

Association for Information Systems AIS Electronic Library (AISeL)

AMCIS 2008 Proceedings

Americas Conference on Information Systems
(AMCIS)

2008

Revising the IT Outsourcing Decision Model: A Transaction Cost Perspective

Forough Karimi Alaghehband

Concordia University, f_karimi@jmsb.concordia.ca

Shikui Wu

Concordia University, w_shikui@jmsb.concordia.ca

Suzanne Rivard

HEC Montreal, suzanne.rivard@hec.ca

Sylvain Goyette

Universite du Quebec a Montreal, goyette.sylvain@uqam.ca

Follow this and additional works at: <http://aisel.aisnet.org/amcis2008>

Recommended Citation

Alaghehband, Forough Karimi; Wu, Shikui; Rivard, Suzanne; and Goyette, Sylvain, "Revising the IT Outsourcing Decision Model: A Transaction Cost Perspective" (2008). *AMCIS 2008 Proceedings*. 196.

<http://aisel.aisnet.org/amcis2008/196>

This material is brought to you by the Americas Conference on Information Systems (AMCIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in AMCIS 2008 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

Revising the IT Outsourcing Decision Model: A Transaction Cost Perspective

Forough Karimi Alagheband

John Molson School of Business, Concordia
University

f_karimi@jmsb.concordia.ca

Suzanne Rivard

HEC Montréal

Suzanne.rivard@hec.ca

Shikui Wu

John Molson School of Business, Concordia
University

w_shikui@jmsb.concordia.ca

Sylvain Goyette

Université du Québec à Montréal

goyette.sylvain@uqam.ca

ABSTRACT

Williamson's (1979) transaction cost theory (TCT) has been widely used in information technology (IT) outsourcing research. This research, however, has led to mixed and unexpected results. From a theoretical standpoint, this paper argues that the conceptualization of the constructs and, more importantly, the linkage among constructs that IT outsourcing decision models have hypothesized are not completely in line with TCT. By reviewing the extant IT outsourcing decision models, this paper proposes a model of IT outsourcing decision that is closer to TCT than its predecessors. The model links transaction attributes to the outsourcing decision through a cost analysis mechanism, and also includes some attributes of transactions that have been ignored in past IT outsourcing research. In addition, the proposed model re-examines the role of some transaction attributes by taking into account their moderating effects.

Keywords

Transaction cost theory, IT outsourcing, Outsourcing decision.

INTRODUCTION

To make or buy is a fundamental question that many organizations face through their lifetime. Organizations try to cut their costs and obtain efficiency by outsourcing some of their activities. The decision whether to outsource or to keep a given activity within the firm is not, however, straightforward. Research on information technology (IT) outsourcing has attempted to identify the determinants of the outsourcing decision (Ang and Cummings, 1997; Ang and Straub, 1998; Aubert et al, 2004; Miranda and Kim, 2006; Bahli and Rivard, 2007).

In this research stream, one of the most often used theoretical foundations is transaction cost theory (TCT). This research, however, has led to mixed and unexpected results (Ang and Cumming, 1997; Miranda and Kim, 2006). Methodological as well as theoretical issues can explain such unexpected results. In this paper, we argue that, from a theoretical standpoint, the conceptualization of the constructs and, more importantly, the linkage among constructs that IT outsourcing decision models have hypothesized are not completely in line with TCT. After reviewing and assessing this literature, we propose a model of IT outsourcing that is closer to TCT than its predecessors. The model links transaction attributes to the outsourcing decision through a cost analysis mechanism (rather than by setting a direct link between the transaction's attributes and the outsourcing decision). The model also includes some attributes of transactions that have been ignored in past IT outsourcing research, and re-examines the role of some transaction attributes by taking into account their moderating effects.

The next section, reviews the basic precepts of TCT. It is followed by an assessment of empirical studies of IT outsourcing based on TCT. The model is then presented together with a set of propositions, followed by concluding remarks.

