

Transaction Cost Analysis in Marketing: Looking Back, Moving Forward

George John^{a,*}, Torger Reve^b

^a General-Mills-Gerot Chair of Marketing, Carlson School of Management, University of Minnesota, 321, 19th Avenue South, Minneapolis 55455, USA

^b With Wilhelmsen Professor of Strategy BI Norwegian School of Management, NO-0442 Oslo, Norway

Abstract

Contributions to the theory and application of the Williamson's transaction cost framework by scholars in Marketing are reviewed. From its initial appearance in the late 1970s, the Williamsonian approach has moved from a theoretical curiosity to the workhorse model in one subfield of marketing; viz. channels. Possible reasons for this success are traced here. The consistent empirical support for the core model, its applicability to a broad range of managerially relevant problems, its successes in horse races against competing theories, and its co-existence with complementary theories are unpacked. The paper closes with speculation about future trends about transaction cost analysis in marketing.

© 2010 New York University. Published by Elsevier Inc. All rights reserved.

Keywords: Safeguard; Adaptation; Incentives

Introduction

Transaction cost economics (or transaction cost analysis, as it is generally called in marketing) has been described by Williamson (1998) as a research program that unpacks the ramifications of developing a theory of the firm as a governance structure. The empirical work has progressed rapidly in many fields, including marketing, as noted in comprehensive reviews (e.g., Rindfleisch and Heide, 1997). Indeed, over the last 30 years, this framework has become the dominant lens for understanding marketing channels. Such transformations of a field are rare, and deserve scrutiny. This paper explores the nature of this transformation.

Managerial concerns in marketing can be organized into four principal decision domains, popularly referred to as the 4Ps; product, price, promotion and place. Of these domains, place (or channels) is the smallest in terms of specialist scholars working in the field, but which poses the largest managerial and theoretical challenges. For instance, consider 6% of the \$28,500 price of the average new US automobile in 2001 was spent on highly visible consumer advertising and consumer promotions, but a much larger amount (15%) was spent on relatively invisible channel activities such as dealer financing, and sales commissions. Fur-

thermore, the inter-linked firms that collaborate and compete simultaneously within channels create complexities that greatly exceed the single-firm decision focus of the other Ps. Channels issues are also notoriously lumpy and sticky, both of which make it impractical to experiment or test changes incrementally as marketers are prone to do so with price, product and promotion issues. Thus, theory is at a premium in the channels domain.

Goals of paper

In this paper, we sketch the reasons for the success of the Williamsonian framework in marketing, particularly within channels. My intention is not to summarize the literature; excellent summaries are available elsewhere (e.g., Rindfleisch and Heide, 1997). Rather, we seek to provide some context for its successes in marketing, and to speculate on its future directions. To the extent feasible, we cite the earliest version of a study in order to provide a better sense of the timing of work, so an unusual number of dissertations are cited here.

Status quo ante

At the time of Williamson's initial work (the 1975 *Markets and Hierarchies* book), marketing textbook orthodoxy about channels consisted of cataloging types of channel firms (e.g., "merchant" wholesalers; "cash and carry" wholesalers; company sales branches, etc.) and summarizing heuristics derived from industry practice. For instance, "convenience" "shopping"

* Corresponding author.

E-mail addresses: johnx001@umn.edu (G. John), torger.reve@bi.no (T. Reve).

and “specialty” goods were aligned with intensive channels (no vertical restrictions), selective channels (some vertical restrictions) and exclusive (numerous vertical restrictions) channels respectively. Scholarly research of that era consisted of two streams of inquiry.

In one stream, Professor Bucklin (1967, 1972) and his colleagues promoted neo-classical views of channels as production functions wherein competitive pressures would select for efficient channel structures that balanced supply costs against end customers’ willingness to pay. Wernerfelt (1994) notes this tradition harkens back to Becker’s theory of household production. That said, this line of inquiry was not particularly promising with respect to empirical work as refutable conjectures were largely absent. Given the empirical bent of the field of marketing, these frameworks lay largely unutilized.

Professor Stern (1969) pioneered the second line of inquiry with the publication of his book demonstrating the utility of applying social psychological and sociological theories of structuring human interaction to our understanding of inter-firm interactions in channels. These theories emphasized social processes like power and conflict to describe how firms within channels might interact with each other in repeated exchanges. It rapidly spawned a large empirical literature that was highly useful to managers in developing tactics to persuade and manage suppliers, dealers and other channel members. However, issues of channel structure such as make versus buy and vertical restraints remained outside the scope of inquiry.

Stern and Reve’s (1980) “political-economy” model attempted to bridge the two strands of work. Although their synthesis employed Williamson’s (1975) work quite heavily, these developments came prior to Williamson’s crucial (1979) paper that dimensionalized the independent variables (*viz.*, *specific investments, frequency and uncertainty*), the dependent variables (*market, bilateral, trilateral and unified governance modes*) and offered refutable conjectures. It was the diffusion of this paper into marketing that spurred empirical work.

Methodological detour

Two related methodological developments occurred contemporaneously to enable robust tests of the Williamson’s refutable conjectures. The dyadic organizational-level unobserved constructs like specific investments, and uncertainty implicated in Williamson’s framework are not recorded in the census data favored by industrial organization researchers. Plainly, primary data tailored to these constructs was needed. The challenge was to obtain psychometrically adequate measures that converge across the two sides of the dyad for each dyadic-level construct. Joreskog’s (1978) marriage of econometrics and psychometrics culminating in his LISREL program, and the significant refinements of the “key informant” survey questionnaire approach by marketing scholars (e.g., Phillips, 1980) provided robust tools to overcome this challenge.

