

# Transaction Cost Economics

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# Foundation of Transaction Cost Economics

- Transaction Cost Economics (TCE) aims to explain the existence and boundaries of the firm (Williamson, 2008). TCE was originated by Coase (1937) who developed the theory from the works of Chester Barnard, and Herbert Simon (Williamson, 2005*b*). TCE has been further developed by a series of seminal works by Williamson.

# Foundation of Transaction Cost Economics

- ◆ Coase and Williamson then were awarded a Nobel Prize based on their contribution of so called “Transaction Cost Economics (TCE)” in 1991 and 2009 (Williamson, 2010) respectively

# Foundation of Transaction Cost Economics

- ◆ Transaction Cost Economics is a theory that offers an alternative approach to the traditional mainstream economics through a lens of “*choice*” (Williamson, 2002).
- ◆ This alternative approach is to view the nature of the firm and its boundaries via the lens of “*contract*” (Williamson, 2008).

# Foundation of Transaction Cost Economics

- ◆ Main drivers for transaction costs include asset specificity, uncertainty and transaction frequency (Williamson, 2005*b*).
- ◆ In a collaborative relationship, it has been found that asset specificity and environmental uncertainty positively affect an intention for a long term orientation between supply chain partners (Lui and Ngo, 2012).

# Underlying Assumptions

- ◆ Drawing from the theory of TCE, there always be transaction cost in any supply chain interaction (Grover and Malhotra, 2003). This is because of the assumptions of bounded rationality (Simon, 1957) and opportunistic behaviour (Williamson, 2008). These two assumptions are the essential foundation of TCE, which are discussed as follows.

# Bounded Rationality

- Based on the classical economics theory, it is assumed that humans have perfect rationality of their behaviours (Coase, 1937). However, according to neurophysiological and language limits of individuals (Simon, 1957), there are the constraints of human abilities to receive, process and analyse information without any error (Grover and Malhotra, 2003). Therefore, bounded rationality is viewed as a source of transaction costs because all factors cannot be considered in the decision making process (Barros, 2010).



# Opportunistic Behaviour

- It is expected that suppliers may deliver inferior goods if they know that their clients cannot detect the difference (Wuyts and Geyskens, 2005; Morgan et al., 2007). This opportunistic behaviour leads to the cost of monitoring the outsourced production processes and the quality of delivered products (Vieira et al., 2011). Although the firm have may not discover any opportunistic behaviour of its suppliers, quality checking may still be necessary as long as the expectation of opportunistic behaviour still exists (Lui and Ngo, 2012).



# Critiques of TCE

- Although being widely applied in SCM research, there are also critiques on the implication of the TCE approach (Gibbons, 2005; Cousins, 2002). Such critiques include the implication for “*Appropriable Rent*” (Quasi-rent) and post-contractual opportunistic behaviour (Klein et al., 1978). This critique was deliberated with the case of the *General Motors* (GM)’s acquisition of *Fisher Body* (Williamson, 2002). Later Coase (2006) has responses to this critique by arguing that the event used in the case of GM was not true. Coase (2006, p. 255) stated that “*The problem with this widely used example is that the events, so minutely described, never happened.*”

# Critique (cont.)

- ◆ Moreover, TCE was challenged by Ghoshal and Moran (1996, p. 13) on its assumption which ignores;
- ◆ *“Organizations are not mere substitutes for structuring efficient transactions when markets fail; they possess unique advantages for governing certain kinds of economic activities through a logic that is very different from that of a mar-ket.”*

# Critique (cont.)

- ◆ Furthermore, Martinez and Dacin (1999, p. 91) has pointed out the weaknesses of TCE which is;
- ◆ “. . . analyzing transactions at the individual level, which neglects social behavioral constraints; and an assumption of the relative universality of TCE’s explanatory power, which leaves little room for integration with other organization theories.”

# Critique (cont.)

- ◆ To improve the application of TCE, Martinez and Dacin (1999) proposed a model that joins TCE with institutional theory. Therefore, even though TCE may be criticised but TCE is flexible enough to be able to combine with other theories, which is one of the reasons why TCE has been extensively applied in management research (Williamson, 2005*b*).

# Applications of TCE

- ◆ TCE has been applied to SCM scenarios to explain the decision process of whether to implement in-house operations or outsource the operations instead (Shelanski and Klein, 1995). Moreover, TCE was also applied to understand the behaviour in supply chain collaboration (Wilding and Humphries, 2006) and its impacts on supply chain relationships and performance (Cao and Zhang, 2011; Nyaga et al., 2010). Hence TCE is considered to fit with the nature of SCM research (Ketchen Jr and Hult, 2007). It has been shown that lower transaction costs favour outsourcing and higher transaction costs favour in-house operations (Williamson, 2008).

# Applications of TCE

- ◆ As an alternative for either *firm* or *market governance*, collaboration arises as one of the hybrid governance forms (Koh and Venkatraman, 1991), which can reduce transaction costs of factors such as opportunism and monitoring activities or external uncertainty (Kinra and Kotzab, 2008). This can be achieved through the development of relational capital such as inter-firm trust (Croom, 2001).