TRANSACTION COST THEORY

Foundations

Williamson's seminal work on TCT is based on the fundamental premise that the "transaction cost approach...regards the transaction as the basic unit of analysis...transaction cost economizing is central to the study of organizations" (Williamson 1981 p. 548). In other words, TCT aims at identifying the governance structures of different types of exchange between parties to maximize the economies for a given organization.

TCT is also based on two important behavioural premises, the bounded rationality and the opportunism of human agents. The former states that people are intendedly rational, but their rationality is limited by their capacity to "formulate and solve complex problems and to process information" (Williamson, 1981, p.553). The opportunism aspect is defined as the "self-interest seeking with guile" (Williamson, 1981, p.554), meaning that parties would be willing to provide false or incomplete information in order to achieve a transaction that will advantage them.

Williamson (1981) originally focused on transactions between firms and market. Thus, "a transaction occurs when a good or service is transferred across a technologically separable interface." Each transaction usually involves a series of activities that happen during its completion, for example, searching suppliers, negotiating contracts, monitoring and evaluating performance, and adjusting a contract by re-arranging transaction items.

Three critical dimensions for characterizing different transactions identified by Williamson (1979) are: asset specificity, uncertainty, and frequency. From Williamson's work (1975; 1979; 1981a; 1987; 1992; 1996), the key transaction attributes include asset specificity, uncertainty and frequency.

Asset specificity

Asset specificity is the specialization of investment in a particular transaction. It is defined as the degree to which the assets can be redeployed to alternative uses and by alternative users without sacrifice of productive value (Williamson 1996).

The asset specificity dimension is divided into six categories: *site specificity* that is related to the geographical location of an investment (Williamson 1979); *physical asset specificity* that looks at the investment in specialized equipments and tools (Williamson 1979); *human asset specificity* that focuses on the investment in training and learning of employees (Williamson 1979); *brand name capital specificity* which relates to the capital value of the expected quasi-rent stream, or the capital cost to a firm of engaging in a policy of cheating its transacting partners (Klein et al. 1978; Williamson 1985); *dedicated asset specificity* focuses on general investment by a supplier that would not otherwise be made but for the prospect of selling a significant amount of product to a particular customer (if the contract is terminated prematurely, it would leave the supplier with significant excess capacity) (Joskow 1987); and finally temporal specificity that concerns investment where timing and coordination of activities is critical (Masten et al. 1991; Lohtia et al. 1994).

These investments are important for both parties, because they are rarely valuable for later uses if the transaction fails. Therefore the firm would tend to keep activities related to high asset specificity internally, and for market transaction would tend to maintain the continuity with the supplier.

Uncertainty

Uncertainty dimension is not explained in details by Williamson. Further work, however, has suggested that there exist two types of uncertainty: environmental uncertainty and behavioural uncertainty. Environmental uncertainty refers to "unanticipated changes in circumstances surrounding an exchange" (Noordeweier et al. 1990 p.82). Behavioural uncertainty is related to the difficulty to monitor the performance of exchange partners (Williamson 1985).

Frequency

Frequency was defined by Williamson as "the buyer activity in the market", in other words the level of recurrence of the activities needed by the firm for the transaction.

The influence of those two dimensions (frequency and uncertainty) on the transaction cost analysis should be evaluated in conjunction with the asset specificity. With non-specific investments the uncertainty level and the frequency do not impact the governance structure. This situation will change with more specialized assets that will

require the “transaction to be surrounded by an elaborate governance apparatus, thereby facilitating more effective adaptive, sequential decision making” (Williamson 1979 p. 254).