Reve’s dissertation (1980) utilized these developments to show that “structural” constructs like specific investments, authority, formalization, etc., from the Williamsonian theory are quite well captured across a dyad via carefully selected key

informants whose reports will converge to an acceptable psychometric level. In contrast, he found that measures of norms and other sentiments variables are much more fragile and often fail to converge across the dyad. These non-convergence issues with norms are magnified when the measures are extended beyond dyads to a multi-step marketing channel as demonstrated in Haugland’s (1988) dissertation on the Norwegian salmon export channel. For these reasons, much of the evidence cited below derives from dyadic studies. In addition, the firms themselves are often smaller organizations, which made the task of selecting informants easier.

Core model evidence

Not surprisingly, the initial work focused on discrete governance modes. Anderson’s dissertation (1982) was the first major empirical study in marketing. She observed that electronics firms organized their sales efforts around two discrete alternatives in each territory; employ company personnel (i.e., “make), or else contract (i.e., “buy”) with independent representatives (called manufacturers’ reps). Using a survey questionnaire aimed at key informants within these manufacturers, she estimated comprehensive models to assess a number of refutable implications derived from Williamson (1979). The central hypotheses were that investments in company-specific skills, demand uncertainties, technological uncertainties, behavioral uncertainties (or performance ambiguity) and frequency all led to moves away from the buy mode to the make mode.

Mode choice: S–A–M

The results were both impressive and surprising. Behavioral uncertainty (or performance ambiguity) had the greatest influence on governance mode choice followed by specific investment. Foreshadowing future work, she found demand uncertainty to have insignificant effects.¹ A number of other studies quickly followed, both extending and corroborating her results. John and Weitz (1988) showed the central hypotheses held beyond the two disjunct modes above to include intermediate mode choices as well. Noordewier’s (1986) dissertation distilled Macneil’s typology of norms into four key dimensions of relational norms termed a “relational syndrome”. He showed that greater relationalism improved on-time deliveries by ball-bearing suppliers to OEMs, but only in volatile settings. Heide’s dissertation (1987) showed that alliances and other forms of “closeness” in industrial purchasing ties could be unpacked according to TCE principles. Carson’s (2000) dissertation showed that these principles could be applied to understand contracting for product development activities.

The evidence can be compactly summarized as three processes that survive the empirical tests. Parties to an exchange

¹ Her pioneering work did not meet with publication success, with the Journal of Marketing Research rejecting the manuscript. It was subsequently accepted by Marketing Science, and is now amongst the most highly cited papers in the history of that journal.

are motivated to craft S–A–M governance structures that:

- *safeguard* against under-investment in at-risk assets
- promote *adaptation* to changing circumstances, and
- mitigate the under-supply of activities that lack verifiable outcome *measures*.

The S–A–M processes constitute the workhorse model for channel mode choice in contemporary textbooks (e.g., Coughlan et al., 2006). It should be noted that S–A–M is not identical to the original model. First, while specific investments do behave as the “*big locomotive to which transaction cost economics owes much of its predictive content*”, (Williamson, 1985; p. 56), it does so in a straightforward linear way, with its originally posited interaction with uncertainty being relegated to a second-order effect empirically. Second, the posited adaptations to disturbances have not found consistent empirical support because of repeated difficulties in obtaining psychometrically valid uncertainty measures at a dyadic level. Finally, the mitigation of under-supply of activities lacking verifiable measures yields very consistent, and highly significant effects.

Beyond mode choice

The empirical success of the model’s central predictions is unmatched in marketing, which is not shy about importing tools and testing theories from other fields of inquiry. However, the tradition in marketing scholarship is not to build ever-grander theories, but to extend and modify middle-range models to examine specific empirical phenomena. TCE lends itself readily to this tradition, and the success in applying TCE reasoning to order a wide-ranging set of marketing phenomena has strengthened its appeal. A sampling of some of these applications follows.

Brands are a central construct in marketing, and an enormous literature exists on the topic. Yet, in each case below, TCE processes of the S–A–M variety provided new insights that added to the conventional wisdom that brands are valuable reputational assets. The core tenets of branding theory are that brands evoke associations in customers’ minds, and that these associations are particularly valuable when the attributes of the product are unobserved.

House versus national brands. House brands (or private labels) are brands whose owner is the immediate seller of the product or service. They are typically available for sale only at the outlets owned by that seller. In contrast the manufacturer or OEM owns a national brand, which is typically sold through a number of independent downstream sellers. Most readers may have encountered house brands in supermarkets, but they are quite common in many other sectors.

Striking a balance between these brand ownership forms poses a significant management problem, and the conventional wisdom points to heterogeneous preferences amongst customers as the key driver. Specifically, cheaper house brands are thought to attract price sensitive customers, while the higher priced national brands target quality sensitive customers. Typically, distributors carry their own house brands as well as national brands. House brands’ gross margins are typically larger than national

brand margins, but the greater visibility of national brands makes the latter an easier sell. Naturally, salespeople prefer to focus on selling national brands as they are usually compensated on volume.

Anderson and Robertson (1995) demonstrated that this problem of motivating salespeople to focus on house brands could be viewed as a contracting problem. They showed that even after accounting for the differential market appeal of house and national brands, mutual fund salespeople needed additional safeguards to focus on house brands because termination imposed a greater capital loss from these products as they are not available from other potential employers. Amongst the safeguards in practice are legal ownership of the customer list accruing to reps (as is found in insurance agency settings), to subsidies and “spiffs” paid to salespeople to attend to house branded items.