# Applications of TCE

- ◆ The concept of TCE has been widely used to explain the existence and boundary of the firm (Coase, 1937) as well as other forms of economic governance (Williamson, 2005*b*). Recently, TCE has been applied to supply chain management such as inter-firm relationships (Hobbs, 1996) and outsourcing (Williamson, 2008). Albeit a study by Grover and Malhotra (2003) measured transaction costs in the context of supply chain management, the aspects of governance and opportunity costs are still missing. Moreover, seldom has the antecedents of such transaction costs in supply chain collaborations been studied (Williamson, 2010).



# Applications of TCE

- ◆ In a supply chain collaboration context, firms also have the option to closely col- laborate with their partners or just to deal with them at “*arms length*”. Therefore, in order to have a high level of collaboration, there are associated costs e.g., information and communication technology, effort, and risk from opportunistic behaviour of col- laborative partners (Hobbs, 1996). Nevertheless, firms may prefer to collaborate since they anticipate greater benefits such as inventory and transport cost reduction as well as customer service level or customer satisfaction improvement (Demil and Lecocq, 2006).

# Applications of TCE

- ◆ Not only are there internal factors that affect the collaboration but external drivers such as the number of available suppliers and the distance between the firm and suppliers also drive the need for collaboration (Tate et al., 2011). Transaction costs caused by partners' opportunism behaviour was found to reduce firm performance (Morgan et al., 2007). Furthermore, it was found that high transaction costs drive a firm's propensity to collaborate with their partners to reduce such costs in the future (Sriram et al., 1992).

# Samples of TCE Research

## **Research paper**

### **A transaction cost approach to supply chain management**

*Jill E. Hobbs*

#### **The author**

Jill E. Hobbs is based at Excellence in the Pacific Research Institute, University of Lethbridge, Lethbridge, Canada, and Faculty of Management, The University of Calgary, Calgary, Canada.

- ◆ Transaction costs, and their reduction, lie at the heart of the interest in supply chain management.
- ◆ Proactive moves to enhance management of supply chains are fundamentally concerned with improving their efficiency to gain competitive advantage.
- ◆ Adversarial relationships along the supply chain increase transaction costs. Co-operation, teamwork and the rapid interchange of data among companies in a supply chain will reduce transaction costs. To gain a better understanding of how these new relationships reduce costs, those who wish to undertake analyses of transaction costs require information only firms can provide.
- ◆ If firms do not collect information which can be used to analyse transaction costs, then their co-operation in the collection of survey data is essential.

# Samples of TCE Research



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## A transaction cost model of IT outsourcing

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## Abstract

This paper proposes and tests an explanatory model of information technology (IT) outsourcing behavior. Relying on transaction costs and incomplete contracts theories, the model hypothesizes that characteristics of IT operation activities—asset specificity, uncertainty, business skills, and technical skills required to perform the activities—will influence the level of their outsourcing. The model was tested using data from a survey of 335 firms. Results indicate that uncertainty is the major deterrent to outsourcing, while the level of technical skills is the most important reason to outsource. Business skills do not seem to play a significant role. Finally, asset specificity, which is always presented as a constraint to outsourcing, showed inconsistent effects.  
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**Keywords:** Outsourcing; Transaction cost theory; IS operations; Asset specificity; Outsourcing decision



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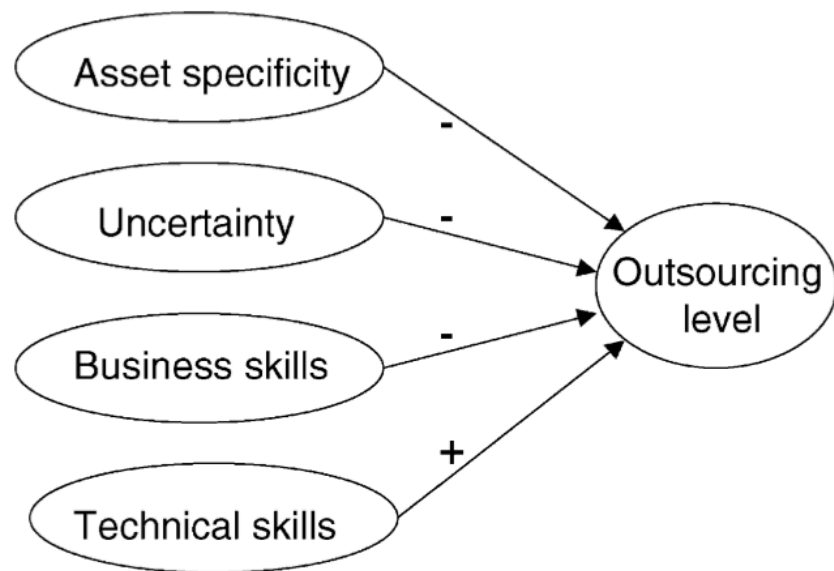


Fig. 1. Causal model of outsourcing.

- Transaction cost theory enables us to formulate four hypotheses about the level of outsourcing of IT operation activities.
- The first pertains to asset specificity.
- Transactions requiring specific assets will bear higher transaction costs; hence, they will be more likely to be retained in-house.