Cost analysis

With the premises identified in the previous section, Williamson defined the following formula to explain the decision process to rely on the market or on internal procurement activities (outsourcing decision):

$$\begin{aligned} \Delta C: & \text{Production cost difference (internal cost – market cost)} \\ \Delta G: & \text{Governance cost difference (internal cost – market cost)} \end{aligned}$$

Therefore:

$$\begin{aligned} \Delta C + \Delta G > 0 & \Rightarrow \text{use market activities} \\ \Delta C + \Delta G = 0 & \Rightarrow \text{indifference between market and internal activities} \\ \Delta C + \Delta G < 0 & \Rightarrow \text{use internal activities} \end{aligned}$$

Governance cost: It is used exchangeably with transaction cost by Williamson, which refers the costs of planning, negotiating, monitoring, and adapting through the transaction.

Production cost: In transaction cost theory, firm and market are not identical in production cost aspects. Considering other possible costs (e.g. incentive and bureaucratic costs), Williamson (1985, p.369) argues “firms would appear to be at a production cost disadvantage in relation to the market” and “these production cost diseconomies, however, are also a function of asset specificity”.

The cost differences represent the economizing value of the decision between different governance structures (market vs. hierarchy). From Williamson’s standpoint, the parties will efficiently organize the exchanges through contracting for market governance structures.

Moreover, it should be taken into account that the relation between cost calculation and governance structure does not solve the quantification problem related to some benefits of outsourcing. It is consistent with Williamson (1979 p.261) comments that “...mathematical economics captures only a fraction of the transaction-cost phenomena of interest...” A good example of this is presented in McLellan and Marcolin’s (1995) article that identified four non financial benefits to outsourcing: Easiness in a growth by acquisition structure; Easiness for downsizing; Easiness for business unit selling; Tighter linking of strategy and IT. Using the extended concept of cost that includes opportunity costs (Rindfleisch and Heide, 1997), we can say that future cost savings related to easiness and alignment should be included in the transaction cost assessment. The central problem resides in the measurement of such savings, considering the operational and temporal distance of those elements with the outsourcing transaction.

The next section of the literature review will examine the models of IT outsourcing which have used transaction cost theory logic or attributes as the theoretical foundation.

Assessing extant models of IT outsourcing

We reviewed the IT literature of the IT outsourcing models using TCT. We searched ABI/INFORM Global and JSTOR databases with keywords of “information system/technology (IS/IT)” AND “outsourcing” AND “transaction cost” in citation and abstract. This led to a total of 42 articles. We also searched the references of each article to make sure that no important reference had been missed. The articles were then reviewed and selected based on the following criteria: 1) The study proposed an IT outsourcing model based on TCT, including transaction attributes and 2) the model had been empirically tested. The articles meet the criterion are shown and summarized in Table 1.

In the table it is shown that transaction attributes (asset specificity, uncertainty and frequency) have been used as antecedents of either outsourcing decision or level of outsourcing. From these three attributes the first two almost have been used in all the studies. However, frequency has not been included in all of the studies with one exception (e.g. Miranda and Kim, 2006). Although consistent to the TCT, studies on IS/IT outsourcing have hypothesized that asset specificity negatively influences the outsourcing level, however, the results are either in reverse direction (Aubert et al, 2004; Miranda and Kim, 2006) or in the hypothesized direction just for some cases (Ang and Cumming, 1997). IT research also has focused only on two types of asset specificity (physical and human) and has ignored other four types of specificity asserted by Williamson (Williamson 1985). However, one study on IT

outsourcing have examined the relatedness of IT operations concerning the interconnections between tasks or functions (Bahli and Rivard, 2003; 2007), which can be considered as temporal specificity.

Previous IT outsourcing research has not explicitly defined uncertainty except one study which conceptualized it as the computational inability to ascertain the structure of the environment (Miranda and Kim, 2006). Due to the rapid and unexpected change in environment, and because of imperfect information about the nature of activities involving in transaction, several types of uncertainty have been studied in prior research, including: technological uncertainty, demand uncertainty, and measurement uncertainty (Ang and Cummings, 1997; Aubert et al., 2004; Bahli and Rivard, 2003; Bahli and Rivard, 2007).