Component versus OEM brands. It is quite common today to come across products and services that carry the logos of component suppliers in addition to the OEM brand. For instance, trucks often carry the diesel engine supplier’s name and logo alongside the truck manufacturer’s brand name and logo on advertising messages and the physical product itself. According to branding theory, using brands together in this fashion reinforces and amplifies the appeal of each brand provided that their individual appeals are consistent with each other. Ghosh and John (2009) examine this contract from a TCE lens, and find these setups are an efficient response to the safeguarding needs of suppliers who are asked to make more specialized investments. Crucially, this effect is empirically distinct from the factors cited in the extant branding studies; viz. consistency between the individual brands, and the individual brands’ pre-existing market appeals.

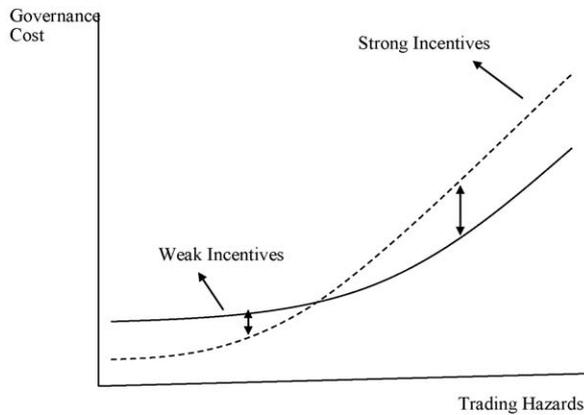
Clone products. In the electronics industry, it is common to find royalty-free licenses granted by innovators to other producers, which creates so-called “second-sources” of supply of functionally identical products. On the surface, this practice seems to be a detriment to the profits of the innovator. Dutta’s (1990) dissertation showed that such licenses are granted to safeguard buyers’ specific investments. Thus, for instance, he reports that such licenses were more commonly granted for micro-processors than for memory devices consistent with the greater specific investments made by customers who design circuits and devices to accommodate a particular micro-processor as compared to the corresponding investments centered around a specific memory device.

Broadening the lens

Marketing work extends well beyond testing and applying the basic model. Theory-focused work has sought to pin down TCE’s boundary conditions. Two prominent instances concern wrong contracts and non-convergent norms. Consider them in turn.

“Mismatched” contracts

TCE posits that decision makers align governance choices with the previously described attributes of transactions to mini-



Note: Larger losses with for “wrong” contract in more hazardous conditions.

Fig. 1. Asymmetric cost of wrong contracts. Note: Larger losses with “wrong” contract in more hazardous conditions.

Table 1
Asymmetric costs of wrong contracts.

Average Productivity per Salesperson (\$mm)	Observed	Counterfactual in alternate regime
Salary regime	0.84	−8.87
Commission regime	0.60	0.43

Source: Rao (2009).

mize transaction costs. What if these choices are misaligned (see Fig. 1)?

Asymmetric costs. Rao (2009) examines this issue with a unique set of detailed productivity data from a number of industrial salesforces. After accounting for endogenous selection (Masten et al., 1991) by firms of their compensation structure (salary versus commissions) and estimating counterfactuals, he concludes if a firm that mistakenly chose a high powered scheme (commissions), it suffers a much larger productivity² penalty compared to a firm that mistakenly chose a low powered scheme (salaries). This regularity has been observed in previous work, albeit with less sophisticated analysis. Anderson’s (1988) studied the cost of employing the “wrong” mode in the choice of independent reps versus an employee. Examining cost/revenue ratios, she finds that there are no significant penalties for the wrong choice (employees) in low uncertainty regimes, but that there is a significant penalty for making the wrong choice (reps) in the high uncertainty regimes. Noordewier, John and Nevin (1990) reported that percentage on-time delivery and percentage of wrong deliveries of standardized ball bearing showed no significant penalties stemming from wrong choices (too much relational exchange) in exchanges surrounded by low uncertainty, while significant losses occurred from wrong choices (too little relational exchange) in exchanges under high uncertainty. Rao (2009) speculated that hierarchies afford insurance against costly mistakes, and proposed that this might bias man-

agers towards this mode. However, this conjecture remains to be folded into TCE fully.

Compensating outcomes. Another study points to another, subtler effect of “wrong” governance choices. Public bodies often impose uniform contract form requirements. Nordberg, Campbell and Verbeke (1996) study such a circumstance at CERN, the European physics laboratory. CERN is required by law to utilize fixed price sealed-bid contracts with its equipment suppliers despite the highly specific investments that are often required. Plainly, these contract forms are not well suited to the purchases at hand. Suppliers might be hesitant to bid or they might cut back on specific investment with its attendant productivity consequences. Alternatively, suppliers might be willing to invest at the correct levels despite the contract mismatch because of compensating extra-contractual benefits. Indeed, they find this to be the case. CERN’s suppliers expect losses from the inevitable post-contract haggling given the mismatched contracts, but they report gaining in less tangible ways. Improved technical skills that have future commercial value topped the list of such benefits, and they are of sufficient value to overcome the problems posed by the contract mismatch. It reminds us that TCE’s focus on isolated transactions is a methodological convenience, and that sets of inter-linked transactions are often considered together in the real world. However, the principles that demarcate the boundaries of these related sets of transactions remain to be specified.