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Table 1  
Governance mode for IT activities

	Operated in-house by firm's employees	Operated in-house by external supplier's employees	Operated on firm's own equipment on supplier's premises	Totally outsourced to an external supplier	N/A or information unknown
Scheduling of operations (applications)	294	3	1	16	21
Control of operations (applications)	295	4	1	16	19
Production support services	253	16	1	16	49
CPU operation	279	13	2	26	15
Operation of operating system	284	13	2	26	10
Operation of applications	303	5	1	18	8
Operating system maintenance	219	41	3	54	18
Disk space management	293	15	1	19	7
Hardware maintenance	61	123	6	123	22
Printer operation	310	6	0	13	6
Printer maintenance	69	125	4	120	17
PC installation	275	27	0	19	14
PC maintenance	132	87	10	90	16
Network maintenance	194	37	4	36	64
Operation of telecom. software	245	15	2	31	42
Telecommunications lines maintenance	50	83	8	146	48



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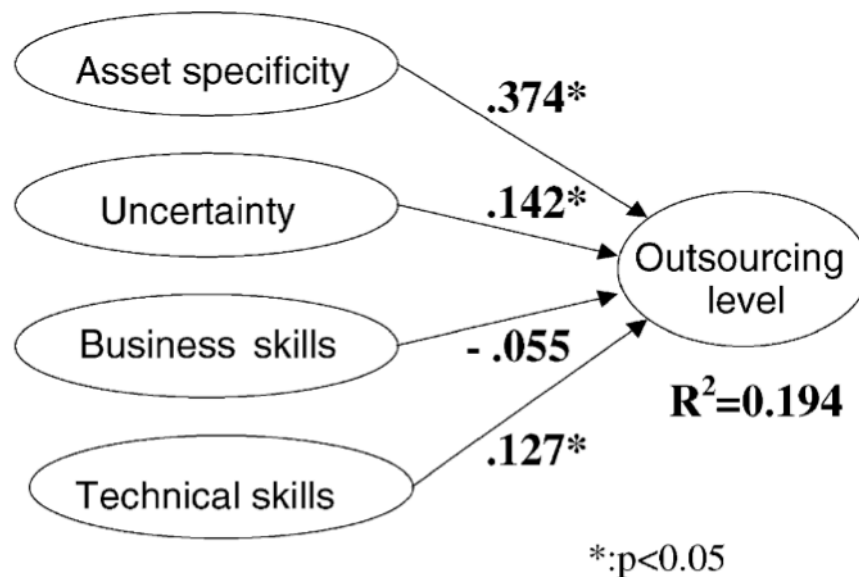


Fig. 2. Results of PLS analysis.

- Fig. 2 presents the results of the PLS analysis. All the links were significant ( $P < 0:05$ ) except for business skills.
- The most surprising finding is the link between asset specificity and the outsourcing level.
- It was anticipated that the presence of specific assets would deter companies from outsourcing IT activities.
- The results obtained suggest the opposite.
- The link between asset specificity and outsourcing level is strong and significant.
- As anticipated, increased technical skills tend to favor outsourcing.
- Similarly, the presence of uncertainty and measurement problems seems to preclude outsourcing of IT activities. Overall, 19.4% of the variance was explained.

# Samples of TCE Research

Table 2  
Asset specificity evaluation

	Percent outsourced	Mean ranking (experts) 1: most specific 16: least specific	Second survey mean score 1: extremely specific, 7: not specific at all
Scheduling of operations	6	5.71	3.4
Control of operations	7	5.29	3.4
Production support services	16	6.14	3.7
CPU operation	13	7.29	4.2
Operation of operating system	13	7.29	3.8
Operation of applications	7	6.85	3.3
Operating system maintenance	31	9.71	4.1
Disk space management	11	11.00	4.1
Hardware maintenance	81	12.86	4.3
Printer operation	6	11.71	4.6
Printer maintenance	78	14.43	4.6
PC installation	14	13.57	4.7
PC maintenance	59	13.71	4.6
Network maintenance	28	8.86	4.1
Operation of telecom. software	16	6.03	4.0
Telecom. line maintenance	83	9.43	4.5
Correlation between percent outsourced and expert ranking	0.59		
Correlation between percent outsourced and specificity (second survey)	0.54		
Correlation between expert ranking and specificity (second survey)	0.87		

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## Appendix A

Variable	Measures	Items	Source
Governance mode	Outsourcing level	9	Aubert et al. [4]
Asset specificity	Client investment	3	Aubert et al. [4]
	Human resource specificity	4	Aubert et al. [4]
	HR hiring delay	5	Aubert et al. [4]
	HR training delay	5	Aubert et al. [4]
	Supplier investment	2	Aubert et al. [4]
	Structural liaison devices	5	Miller and Dröge [24]
Uncertainty and measurement problems	Formal measures	8	Aubert, Rivard and Patry [4]
	Formalization	7	Miller and Dröge [24]
	Standardization	6	Van de Ven and Ferry [37]
	Task complexity	9	Barki et al. [5]
	Task difficulty	2	Van de Ven and Ferry [37]
Origin of most important investment	Business skills	9	Aubert et al. [4]
	Technical skills	7	Aubert et al. [4]

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Methodological note

## Transaction cost framework in operations and supply chain management research: theory and measurement

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### Abstract

Over the past decade, transaction cost theory (TCT) has received considerable attention from researchers in various disciplines of business. Unfortunately, the rich theoretical base of TCT has seen limited application in the operations and supply chain management research. This article seeks to change that by providing a cogent synthesis of TCT, its assumptions, constructs, and propositions. It also summarizes existing empirical work in management and other disciplines that draws from the TCT perspective and examines relationships in manufacturing organizations. A measurement model of transaction costs is subsequently presented using data from 203 manufacturing firms in the OEM electronics industry. Guidelines and recommendations for researchers are then presented regarding both the uses of the theory and its measurement. It is hoped that this study will stimulate work in the important areas of inter-firm relationships that draw from this rich but underutilized theoretical lens, and thereby add another perspective to the knowledge base in related areas of the operations and supply chain management fields. © 2003 Elsevier Science B.V. All rights reserved.

