for further research.

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Transaction Cost Analysis: Origins and Overview

Transaction cost analysis belongs to the "New Institutional Economics" paradigm, which, over time, has supplanted traditional neoclassical economics. Although neoclassical economics has largely ignored the concept of the firm by viewing it strictly as a production function (Barney and Hesterly 1996), TCA explicitly views the firm as a *governance structure*. One of Coase's (1937) initial propositions was that firms and markets are alternative governance structures that differ in their transaction costs. Specifically, Coase proposes that under certain conditions, the costs of conducting economic exchange in a market may exceed the costs of organizing the exchange within a firm. In this context, transaction costs are the "costs of running the system" and include such ex ante costs as drafting and negotiating contracts and such ex post costs as monitoring and enforcing agreements.

Over the past two decades, Williamson (1975, 1985, 1996) has added considerable precision to Coase's general argument by identifying the types of exchanges that are more appropriately conducted within firm boundaries than within the market. He also has augmented Coase's initial framework by suggesting that transaction costs include both the *direct costs* of managing relationships and the possible *opportunity costs* of making inferior governance decisions. Williamson's microanalytical framework rests on the interplay between two main assumptions of human behavior (i.e., bounded rationality and opportunism) and two key dimensions of transactions (i.e., asset specificity and uncertainty). We next provide a brief description of the interaction between these behavioral assumptions and transaction dimensions.

Assumptions and Dimensions of Transaction Cost Analysis

Bounded rationality is the assumption that decision makers have constraints on their cognitive capabilities and limits on their rationality. Although decision makers often intend to act rationally, this intention may be circumscribed by their limited information processing and communication ability (Simon 1957). According to TCA, these constraints become problematic in uncertain environments, in which the circumstances surrounding an exchange cannot be specified ex ante (i.e., environmental uncertainty) and performance cannot be easily verified ex post (i.e., behavioral uncertainty).

The primary consequence of environmental uncertainty is an adaptation problem, that is, difficulties with modifying agreements to changing circumstances. For example, a manufacturer that, because of competitive entry, must modify the design of its product also may need to modify the design of the purchased components that constitute the end product. Unless a comprehensive contract can be written with its supplier, which specifies in advance the required component designs and the associated terms of trade, the manufacturer may need to assume the considerable transaction costs associated with ongoing renegotiations.

The effect of behavioral uncertainty is a performance evaluation problem, that is, difficulties in verifying whether compliance with established agreements has occurred. For

example, a manufacturer may have difficulty ascertaining whether a distributor is providing customers with necessary presales services. Alternatively, even if the relevant aspects of a distributor's operations can be measured, the information gathering and processing costs incurred by the manufacturer may be substantial.

Opportunism is the assumption that, given the opportunity, decision makers may unscrupulously seek to serve their self-interests, and that it is difficult to know a priori who is trustworthy and who is not (Barney 1990). Williamson (1985, p. 47) defines opportunism as "self-interest seeking with guile," and suggests that it includes such behaviors as lying and cheating, as well as more subtle forms of deceit, such as violating agreements. Opportunism poses a problem to the extent that a relationship is supported by specific assets whose values are limited outside of the focal relationship. For example, a manufacturer that invests in training a distributor may subsequently have difficulty replacing the distributor with a new one. The incumbent distributor can exploit the situation opportunistically by demanding various kinds of concessions from the manufacturer. Essentially, the effect of specific assets is to create a safeguarding problem, because market competition no longer serves as a restraint on opportunism.¹

In addition to the key assumptions and dimensions previously outlined, the complete TCA framework also includes *risk neutrality* as a third behavioral assumption and *transaction frequency* as a third transactional dimension. Both of these constructs are specified by Williamson (1975, 1985) but have received limited attention in the TCA literature. Chiles and McMackin (1996) provide a theoretical discussion of the validity of TCA's assumption of risk neutrality, but there are no empirical investigations of this assumption. To date, only a few TCA studies explicitly address transaction frequency.² According to Williamson (1985, p. 60), higher levels of transaction frequency provide an incentive for firms to employ hierarchical governance, because "the cost of specialized governance structures will be easier to recover for large transactions of a recurring kind." Because of the limited attention that previous research has given to both the assumption of risk neutrality and the dimension of transaction frequency, our review does not address these parts of the TCA framework.