Non-convergent norms

Marketing scholars have long focused on role of norms as a governance device. The general thrust of these relational theories is that more cooperative norms support transactions better (e.g., Dwyer, Schurr and Oh, 1987; Jap, 1995). Data from one side of a sample of dyads are often supportive of predictions from this paradigm. However, there is a persistent discrepancy between the theory and measures. Notice that norms are dyadically held expectations of behavior, which implies that measures of the parties’ expectations of behavior should converge, but for random noise. Yet, as far back as Reve’s (1980) first effort, psychometric analyses of reports from informants across dyads on measures of these norms have typically failed to converge to this degree. The persistent failures are unlikely to stem from poor measurement practice. Rather, they are more likely due to the presence of systematic differences between the parties to a dyadic exchange.

Indeed, variance component analyses pinpoint two systematic sources in addition to random noise; viz., dyadic-level shared trait variance across dyads and firm-level trait variance within dyads. In fact, Ghosh et al. (2006) found that the variance within dyads was much greater than the variance across dyads for the norms they measured. They concluded that TCE needed to revisit the theoretical processes by which norms regulate behavior. Specifically, in addition to norms exerting a common, contextual effect on the parties’ behavior, they also exert different effects through the internalized beliefs of each party. Although these differences in norm adherence are commonplace in sociological theorizing, marketing studies have held to the idea of norms as

² Productivity is margins net of compensation and administration cost in Table 1.

shared expectations per se. In contrast, in the strategy literature, Madhok (2002) provides an example of leveraging this notion of non-convergent expectations to unpack the NUMMI GM-Toyota alliance.

Horse races

TCE's diffusion in marketing is in no small way related to its success in empirical horse races. While rare, these are important opportunities for making the case for TCE. Two such races can be found in the marketing literature.

Dependence balancing

This race pitted TCE against the dominant sociological organizational behavior theory of inter-firm ties; viz., Pfeffer and Salancik's (1978) theory positing that firms seek to minimize their dependence on their trading partners. This theory derives from the open systems view of organizations, and as applied to inter-firm ties, it argues that external control over a firm increases the vulnerabilities of that firm to shocks. Thus, firms favor avoiding concentrated exchange and seek to balance dependence. In contrast, TCE maintains that firm might willingly enter into a dependent relationship if that were contractually efficient.

Heide and John (1988) applied this logic to ties between manufacturers' reps and their much-larger principals. These rep firms vary in the degree to which their business is concentrated amongst their principals. How (and why) might such firms balance their dependence? Dependence balance theory posits concentration per se as the motivator, but TCE suggests that a hazard emerges only when specific investments accompany concentrated exchange. Since the only practical safeguard for reps is to bond themselves closer to their downstream clients, we get competing predictions. Specifically, once investment exposure is controlled for, any correlation between concentrated exchange and downstream bonding efforts should vanish according to TCE, but not dependence balancing theory. In their data, the TCE position was upheld.

These data also reinforced the advantage of looking at "odd" practices from a remediable efficiency lens first instead of comparing it to platonic ideals. Notice that the bonding behavior described above is not overtly productive as it often consists of reps socializing with their clients.

Principal-agent models

Both TCE and principal-agent models speak to the strength of incentive compensation within internal labor markets although their underlying logic is quite different. TCE predicts hierarchies (i.e., flat wages or salaries) over market contracting (i.e., commissions or royalties) with increasing levels of the three S–A–M variables. In contrast, principal-agent models in the Holmstrom (1979) tradition as applied to this problem by marketing scholars (e.g., Lal 1982; Basu 1983) emphasized the effects of risk preferences on compensation structure. Notice that this horse race is not run on competing reduced form predictions about the same outcome; rather, it is the reduced form predictions

about risk aversion that separates the two setups. Specifically, increased stochasticity linking effort to output is predicted to favor salary compensation in the agency model setup on account of risk aversion, but this is not so in TCE.

However, this prediction is not supported. In fact, greater exogenous risk is *positively* correlated with stronger incentive compensation, opposite to the prediction. This corroborated by work outside marketing. In their comprehensive review, Lafontaine and Slade (2007) conclude that the evidence is generally unresponsive of the "trade-off between incentive and insurance concerns that is fundamental to the basic moral-hazard model" (p. 680). In contrast, TCE eschews risk notions and turns on the comparative properties of compensation plans to safeguard specific investments, adapt better, and in particular, the need to accommodate coarse output measures. As reviewed above, this last effect has found strong, consistent support in the marketing literature (e.g., Anderson, 1982; John and Weitz, 1988).

This horse race leads to two conclusions. First, risk aversion is not as fundamental to organizational governance as posited in the agency models. Indeed, recent work on behavioral economics (e.g., Rabin and Thaler, 2001) advocates employing a loss aversion function (i.e., a kinked linear utility around a reference point) in place of risk aversion, and principal-agent models are being re-worked with loss-averse agents. Second, this race reminds us of the close and continuing nexus between moral hazard models and TCE. This nexus is re-examined below.

Co-existence

Marketing is not a field defined by unified theories, but works with multiple middle-range theories, each of which speak to a limited set of stylized facts or contexts. Thus, it is not surprising that TCE co-exists with a number of research streams that speak to closely related topics. Consider multi-task agency, adjustment costs, and strategy work in turn.