**Keywords:** Empirical research; Transaction cost theory; Financial/economic analysis; Supply chain and operations management

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*Transaction costs* can generally be represented in terms of two major components (Clemons et al., 1993):

Transaction costs = coordination costs + transactions risk



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- Co-ordination costs are the cost of exchanging information and incorporating that information into the decision process.
- In the case of a manufacturer– supplier dyad it might include costs of exchanging information on products, price, availability, demand, as well as the costs to exchange design changes rapidly with the supplier.

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- Transaction risk includes the risk that other parties in the transaction will shirk their agreed upon responsibilities. Information asymmetry augments this risk.
- For instance, in the dyad above, the supplier might deliver an inferior product if it knows the manufacturer may not be able to prove the violation.
- In addition, transaction risk might also include asset-specific investments made by one party in the relationship.

Table 2

Items used to measure transaction costs

This discusses issues on *how you established and are maintaining your working relationship* with Supplier S. We want to measure the amount of effort and costs that were required to set up and maintain this relationship. Please indicate the extent to which you agree with the following statements by circling the appropriate number:

In developing an association with Supplier S (with respect to Component C)

It was understood in advance what this relationship would involve (Mang01)

Significant effort was required to gather the information necessary to outline the working relationship with Supplier S (Mang02)

It was straightforward and easy to work out the main issues and necessary details of the relationship with Supplier S (Mang03)

There were many unspecified terms which had to be worked out as the relationship with Supplier S developed (Mang04)

It required significant effort to determine individual roles to be performed by our firm and Supplier S (Mang05)

In monitoring the performance of Supplier S

It is easy to tell if we were receiving fair treatment from Supplier S (Mang06)

It takes significant effort to detect whether or not Supplier S conforms to specifications and quality standards (Mang07)

We are in a good position to evaluate how fairly our Supplier S deals with us (Mang08)

Accurately evaluating Supplier S requires a lot of effort (Mang09)

There is not much concern about Supplier S taking advantage of this Relationship (Mang10)

It is costly, in time and effort, to clearly monitor the performance of Supplier S (Mang11)

In addressing problems that might arise in the relationship with Supplier S

The approach to solving problems in our relationship with Supplier S is clear-cut (Mang12)

There are standard solutions or approaches to problems that might occur with Supplier S (Mang13)

Problem solving is often challenging, due to the nature of Component C (Mang14)

Although solutions to problems can be achieved, they would often need to be highly customized (Mang15)

Concerning the likelihood of Supplier S taking advantage of its relationship with our firm

There are no incentives for Supplier S to pursue their interests at the expense of our interests (Mang16)

It is easy for Supplier S to alter the facts in order to get what they wanted (Mang17)

There is a strong temptation for Supplier S to withhold or distort information for their benefit (Mang18)

It is difficult for Supplier S to promise to do things and get away without actually doing them later (Mang19)

There exists, from Supplier S's perspective, a significant motivation to take advantage of unspecified or unenforceable contract terms (Mang20)

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Table 5

Correlations among the constructs for discriminant validity

Constructs	Effort	Monitor	Problem	Advantage
Effort	0.491 <sup>a</sup>	0.379	0.383	0.307
Monitor	0.616	0.453	0.326	0.539
Problem	0.619	0.571	0.505	0.301
Advantage	0.554	0.734	0.549	0.522

<sup>a</sup> Values on the diagonal are shared variances within a construct, values below the diagonal are correlations, and values above the diagonal are variances between the constructs.