¹The safeguarding problem discussed in TCA closely parallels the discussion of dependence in resource dependence and social exchange theory (e.g., Pfeffer and Salancik 1978), because specific assets give rise to "replaceability" problems. However, TCA differs from these perspectives because it focuses on governance problems and their solutions simultaneously, rather than on managing dependence ex post. Moreover, TCA explicitly considers the efficiency implications of a firm's governance choices.

²To date, TCA researchers have been largely unsuccessful in confirming the hypothesized effects of frequency, in that several studies have failed to find any positive association between transaction frequency and hierarchical governance (e.g., Anderson 1985; Anderson and Schmittle 1984; Maltz 1993, 1994). For an exception, see Klein (1989). Several other researchers consider frequency as a dichotomous phenomena (one-time versus recurring transactions) and thereby control for transaction frequency by examining only recurring exchanges (e.g. John and Weitz 1988; Klein, Frazier, and Roth 1990).

The Logic of Transaction Cost Analysis

The basic premise of TCA is that if adaptation, performance evaluation, and safeguarding costs are absent or low, economic actors will favor market governance. If these costs are high enough to exceed the production cost advantages of the market, firms will favor internal organization. The logic behind this argument is based on certain a priori assumptions about the properties of internal organization and its ability to minimize transaction costs. Three specific aspects of organizations are relevant in this respect. First, organizations have more powerful control and monitoring mechanisms available than do markets because of their ability to measure and reward behavior as well as output (Eisenhardt 1985; Oliver and Anderson 1987). As a result, the firm's ability to detect opportunism and facilitate adaptation is enhanced. Second, organizations are able to provide rewards that are long term in nature, such as promotion opportunities. The effect of such rewards is to reduce the payoff from opportunistic behavior. Third, Williamson (1975) acknowledges the possible effects of the organizational atmosphere, in which organizational culture and socialization processes may create convergent goals between parties and reduce opportunism *ex ante*.

Although TCA's original framework poses the governance question as a discrete choice between market exchange and internal organization, the current version of the theory explicitly acknowledges that features of internal organization can be achieved without ownership or complete vertical integration. A variety of hybrid mechanisms have been identified in the literature, ranging from formal mechanisms, such as contractual provisions and equity arrangements (Joskow 1987; Osborn and Baughn 1990), to more informal mechanisms, such as information sharing and joint planning (Noordewier, John, and Nevin 1990, Palay 1984).

Transaction Cost Analysis: Empirical Research

This review provides an integration and synthesis of 45 empirical TCA articles published from 1982 to 1996 in a variety of academic journals in marketing, management, strategy, law, and economics. To identify articles for potential inclusion in this review, we conducted a comprehensive literature search using electronic databases in business and social science (e.g., ABI/Inform, PsycLit), indices of key academic journals (e.g., *Journal of Marketing*, *Journal of Law, Economics, and Organization*), and bibliographies from conceptual and empirical TCA articles. Our literature search produced over 150 citations.³ In aggregate, we

³Because our objective is to provide a review of TCA articles that address issues of interest to marketing scholars, studies that are concerned mainly with social (e.g., Treas 1993) or political institutions (e.g., Hennart and Anderson 1993), as well as those that focus on intraorganizational governance (e.g., Balakrishnan and Fox 1993), are not included here. Moreover, studies that draw on TCA reasoning but do not directly test TCA's framework (e.g., Dwyer and Oh 1988; Phillips 1982.) are not included. Finally, we omit case studies (e.g., Goldberg and Erickson 1987), as well as extensions of prior work that do not add new theory or data (e.g., Joskow 1990).

believe that our selection of articles provides a representative, though not exhaustive, selection of empirical work on TCA that is of interest to marketing scholars.⁴ A summary of the sample, focal variables, and key findings of these studies is provided in Table 1. Our review centers around a set of three specific questions: (1) In what context has TCA been applied? (2) What methods have been used to investigate TCA? and (3) How valid is TCA's conceptual framework?

In What Contexts Has Transaction Cost Analysis Been Applied?