	Ang and Cummings, 1997	Ang and Straub, 1998	Aubert et al., 2004	Miranda and Kim, 2006	Bahli and Rivard, 2007
Research Problem / Focus	how individual corporations in a hypercompetition and highly institutionalized industry respond strategically to institutional pressures, particularly examine critical contingencies that moderate institutional influences on IS outsourcing in commercial banks	Study economic determinants of IS outsourcing	Firms have to decide which types of IT activities are good candidates for outsourcing and which should be kept in-house.	How do different institutional contexts affect the way in which decision-makers employ the logic of transaction cost economics in outsourcing decisions?	Address the issue of escalation of IT service costs by asking: 1) Which scenarios can result from an outsourcing decision? 2) What is the likelihood that these scenarios will occur? 3) If these scenarios occur, what are the consequences? 4) Are there any governance mechanisms that may attenuate or help avoid these scenarios?
TCT Attributes / Conceptualization / Operationalization	<p>Asset specificity: the degree to which investments in IS yielded unique value to any single firm.</p> <p>Technological uncertainty: the rapid and unexpected change in IT developments.</p> <p>Functional complexity: the degree of formal structural differentiation within an organization.</p> <p>Supplier presence: the availability of reputable and trustworthy external IT service providers in the market.</p>	<p>Transaction cost: the effort, time, and costs incurred in searching, creating, negotiating, and enforcing a service contract between buyers and suppliers.</p>	<p>Asset specificity: the difference between the cost of the asset and the value of its second best use.</p> <p>Uncertainty: certain level of imperfect information, including demand, quantity, and measurement uncertainty.</p> <p>Business skills: the amount of business expertise and knowledge required to perform IT operation activities.</p> <p>Technical skills: the amount of technical expertise and knowledge required to perform IT operation activities.</p>	<p>From Williamson's (1975, 1985, 1992, 1996) work</p> <p>Asset specificity: the degree to which the assets can be redeployed to alternative uses and by alternative users without sacrifice of productive value.</p> <p>Uncertainty: the computational inability to ascertain the structure of the environment.</p> <p>Opportunism: self-interest seeking with guile, to include calculated efforts to mislead, deceive, obfuscate, and otherwise confuse.</p> <p>Bounded rationality: behavior that is intendedly rational but only limitedly so.</p> <p>Frequency: the repetitiveness of a certain type of transaction - buyer activity in the market.</p>	<p>Asset specificity: the degree to which the assets used to conduct a transaction can be redeployed to "alternative uses and by alternative users without sacrifice of productive value"(including site, physical asset, and human asset specificity)</p> <p>Number of suppliers: the degree to which a client has reputable and trustworthy alternative sources of supply to meet its needs.</p> <p>Relatedness of IT operations: the interconnections between tasks or functions.</p> <p>Measurement problems: the accuracy with which buyers measure the quality of activities or products they purchase.</p>