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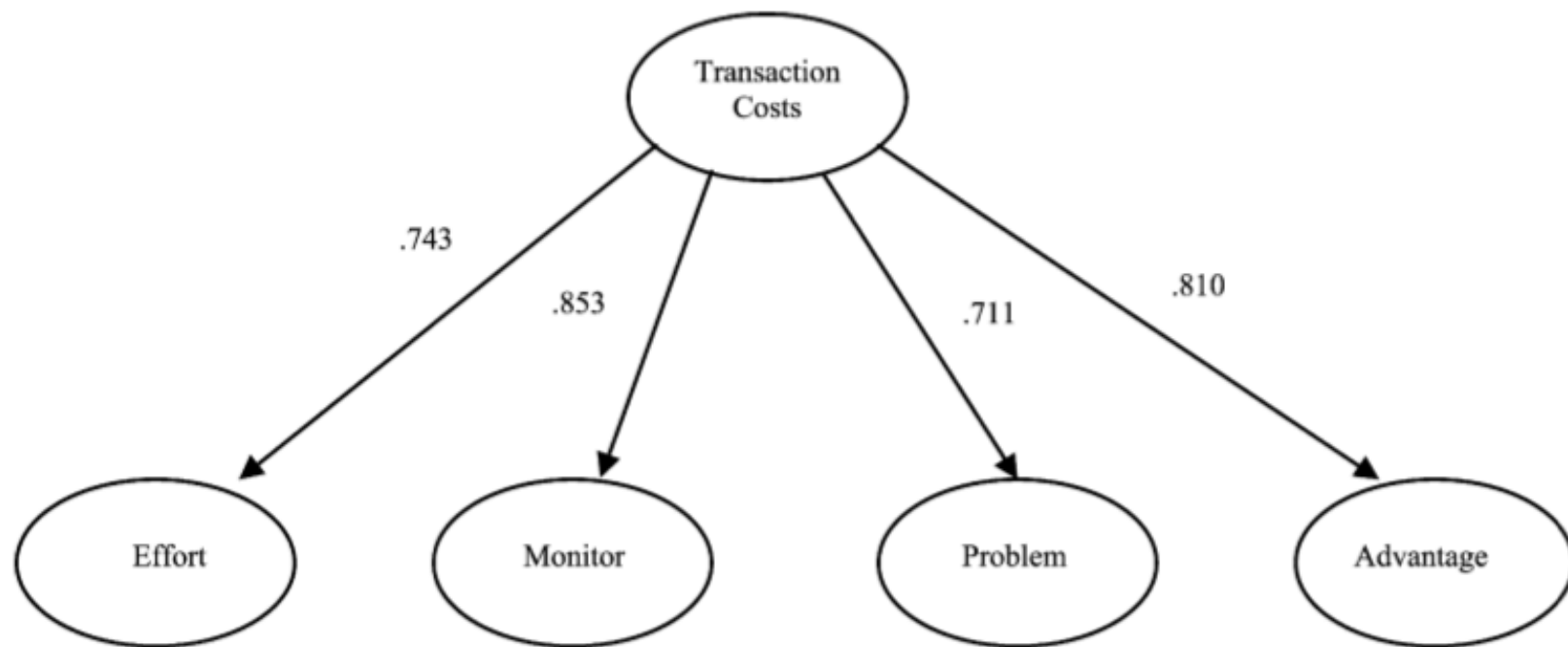


Fig. 1. Second-order factor model for transaction costs.



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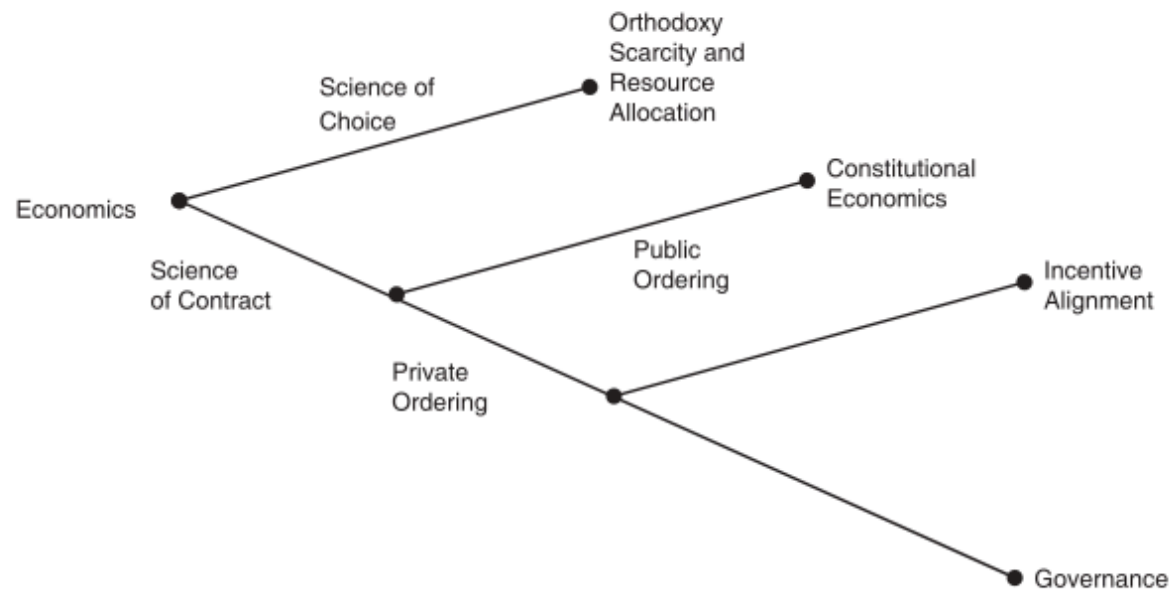
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## **TRANSACTION COST ECONOMICS: THE PRECURSORS**

Oliver E. Williamson

*Theories commonly progress through four stages, from informal to pre-formal to semi-formal and fully formal. This paper reports on the earliest stage of transaction cost economics that extended from the 1920s to the 1970s. That the gestation stage lasted so long is partly because transaction cost economics departed significantly from the then-prevailing economic orthodoxy. Also, and related, it is an interdisciplinary undertaking. As reported herein, transaction cost economics selectively combines economics, organisation theory and law and is the product of the contributions of some of the finest minds in those three fields.*

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**Figure 1:** The sciences of choice and contract



# Herbert Simon

The transaction, moreover, is the unit of analysis out of which transaction cost economics works. In both respects, the study of economic organisation is moved to a more microanalytic level of analysis than had been customary – broadly in the spirit of Herbert Simon's observation that