Multi-task principal-agent models

Anderson's (1982) work demonstrated the empirical importance of non-verifiable tasks in a salesperson's portfolio as a powerful predictor of hierarchy. Holmstrom and Milgrom (HM 1991, 1994) cite this result as a principal motivation in their development of multi-task agency models. Multi-task agency models and TCE offer similar predictions regarding the circumstances that evoke flat wages (hierarchy). TCE holds that the inability to measure task execution with a credible (i.e., contractible) measure weakened the strength of incentives that could be employed. In fact, the HM-style multi-task agency models hold that flat wages are optimal even though only a sub-set of the agent's tasks might be non-verifiable. It is important to note that this result holds because administrative oversight (or agent utility) is assumed to guarantee a threshold level of agent effort directed at the non-verifiable tasks. Thus, the two explanations overlap considerably; indeed the reduced form predictions are identical.

Distinguishing the causal processes from these two models requires structural estimates of the underlying variables; i.e., transaction costs for TCE, and unobserved efforts for multi-task agency. Thus far, structural estimates are not yet available for TCE work in marketing, but we have do have recent structural estimates of unobserved efforts, which appear to line up with predictions from multi-task models.

Banerjee (2010) estimated a modified HM-style model with panel data observations on product-outlet level sales and compensation structures from a cell phone service provider. The verifiable task subset consists of agents' efforts to get would-be customers at an outlet to sign up for a contract. The non-verifiable task subset consists of agents' efforts to match would-be customers with the "right" service plan. While both tasks influence verifiable sign-ups, the latter task subset also influences the duration of time a signed up customer stays with the firm. It is this latter aspect that is not verifiable.

He solves the model, and finds that the optimal contracts have the following forms. At low demand³ outlet locations, this firm elects to pay a commission for each customer signed up. This sacrifices the non-verifiable tasks (matching service plans to would-be customers) so as to motivate the verifiable tasks (getting would-be customers to sign up). In contrast, at high demand outlet locations, the firm elects to pay a flat wage. This sacrifices the verifiable tasks so as to motivate the non-verifiable tasks. At intermediate demand outlet locations, the favored contract splits the difference as it were, and pays a (smaller) commission per customer signed up, plus a (smaller) flat wage. He estimates the level of verifiable and unverifiable task effort provided by agents at these outlets, and finds they are consistent with his model. As it stands, the multi-task agency model appears to have the edge over TCE with respect to empirical support for the role of effort verifiability.

Adjustment cost models

Wernerfelt (1997) proposed a formal model that overlaps considerably with the adaptation reasoning found in TCE. Very briefly, hierarchical exchanges adjust more efficaciously than do market exchanges, thus hierarchies dominate for tasks that require frequent adjustments. Reduced form tests of the model and its variants have yielded supportive results in settings ranging from ownership of carpenters' tools (Simester and Wernerfelt, 2005) to new product development (Wernerfelt, 2005). In the latter work, he argues that the possession of high levels of product development resources/processes by a firm require frequent adjustments in the firm's supply chain which then can be more efficiently managed by internalizing the supplier (broadening the vertical scope) as opposed to contracting for the input. This governance choice is driven by the desire to manage the trade-off between foregoing the design adjustments versus clamping down on the costs of adjustments. Likewise, since product development skills are generally

tacit and non-codifiable, firms possessing such skills cannot effectively demonstrate the value of these resources to an independent buyer through a contract; hence, such firms are likely to broaden their horizontal scope and enter into new product markets themselves. Wernerfelt's research program is a promising formalization of the ex post transaction costs aspects of TCE.

Efficiency and strategy

TCE's efficiency lens is compactly summarized by Williamson (1998). Economizing is the best strategy because it is relevant to a larger population of firms, including those lacking market power, and that the first-order importance of cost minimization should be of interest to firms with market power as well. Nevertheless, this explicit adherence to the primacy of efficiency has always met with resistance in marketing, which, as a field, has viewed customers and firms from a lens of uniqueness and differentiation. Prominent scholars in marketing (e.g., Morgan and Hunt, 1994) dismissed TCE on the grounds that it essentially predicts that all competing firms will make the same governance choices given the identical level of the exogenous attributes implicated in the theory, which is plainly counterfactual.

Williamson (1998) folded in the firm heterogeneity issue by observing that TCE can be readily modified to ask "*How should firm A – which has pre-existing strengths and weaknesses, core competencies and disabilities – organize X?*" (p. 48). Operationally, this is a difficult challenge because extant strategy models do not specify the resource activities/profiles that might distinguish firms from each other. This challenge was taken up simultaneously in economics (Nickerson, 1997) and marketing (Ghosh, 1997), but following three distinct approaches; Porter, and Resource-Based View (RBV) and Empirical Industrial Organization (EIO) traditions respectively. Consider them in turn.

Porter meets Williamson. Nickerson (1997) employ a Porter-style classification of firms' strategies in their empirical study of the Japanese international courier and small package services market. They classified firms as "Document Specialists", "Full-Line" providers" and "Package Specialists". The time and reliability sensitive nature of their position requires Document Specialists to customize the IT tracking systems to store, sort, and use large amount of information; hence their idiosyncratic investments are higher than those of Full-Line providers which, in turn, are higher than those of Package Specialists. These investments order the likelihood of vertical integration into the transportation stage, which is supported in their statistical analysis.

Ruester and Neumann (2009) use a very similar approach in their study of the liquefied natural gas (LNG) industry. They classified firms into "Chain Optimizers", "Flexible Operators", and "Nationalized Companies". These strategic postures need to be supported by different levels of specialized investments, with Chain Optimizers making more idiosyncratic investments than Flexibility Operators, followed by Nationalized Companies. The likelihood of vertical integration along the LNG value chain follows this ordering, which is supported by the data.