	Ang and Cummings, 1997	Ang and Straub, 1998	Aubert et al., 2004	Miranda and Kim, 2006	Bahli and Rivard, 2007
TCT Constructs / Hypotheses	<p>TCT attributes: asset specificity (-), functional complexity (-), technological uncertainty (+), supplier presence (+)</p> <p>Strategic response: institutional pressures for IS outsourcing</p>	<p>TCT variable: transaction cost (-)</p> <p>Governance mode: degree of IS outsourcing</p>	<p>TCT attributes: asset specificity (-), uncertainty (-), business skills (-), technical skills (+)</p> <p>Governance mode: outsourcing level</p>	<p>TCT attributes (Professional contexts/ Political contexts): specific assets (-/+), uncertainty (-/+), opportunism (-/+), bounded rationality (-/+), frequency (+/-)</p> <p>Governance mode: proportion of IT budget being outsourced</p>	<p>TCT attributes: asset specificity (+), number of suppliers (-), relatedness of IT operations (+), measurement problems (+)</p> <p>Governance mechanisms: dual sourcing (-), clan mechanisms (-)</p> <p>Scenarios: lock-in (+), disputes (+)</p> <p>Consequences: cost escalation</p>
TCT Findings	<p>1) Large banks, peer influence: asset specificity (-), functional complexity (+), technological uncertainty (0), supplier presence (+)</p> <p>2) Large banks, federal regulator influence: technological uncertainty (+), all other TCT attributes (0)</p> <p>3) Small banks: no effects from TCT factors</p>	<p>1) Transaction cost (-)</p> <p>2) Production cost coefficient is almost 6 times stronger than transaction cost</p>	<p>1) First survey findings: asset specificity (+), uncertainty (+), business skills (0), technical skills (+)</p> <p>2) Revised by expert panel and re-contact survey respondents: asset specificity (-)</p>	<p>1) Professional contexts: specific assets (+), uncertainty (+), opportunism (-), bounded rationality (0), frequency (+)</p> <p>2) Political contexts: specific assets (+), uncertainty (+), opportunism (0), bounded rationality (+), frequency (-)</p>	<p>1) Effects of TCT attributes on scenarios: asset specificity (+), number of suppliers (-), relatedness of IT operations (0), measurement problems (+)</p> <p>2) Mitigating effects of governance mechanisms on scenarios: dual sourcing (0), clan mechanisms (-)</p> <p>3) Effects of scenarios on consequences: lock-in (+), disputes (+)</p>

Table 1. Summary of Empirical Studies on IT/IS Outsourcing Using TCT

Nevertheless, hypothesized direction of uncertainty influence is not consistent between studies of IS research. It has been hypothesized to positively moderate the association between institutional forces and outsourcing level (Ang and Cumming, 1997), but negatively influence the outsourcing level (Aubert et al, 2004). Some results are also contradictory to the theory (Aubert et al, 2004; Miranda and Kim, 2006).

The last attribute, frequency, is either missed or taken for granted. Aubert, Rivard and Patry (1996) defined IS operations activities as continuous or recurrent. The only study that incorporates frequency in its model has directly and positively linked it to the outsourcing level (contradictory to the theory assertions) and has found support for this proposition (Miranda and Kim, 2006).

Another concept which has been asserted as a determinant in make or buy decision is “production cost” (Williamson, 1981; 1985) which with a few exception (Ang and Straub, 1998), has not being considered as an antecedent of IT outsourcing decision.

A MODEL OF IT OUTSOURCING DECISION

The model proposed here focuses on the determinants of the IT outsourcing decision (see Figure 1). In this model, firms conduct transaction cost analysis. The costs are driven by the transaction attributes (asset specificity, uncertainty, and frequency). Then, the costs differences for the production and the governance aspects of the transaction will jointly drive the decisions on the governance structure (IT outsourcing or insourcing).

This model differs from the extant models of IT outsourcing on several aspects.. First, it considers three types of asset specificity including physical, human and temporal asset specificity. Previous studies either considered the first two types of specificity or considered one aggregated construct as asset specificity, while not explicitly including temporal specificity (see Table 1). Second, frequency and uncertainty in our model moderate the effect of asset specificity on the outsourcing decision rather than influencing it directly as in the extant models of IT outsourcing. This view is more in line with the transaction cost theory as conceptualized by Williamson (1979). Third, different from the IS literature, which considers a direct effect of transaction attributes on the outsourcing decision, the proposed model hypothesizes that the attributes affect the cost analysis which in turn leads to governance structure decisions. This cost analysis includes the differences of both governance costs and production costs between the firm and the market (ΔG and ΔC). Accordingly, the model presents that transaction attributes influence both ΔG and ΔC rather than merely influencing the difference in governance costs (ΔG). Thus, as per Williamson’s (1985) recommendation, the production cost difference (ΔC) is also taken into account in this model.