*'In the physical sciences, when errors of measurement and other noise are found to be of the same order of magnitude as the phenomena under study, the response is not to try to squeeze more information out of the data by statistical means; it is instead to find techniques for observing the phenomena at a higher level of resolution. The corresponding strategy for economics is obvious: to secure new kinds of data at the micro level.'*

(1984, p. 40)

# Ronald Coase

If firm and market are properly viewed as ‘alternative methods of coordinating production’ (Coase, 1937, p. 388), then the decision to use one mode rather than the other should not be taken as given (as was the prevailing practice) but should be derived. Accordingly, Coase advised economists that they needed

*‘ . . . to bridge what appears to be a gap in [standard] economic theory between the assumption (made for some purposes) that resources are allocated by means of the price mechanism and the assumption (made for other purposes) that this allocation is dependent on the entrepreneur-coordinator. We have to explain the basis on which, in practice, this choice between alternatives is effected.’*  
(1937, p. 389)

# Samples of TCE Research

Implementing the Coase and Arrow message to study the world of positive transaction costs was accomplished in part by taking economising on transaction costs to be the 'main case', broadly in the spirit of Frank Knight's views on efficiency (1941, p. 252; emphasis added):

*'Men in general, and within limits, wish to behave economically, to make their activities and their organization "efficient" rather than wasteful. This fact does deserve the utmost emphasis; and an adequate definition of the science of economics . . . might well make it explicit that the main relevance of the discussion is found in its relation to social policy, assumed to be directed toward the end indicated, of increasing economic efficiency, or reducing waste.'*

# Transaction costs versus resource value?

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**Keywords** *Microeconomics, Transaction costs, Resources*

**Abstract** *Two major advances in the theory of the firm and (micro)economics more generally are arguably transaction costs economics (TCE) and the theory of firm resources. TCE has originally been applied to the theory of the firm, but found applications in virtually all fields of economic inquiry. The theory of firm resources currently spans much of the industrial organisation (IO) and strategic management literature. In some fields, e.g. diversification, it has already acquired dominant status. Despite significant progress in TCE there still seem to remain significant unresolved issues. Indeed we claim that transaction cost economics fail to supply convincing answers to the issues of the nature of the firm (why do firms exist?), and their essence (running a business). It offers a partial explanation of the “nature” and little on the “essence”. The resource value view complements the nature side and goes far beyond on the essence issue. It provides a fruitful starting point for an integrative framework. This, we suggest, should be based on the resource value perspective story and craft (dynamic) transaction costs in the ensuing evolutionary tale.*



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Transaction-Cost Economics: The Governance of Contractual Relations

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# TRANSACTION-COST ECONOMICS: THE GOVERNANCE OF CONTRACTUAL RELATIONS\*

OLIVER E. WILLIAMSON

*University of Pennsylvania*

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



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## Transaction cost economics and the Carnegie connection<sup>1</sup>

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Revised 3 October 1994

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DE ECONOMIST 146, NO. 1, 1998

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

BY

OLIVER E. WILLIAMSON\*

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

# Samples of TCE Research

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.

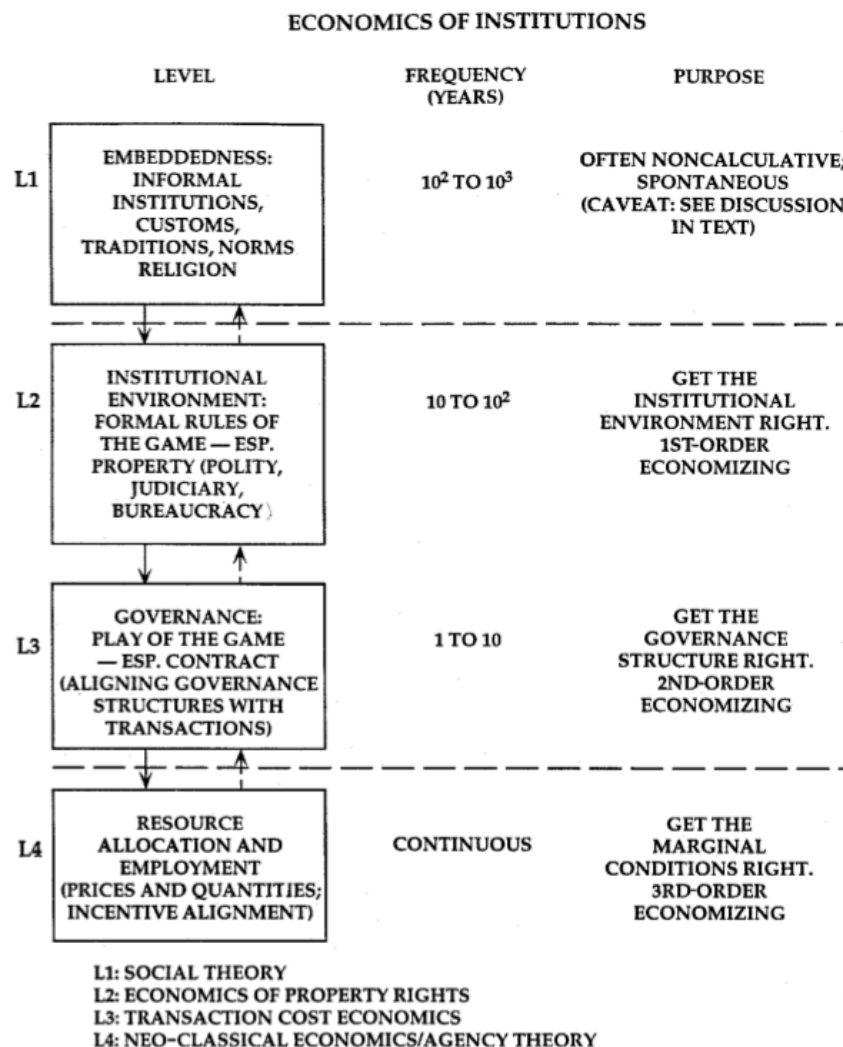


Figure 1

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 constraints 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.