³ Demand refers to the baseline demand unrelated to agents' efforts. Customer foot traffic is a measure of this demand.

RBV meets Williamson. Ghosh (1997) describes differences between firms with respect to continuous dimensions of resources instead of discrete classifications. Specifically, OEMs are sorted according to the appeal of their products to end customers, and this modifies their design of their ties to upstream suppliers. He reports evidence of a discriminating fit between firm resources, specific investments, governance forms, and outcomes. OEMs with stronger presence in their downstream customer markets used more complete contracts to protect this resource from being potentially appropriated by an opportunistic supplier; however, since more complete contracts are not conducive to foster adaptation and cooperation that is essential for quality enhancing benefits, these OEMs ended up sacrificing some gains in quality enhancement (but not cost reduction). In effect, the OEM's unique downstream resources limited their flexibility and forced them to sacrifice these gains from efficient alignment. The trade-off between protecting rents and creating value through efficiency is the major take-away from this effort.

Jan Heide and his colleagues extend this strategy-governance interaction in their examination of the links between successive stages of a value chain (including inter-firm and intra-firm stages). Mishra, Heide, and Cort (1998) argue that hidden information about downstream partners are mitigated by charging a price premium and posting bonds – higher ambiguity in performance should be related to higher price premiums and higher levels of customer bonds being posted by the vendor. However, firms getting such price premiums should, in turn, take actions to assure the supply of high quality service from their own employees. Actions such as prequalification screening, compensation tied to on customer satisfaction, and developing a team-oriented culture are all predicted, and found in the data. In short, firms positioned at the high end of an unobservable quality spectrum organize their internal governance and external governance structures to support the desired quality. Wathne and Heide (2004) report systematic linkages in governance choices across successive links in the supply chain of apparel firms. Downstream customer relationship and upstream supplier relationship are both linked to the firms' positioning choices.

Two conclusions flow these strategy-governance studies. First, TCE is capable of accommodating firm heterogeneity in an insightful way. Second, and more broadly, TCE broadens the scope of the strategy exercise. Conventional strategic exercises focus on horizontal moves and counter-moves. In contrast, the TCE lens forces us to expand our analysis to the choices and constraints imposed on the vertical structure or value chain. Of course, combining horizontal and vertical moves is a complex empirical exercise. Some insight into the challenges is seen from recent work in the Empirical Industrial Organization (EIO) tradition.

EIO meets Williamson. Vertical market structures reflect efficiency and strategic considerations. The relative importance of these factors have been unpacked in EIO work in marketing. Chen's (2005) dissertation used a EIO lens to study the vertical structure of the "sports drink" marketplace which is characterized by two firms employing a vertically controlled "direct-to-store" (DSD) channel with exclusive territory bot-

tlers, and a third firm employing a traditional wholesaler-retailer channel with minimal vertical control.

Using a unique set of data including store-level panel data on retail product sales, prices, and customer traffic, as well as wholesale prices, he estimates a neoclassical random coefficient logit demand model. Using pricing rules emanating from specified game-theoretic descriptions of the vertical and horizontal interactions, he estimates the unobserved costs of each producer and the cost of each channel that most closely recover observed prices and volumes. Armed with these estimates, he estimates a counterfactual scenario where one firm switches from its existing DSD setup to a wholesaler-retailer channel.

Our interest lies in the relative importance of two possible sources of effects in these counterfactual scenario calculations. One source is the pricing effects induced by the game within a DSD system (full-coordinated pricing) versus the Stackelberg leader-follower game in the wholesaler-retailer channel, and the follow-on price changes in the differentiated Bertrand-Nash game between producers. The other source is the different cost levels associated with DSD and wholesaler channels. He concludes that the effects of the cost differences across the two channel types are much larger than the effects of the induced price changes in the counterfactual scenarios.

The relative importance of pricing distortions versus efficiencies in supply chains is also studied by Chen et al. (2006). The fluid milk market in Boston exhibits a complex vertical structure with upstream producers acting as oligopolists in an undifferentiated product market for wholesale private label milk, whereas they compete as oligopolists in a differentiated product market for wholesale national label milk. Downstream, grocery chains are differentiated competitors for private label brands of milk, but not so for national label milk. Consumers choose between the available milk brands within a store. After specifying horizontal and vertical games embedded within this two-level structure, and solving for pricing rules, they estimated the demand for fluid milk brands in the Boston market employing data on prices, volumes and other marketing actions from all the major grocery chains in this market from 1996 to 2000. Combining these demand parameters with input price data, the unobserved supply costs are recovered for each firm and channel. Counterfactual calculations for a number of alternative vertical structures show that supply cost differences are much more important than are induced price changes in explaining outcomes in these scenarios.

Taken together, these EIO studies suggest that efficiency considerations effects trump strategic interactions in vertical market structures. They reinforce TCE's insistence on placing efficiency motives first.

Future directions

Proponents of research models inevitably conclude that their research program is a unqualified success. However, in this instance, the evidence backs up this assertion. Looking back over the three decades of work on TCE in marketing, it has transformed itself from a theoretical curiosity to textbook orthodoxy in understanding vertical market issues and contributed in

meaningful ways to other areas of interest to marketers, including branding and strategy. The success of the research program appears to be rooted in its empirical successes, including horse races and co-existence with over-lapping theories, and its ability to offer insight into important managerial issues like channel design, licensing and component brands.