Drawing from its interdisciplinary origins in law, economics, and organization, TCA explains a variety of problems of economic organization, ranging from marriage (e.g., Treas 1993) to international trade (e.g., Hennart and Anderson 1993). As Williamson (1985, p. ix) notes, "Any problem that can be formulated, directly, or indirectly, as a contracting problem can be investigated to advantage in transaction cost terms." Transaction cost analysis's analytical diversity is clearly evident among the studies in our review, because scholars in marketing and related disciplines have employed TCA to investigate a broad range of exchange-related issues. Specifically, these studies can be classified within one of four main contextual domains: (1) vertical integration, (2) vertical interorganizational relationships, (3) horizontal interorganizational relationships, and (4) tests of TCA's assumptions.

Vertical integration. The earliest (and most common) applications of TCA focus on the vertical integration decision. These studies typically focus on a manufacturing firm's decision to backward integrate into the supply of materials or components or forward integrate into distribution and sales. Monteverde and Teece (1982a) provide the seminal study in the context of backward integration by applying TCA to examine the make-or-buy decision for assembly components for two firms in the U.S. automobile industry. Masten, Meehan, and Snyder (1989) and Walker and Weber (1984, 1987) also provide studies of component sourcing among U.S. automobile manufacturers. This make-or-buy issue for production inputs has also been examined by Balakrishnan and Wernerfelt (1986), Levy (1985), Lieberman (1991), Masten (1984), and Masten, Meehan, and Snyder (1991). Maltz extends the make-or-buy approach by using TCA to examine the conditions under which a manufacturer would select in-house versus outsourced shipping (Maltz 1993) and warehousing functions (Maltz 1994).

In terms of forward vertical integration, TCA studies focus on the integration by manufacturers into distribution in both domestic and international contexts. For example, John and Weitz (1988) use TCA to examine forward integration into distribution and explore manufacturers' use of direct (i.e., through employees) versus indirect (i.e., through commission agents) channels of distribution. In a

⁴Although we provide the most comprehensive review of the TCA framework as applied in a marketing context, several other reviews are available in the literature (e.g., Anderson 1996; Day and Klein 1987; Joskow 1988; Lohtia, Brooks, and Krapfel 1994; Rangan, Corey, and Cespedes 1993; Shelanski and Klein 1995).

TABLE 1
Summary of Selected Transaction Cost Analysis Studies

Author(s)	Sample	Independent Variable(s)	Dependent Variable(s)	Key Findings
Anderson (1985)	159 sales managers in the electronic components industry	Asset specificity; Behavioral uncertainty; Environmental uncertainty; Interaction of asset specificity × environmental uncertainty; Transaction frequency	Use of direct sales force versus manufacturers' representatives	Behavioral uncertainty and the interaction of asset specificity and environmental uncertainty are positively related to the use of an in-house sales force. Two of seven measures of asset specificity have a significant positive effect on sales force integration.
Anderson (1988)	169 sales managers in the electronic components industry	Asset specificity; Environmental uncertainty; Behavioral uncertainty Type of sales force; Degree of salesperson goal congruence; Monitoring by sales manager	Level of salesperson opportunism Level of salesperson opportunism	Higher levels of asset specificity and behavioral uncertainty are positively related to salesperson opportunism. In-house salespersons display less opportunism than do manufacturer representatives. Goal congruence is negatively related to salesperson opportunism.
Anderson & Coughlan (1987)	94 foreign market entry ventures by 36 U.S. semiconductor firms	Asset specificity	Use of integrated or independent channel for foreign market entry	Asset specificity is positively related to the use of an integrated channel.
Anderson & Schmittlein (1984)	145 sales managers in the electronic components industry	Asset specificity; Environmental uncertainty; Behavioral uncertainty; Interaction of asset specificity × environmental uncertainty; Interaction of asset specificity × behavioral uncertainty; Transaction frequency	Use of direct sales force versus manufacturers' representatives	Behavioral uncertainty and asset specificity are positively related to the use of an in-house sales force.
Anderson & Weitz (1992)	378 manufacturer-distributor dyads among five Fortune 500 companies	Manufacturer idiosyncratic investments; Distributor idiosyncratic investments; Perceptions of manufacturer idiosyncratic investments; Perceptions of distributor idiosyncratic investments	Levels of manufacturer and distributor commitment to the relationship	Idiosyncratic investments are positively related to both manufacturer and distributor commitment. Manufacturer and distributor perceptions of the other party's level of commitment are positively related to perceived idiosyncratic investments.