# WHAT ARE THE QUESTIONS in TCE ?

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.

# WHAT ARE THE QUESTIONS in TCE ?

- 1. What Are the Phenomena of Interest?*
- 2. How Are Human Agents Described?*
- 3. How Is the Firm Described?*
- 4. What Main Purpose Is Served by Economic Organization?*
- 5. Does the Theory Scale Up?*
6. How is it implemented



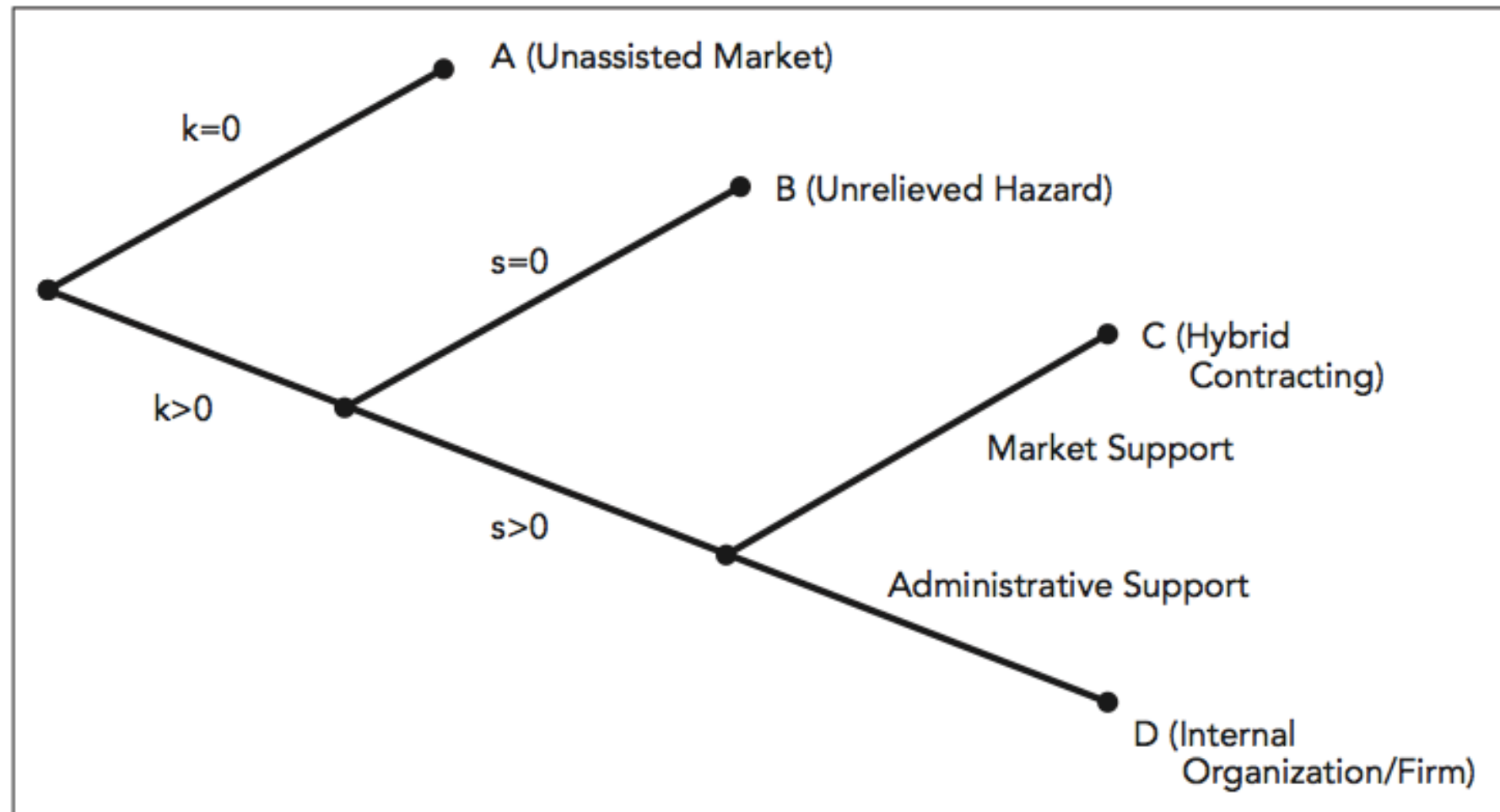
# OUTSOURCING: TRANSACTION COST ECONOMICS AND SUPPLY CHAIN MANAGEMENT\*

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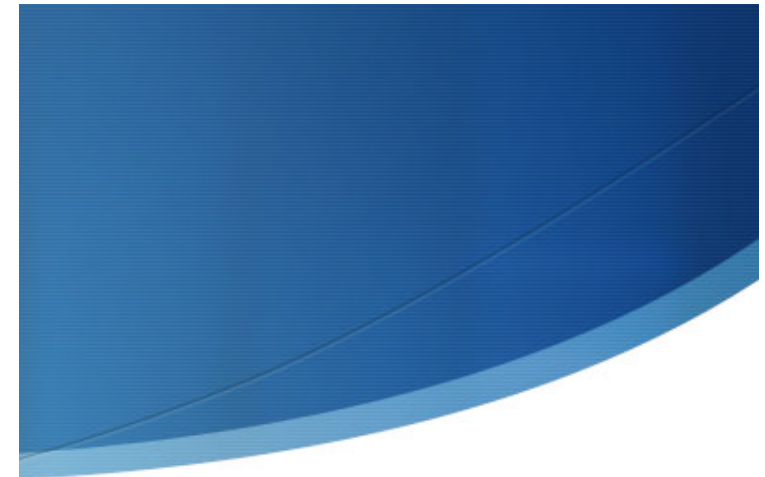