Speculation about the future is always problematic. Yet, some trends and challenges are discernable. Formalization and structural estimation of TCE models has lagged progress in other aspects, but the basic breakthroughs have been made, so I suspect that young scholars will pay much greater attention to developing such models and estimating them in the future. Given the natural applicability of these methodologies to policy questions, interest and progress on antitrust and related matters will likely also receive greater attention.

Likewise, the human actor has been understudied in TCE work. While bounded rationality has been accepted as a core assumption, little conceptual or empirical work exists on unpacking and scaling up its ramifications to the organizational level. Arrunada (2008) offers a stimulating paper that elaborates some of the implications of taking bounded rationality seriously by focusing on the evolutionary roots of our decision-making processes. Given the recent advances in evolutionary psychology, and its visible successes in applications to contemporary marketing issues, it is likely that the human actor will receive the attention it has long deserved from TCE researchers in marketing.

References

- Anderson, Erin M. (1982), "Contracting the Selling Function: The Salesperson as Outside Agent or Employee," Unpublished Ph.D. Dissertation, University of California, Los Angeles.
- (1988), "Strategic Implications of Darwinian Economics for Selling Efficiency and Choice of Integrated or Independent Sales Forces," *Management Science*, 34 (May (5)), 599–618.
- Anderson, Erin M. and Thomas Robertson (1995), "Inducing Multi-Line Salespeople to Adopt House Brands," *Journal of Marketing*, 59 (April), 16–31.
- Arrunada, Benito (2008), "Human Nature and Institutional Analysis," in *New Institutional Economics: A Guidebook*, Brousseau E. and Glachant J. M., eds. Cambridge: Cambridge University Press, 81–99.
- Banerjee, Ranjan (2010), "Essays On The Application of Multitasking in Marketing Channels," Unpublished Ph.D. Dissertation, University of Minnesota, Minneapolis, United States.
- Basu, Amiya K. (1983), "A Study on Optimal Salesperson Compensation Plans," Unpublished Ph.D. Dissertation, Stanford University, Palo Alto, CA.
- Bucklin, L. Peter (1967), "Postponement, Speculation and the Structure of Distribution Channels," in *The Marketing Channel: A Conceptual Viewpoint*, Mallen Bruce ed. New York: John Wiley and Sons.
- (1972), *Competition and Evolution in the Distributive Trades*, Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Carson, Stephen J. (2000), "Managing Creativity and Innovation in High-Technology Interfirm Relationship," Unpublished Ph.D. Dissertation, University of Minnesota, Minneapolis, United States.
- Chen, Xinlei (2005), "Assessing the Effect of a Channel Switch," Ph.D. Dissertation, University of Minnesota, Minneapolis, United States.
- Chen, Xinlei, Tirtha Dhar, George John and Om Narasimhan (2006), "Does the Vertical Organization of Brand Ownership Matter? The Case of Fluid Milk in Boston," presented at *International Society for New Institutional Economics Conference*.
- Coughlan, Anne T., Erin M. Anderson, Louis W. Stern and Adel I. El-Ansary (2006), *Marketing Channels*, 7th ed. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Dutta, Shantanu (1990), "The Influence of Buyer Switching Costs on Second-sourcing: Theoretical Analysis and Experimental Evidence," Unpublished Ph.D. Dissertation, University of Minnesota, Minneapolis, United States.
- Dwyer, Robert F., Paul H. Schurr and Sejo Oh (1987), "Developing Buyer–Seller Relationships," *Journal of Marketing*, Vol. 51 (April), 11–27.
- Ghosh, Mrinal (1997), "Creating and Claiming Value in Cooperative Inter-Firm Relationships: Theory and Evidence," Unpublished Ph.D. Dissertation, University of Minnesota, Minneapolis, United States.
- Ghosh, Mrinal and George John (2009), "When Should Original Equipment Manufacturers Use Branded Component Contracts with Suppliers?," *Journal of Marketing Research*, Vol.46 (October (5)), 597–611.
- Ghosh, Mrinal, Jan B. Heide, George John and Kenneth Wathne (2006), "A Bayesian Approach to Estimating Dyadic Norms in Interorganizational Dyads," presented at *International Society for New Institutional Economics Conference*.
- Haugland, Sven (1988), "Relational Contracts in Distribution Channels: An Empirical Study of the Distribution Channels for Export of Norwegian Farmed Salmon," Ph.D. Dissertation, Norwegian School of Economics and Business Administration, Bergen, Norway.
- Heide, Jan B. (1987), "Explaining 'Closeness' in Industrial Purchasing Relationships: The Effects of Dependence Symmetry on Inter-organizational Coordination Patterns," Unpublished Ph.D. Dissertation, University of Wisconsin, Madison, United States.
- Heide, Jan B. and George John (1988), "The Role of Dependence Balancing in Safeguarding Transaction Specific Assets in Conventional Channels," *Journal of Marketing*, 52 (January), 20–35.
- Holmstrom, Bengt (1979), "Moral Hazard and Observability," *The Bell Journal of Economics*, Vol.10 (Spring (1)), 74–91.
- Holmstrom, Bengt and Paul Milgrom (1991), "Multitask Principal–Agent Analyses: Incentive Contracts, Asset Ownership, and Job Design," *Journal of Law, Economics, and Organization*, 7 (Special Issue), 24–52.
- and ————— (1994), "The Firm as an Incentive System," *The American Economic Review*, 84 (September (4)), 972–91.
- Jap, Sandy D. (1995), "A Longitudinal Approach to the Effects of Partner Firm Characteristics, the Environment, and Mutual Trust on Synergistic Outcomes in Long-term, Buyer-supplier Relationships," Unpublished Ph.D. Dissertation, University of Florida, FL, United States.
- John, George and Barton Weitz (1988), "Forward Integration into Distribution: An Empirical Test of Transaction Cost Analysis," *Journal of Law, Economics and Organization*, 4 (Fall (2)), 337–56.
- Joreskog, Karl G. (1978), "Structural Analysis of Covariance and Correlation Matrices," *Psychometrika*, 43 (December (4)), 443–77.
- Lafontaine, Francine and Margaret Slade (2007), "Vertical Integration and Firm Boundaries: The Evidence," *Journal of Economic Literature*, 45 (September (3)), 629–85.
- Lal, Rajiv (1982), "A Theory of Salesforce Compensation Plans," Unpublished Ph.D. Dissertation, Carnegie-Mellon University, Pittsburgh, PA.
- Madhok, Anoop (2002), "Reassessing the Fundamentals and Beyond: Ronald Coase, The Transaction Cost and Resource-Based Theories of the Firm and the Institutional Structure of Production," *Strategic Management Journal*, 23, 535–50.
- Masten, Scott E., James W. Meehan Jr. and Edward A. Synder (1991), "The Costs of Organization," *Journal of Law, Economics, and Organization*, 7 (Spring (1)), 1–25.
- Mishra, Debi Prasad, Jan B. Heide and Stanton G. Cort (1998), "Information Asymmetry and Levels of Agency Relationships," *Journal of Marketing Research*, 35 (August), 277–95.
- Morgan, Robert M. and Shelby D. Hunt (1994), "The Commitment-Trust Theory of Relationship Marketing," *Journal of Marketing*, 58 (July), 20–38.
- Nickerson, Jackson A. (1997), "Toward an Economizing Theory of Strategy: The Choice of Strategic Position, Assets, and Organizational Form," Ph.D. Dissertation, University of California-Berkeley, CA, United States.
- Nordberg, Markus, Alexandra T. Campbell and Alain Verbeke (1996), "Can Market Based Contracts Substitute for Alliances in High Technology Markets," *Journal of International Business Studies*, 27 (5), 963–79.