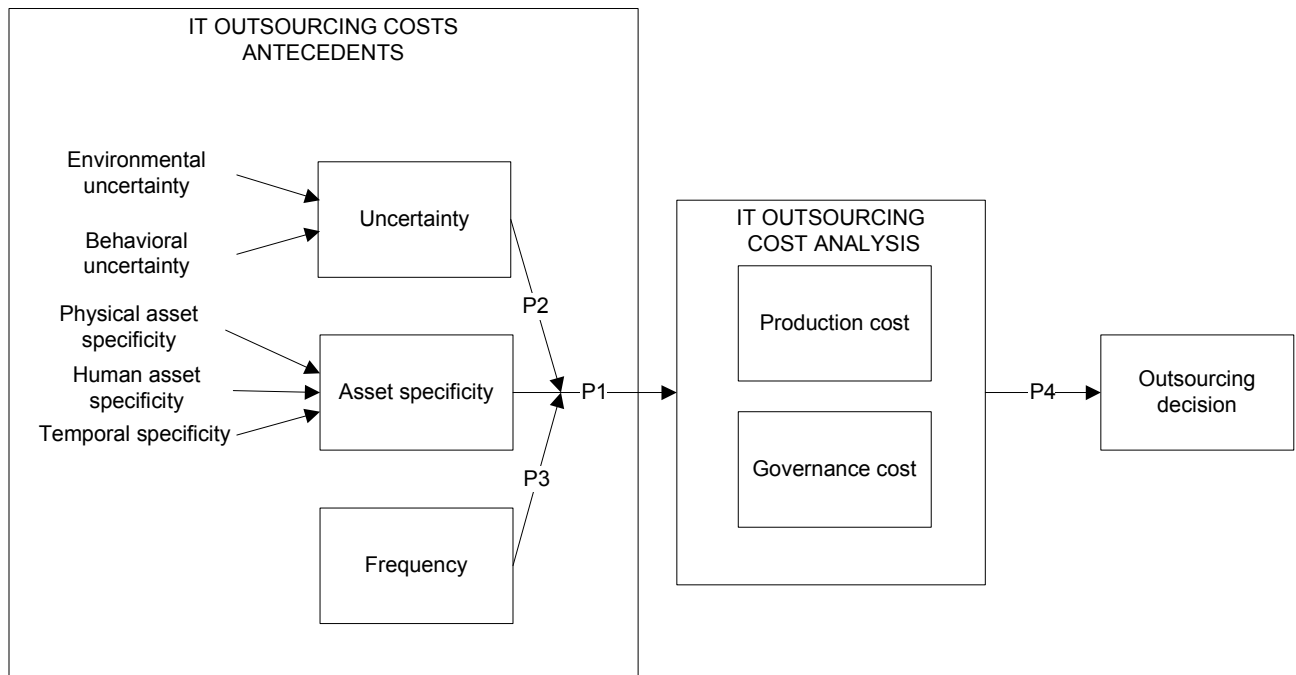


Figure 1. The IT Outsourcing Model

Based on Williamson's transaction cost theory and on our assessment of extant models on IT outsourcing, a set of propositions can be developed as follows:

Proposition-1: The higher the level of IT asset specificity related to the transaction, the larger the cost difference between governance structures (market or hierarchy).

The first proposition refers to Williamson's explanation of the contracting and management efforts related to market transaction in conjunction with scale economics and risk-pooling benefits that suppliers can generate for non-specific assets. As mentioned in the extant literature review in IT outsourcing, this factor has been used in almost all the studies related to TCT and IT outsourcing.

Proposition-2: A higher level of uncertainty (behavioural and environmental) for the organizations within the transaction will positively moderate the IT assets specificity effect on the cost difference between governance structures.