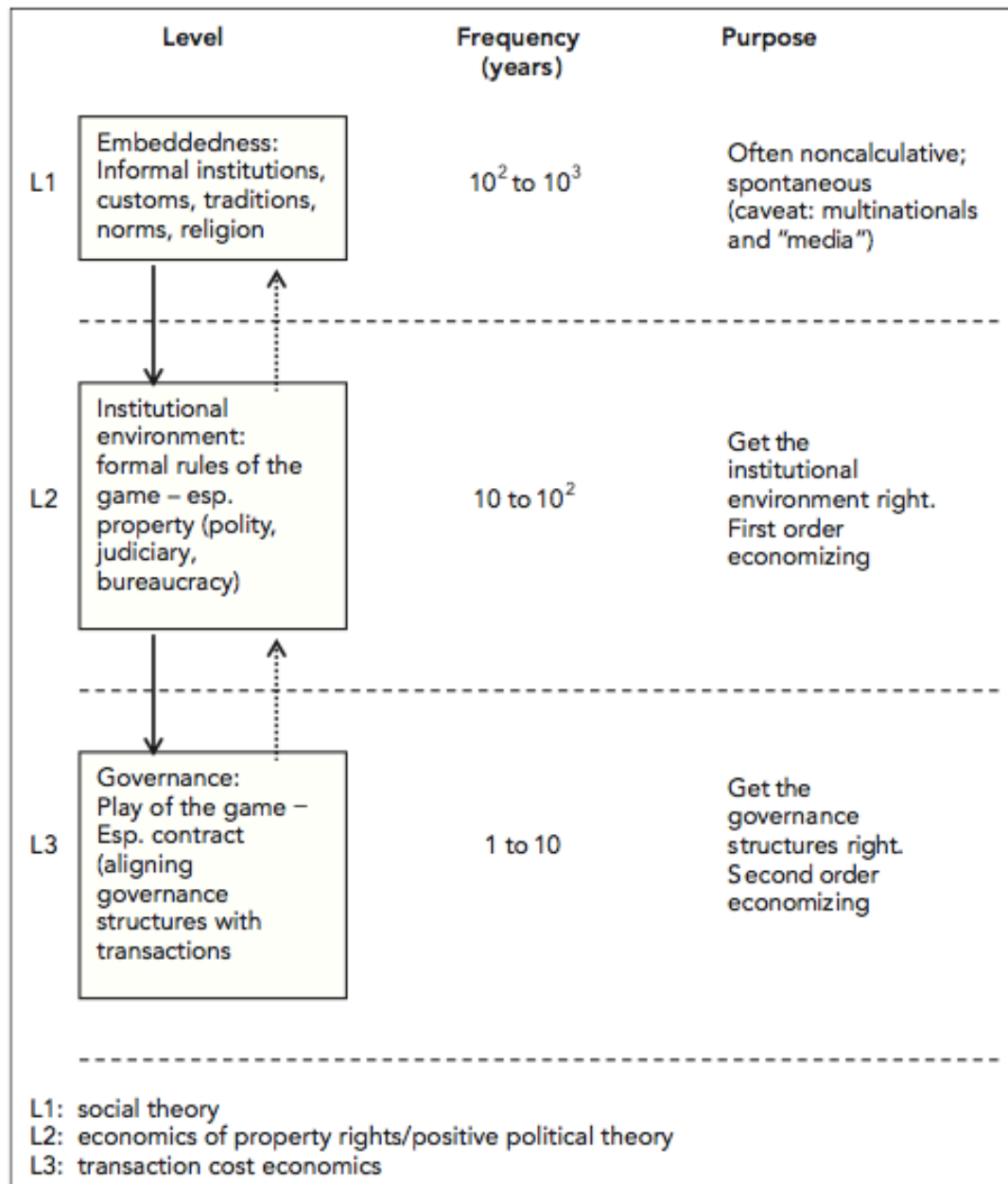
This article examines outsourcing from the transaction cost economics (TCE) perspective. The transaction is made the basic unit of analysis and the procurement decision, as between make and buy, is made (principally) with reference to a transaction cost economizing purpose. As sketched herein, the ease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

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

**FIGURE 1**  
**Simple Contractual Schema**



**FIGURE 2**  
**Economics of Institutions**



# Your Turn -> Transaction Cost in The Selected Industry