- Noordewier, Thomas G. (1986), "Explaining Contract Purchase Arrangements in Industrial Buying: A Transaction Cost Perspective," Ph.D. Dissertation, University of Wisconsin-Madison, WI, United States.
- Noordewier, Thomas G., George John and John R. Nevin (1990), "Performance Outcomes of Purchasing Arrangements in Industrial Buyer-Vendor Relationships," *Journal of Marketing*, 54 (October), 80–93.
- Pfeffer, Jeffrey and Gerald R. Salancik (1978), *The External Control of Organizations*, New York: Harper and Row.
- Phillips, Lynn W (1980). "The Study of Collective Behavior in Marketing: Methodological Issues in the Use of Key Informants," Ph.D. Dissertation, Northwestern University, IL, United States.
- Rabin, Matthew and Richard H. Thaler (2001), "Anomalies: Risk Aversion," *Journal of Economic Perspectives*, 15 (Winter (1)), 219–32.
- Rao, Raghunath S. (2009), "Estimating the Costs of Mistaken Governance: The Cost of Salesforce Compensation," Working Paper, Marketing Department, University of Texas, Austin.
- Reve, Torger (1980), "Interorganizational Relations in Distribution Channels: An Empirical Study of Norwegian Distribution Channel Dyads," Ph.D. Dissertation, Northwestern University, IL, United States.
- Rindfleisch, Aric and Jan Heide (1997), "Transaction Cost Analysis: Past, Present and Future Applications," *Journal of Marketing*, 61 (October (4)), 30–51.
- Ruester, Sophia and Anne Neumann (2009), "Linking Alternative Theories of the Firm- A First Empirical Application to the Liquefied Natural Gas Industry," *Journal of Institutional Economics*, 5 (1), 47–64.
- Simester, Duncan I. and Birger Wernerfelt (2005), "Determinants of Asset Ownership: A Study of the Carpentry Trade," *Review of Economics and Statistics*, 87 (February (1)), 50–8.
- Stern, Louis W. (1969), *Distribution Channels: Behavioral Dimensions*, Boston: Houghton-Mifflin.
- Stern, Louis W. and Torger Reve (1980), "Distribution Channels as Political Economies: A Framework for Comparative Analysis," *Journal of Marketing*, 44 (Summer), 52–64.
- Wathne, Kenneth H. and Jan B. Heide (2004), "Relationship Governance in a Supply Chain Network," *Journal of Marketing*, 68 (January), 73–89.
- Wernerfelt, Birger (1994), "An Efficiency Criterion for Marketing Design," *Journal of Marketing Research*, 31 (November), 462–70.
- _____ (1997), "On the Nature and Scope of the Firm: An Adjustment-Cost Theory," *Journal of Business*, 70 (October), 489–504.
- _____ (2005), "Product Development Resources and the Scope of the Firm," *Journal of Marketing*, 69 (April), 15–23.
- Williamson, Oliver E. (1975), *Markets and Hierarchies: Analysis and Antitrust Implications*, New York: The Free Press.
- _____ (1979), "Transaction Cost Economics: The Governance of Contractual Relations," *Journal of Law and Economics*, 22, 233–61.
- _____ (1985), *The Economic Institutions of Capitalism*, New York: The Free Press.
- _____ (1998), "Transaction Cost Economics: How It Works; Where It is Headed," *De Economist*, 146 (1), 23–58.