Author(s)	Sample	Independent Variable(s)	Dependent Variable(s)	Key Findings
Balakrishnan & Wernerfelt (1986)	93 manufacturing industries	Technological uncertainty (i.e., obsolescence)	Degree of vertical integration	Technological obsolescence has a negative impact on vertical integration.
Bucklin & Sen-gupta (1993)	98 co-marketing alliances	Expected asset specificity; Behavioral uncertainty; Transaction frequency	Level of power imbalance between focal and partner firm	Expected transaction-specific investments and expected frequency of interaction are positively associated with power imbalance.
Dutta & John (1995)	120 student subjects playing the role of electrical transformer suppliers	Number of suppliers	Supplier's selling price	Sellers in a monopoly condition extract higher prices than sellers in a duopoly condition.
	2444 semiconductor devices	Level of buyers' specific investments	Single or multiple vendor	Devices that require high levels of specific investments by buyers are more likely to be supplied by multiple vendors.
Dutta and colleagues (1995)	199 representative agencies in the electrical and mechanical industries	Manufacturer lock-in; Performance ambiguity	Single (i.e., representative only) versus dual channel (i.e., representative and house account) distribution systems	Both lock-in and performance ambiguity increase the probability that a manufacturer will use a dual channel.
Erramilli & Rao (1993)	381 foreign market entry decisions of 175 U.S. service firms	Asset specificity (i.e., idiosyncratic services)	Shared versus full-control modes of market entry	Service firms favor shared control when asset specificity is low. This tendency is moderated by country risk, firm size, and degree of separability of production and consumption.
Gates (1989)	52 semiconductor firms across North America, Europe, and Japan	Firm's product/market strategy	Perceived transaction costs	Product/market strategy costs influence managerial perceptions of selected types of transaction costs.
Gatignon & Anderson (1988)	1267 foreign subsidiaries of 180 U.S. multinational corporations	Asset specificity; Environmental uncertainty; Behavioral uncertainty; Interaction of asset specificity \times environmental uncertainty	Percent equity ownership of foreign subsidiary	Behavioral uncertainty is positively related to the percent of equity ownership.
			Total versus partial ownership of foreign subsidiary	Environmental uncertainty is negatively related to the percent of equity ownership. Total ownership is more likely under conditions of high asset specificity, high behavioral uncertainty, and low environmental uncertainty.

Author(s)	Sample	Independent Variable(s)	Dependent Variable(s)	Key Findings
Heide and John (1988)	199 manufacturers' agents in the electrical and process equipment industries	Asset specificity (invested by agency)	Level of offsetting investments by agency Replaceability of the principal	Investment in specific assets by agents is positively related to their degree of offsetting investments, and negatively related to their replaceability of the principal
Heide & John (1990)	155 manufacturing firms across several industries	Asset specificity	Extent of joint action between buyers and suppliers	Both manufacturer's and supplier's specific investments are positively related to the extent of joint action.
		Asset specificity; Environmental uncertainty (i.e., volume and technological unpredictability)	Degree of expectations of relationship continuity	Supplier's specific investments are positively related to expectations of continuity, whereas technological unpredictability is negatively related to expectations of continuity.
		Asset specificity; Behavioral uncertainty	Level of supplier verification efforts	Manufacturer's specific investments and behavioral uncertainty are positively related to verification efforts.
Heide & John (1992)	155 manufacturing firms and 60 supplier firms across several industries	Asset specificity; Relational norms	Level of buyer's control over supplier decisions	Investments in specific assets by buyers are positively related to control over supplier decisions when both parties share relational norms. In the absence of these norms, specific assets are negatively related to control over supplier decisions.
Hu & Chen (1993)	1456 Chinese joint ventures	Environmental uncertainty (i.e., sociocultural distance)	Percentage of foreign ownership of Chinese joint venture	Under conditions of high sociocultural distance, firm will seek lower percentages of joint venture ownership.
John (1984)	151 franchised dealers of a major oil company	Degree of power employed by franchisor (five different types specified); Degree of bureaucratic structuring (three different dimensions specified)	Degree of opportunism displayed by franchised dealers	Franchisee opportunism is positively related to franchisor's use of coercive power and negatively related to franchisor's use of referent power. Franchisee opportunism is positively related to perceptions that franchisor employs a bureaucratic mode of governance.