The second proposition explains the importance of the transaction continuity. Certain transactions (non specific) are easy to arrange, therefore it would have little impact to change continuously the contracting and the management of the transaction. This would also be the case for the production cost, because nonspecific assets are by nature offered by suppliers to many organizations that are generating sufficient volume without considering the effect of one customer. In situations where governance efforts are more important and unique and customer demands directly impact suppliers, higher level of asset specificity exist. In this situation, the impact of uncertainty becomes greater because of the necessity to justify the transaction through a minimum of continuity. We have not found any IT outsourcing study that looked at the uncertainty construct as a moderating variable. The literature review of Rindfleisch and Heide (1997) on TCT in the Management discipline has shown some studies that empirically demonstrated the moderation effect of this construct.

Proposition-3: A higher level of frequency of the activities related to the transaction will negatively moderate the IT assets specificity effect on the cost difference between governance structures.

The third proposition is following the continuity logic related to the asset specificity discussed in the uncertainty section. For nonspecific assets, the facility to arrange the transaction does not impact the low recurrence of a transaction, and the market organization toward nonspecific assets is generally standard and diversified. For more specific assets, the volume becomes a very important factor for the justification of the implementation of governance structures (cost/benefits) and for the supplier's capability to decrease the market cost (scales economics). As we mentioned in the literature in the extant review on IT outsourcing, this factor was not really measured in IT outsourcing studies. This situation was also showed in Rindfleisch and Heide's (1997) review.

Proposition-4: The larger the cost difference (between hierarchy and the market), the more likely for the firms to outsource their IT activities.

The last proposition reflect the ΔG and ΔC presented in Williamson's formula for outsourcing decision, therefore the greater economies provided by the market on production or governance costs the greater the impact on the formula $\Delta C + \Delta G$ toward a score greater than zero. We found acknowledgement of the cost difference in most of the IT outsourcing studies, but only one tried to operationalize it (Ang and Straub, 1998). Rindfleisch and Heide (1997) concluded that "[I]n contrast with the typical approach of assessing the alignment between governance structure and transaction dimensions, a small but growing number of TCT researchers have attempted to measure transaction cost directly". However, the outsourcing decision should not be made merely based on transaction cost itself which is the difference between governing the transaction internally or through the market. Rather, the difference between cost of production internally or the market price also should be taken into account. Thus, in this way, there are four elements of cost analysis which counts the final outsourcing decision.

DISCUSSION AND CONCLUSION

From the transaction cost theory perspective, the proposed model departs from the extant models of IT outsourcing as follows: First, it considers three types of asset specificity including physical, human and temporal asset specificity. While the first two types have been covered by the literature, the third type mostly overlooked. Second, it has been argued that frequency and uncertainty moderate the effect of asset specificity on the outsourcing decision rather than influence it directly. This view is more in line with Williamson's transaction cost theory. Third, rather than considering the direct effect of

transaction attributes on the outsourcing decision, it is hypothesized that the attributes affect the cost difference which in turn leads to governance structure decision on IT outsourcing.

These three new characteristics of the proposed model help explain the mixed results that have been found in previous research using transaction cost theory to study IT outsourcing phenomenon. Future research can develop scales to measure the new attributes and also empirically test the propositions of the model. Moreover, researchers can examine how those attributes affect the costs (production and governance).

The model also has practical implications. For practitioners the model suggests that they could make outsourcing decisions first by evaluating the transaction attributes and also by analyzing of the difference between the production and governance costs (cost difference).

REFERENCES

1. Ang, S. and Cummings, L. L. (1997). Strategic response to institutional influences on information systems outsourcing. *Organization Science*, 8(3), 235-256.
2. Ang, S. and Straub, D. W. (1998). Production and transaction economies and IS outsourcing: A study of the U.S. banking industry. *MIS Quarterly*, 22(4), 535-552.
3. Aubert, B., Rivard, S. and Patry, M. (2004). A transaction cost model of IT outsourcing. *Information and Management*, 41(7), 921-932.
4. Bahli, B. and Rivard, S. (2003). The information technology outsourcing risk: A transaction cost and agency theory-based perspective. *Journal of Information Technology (Routledge, Ltd.)*, 18(3), 211-221.
5. Joskow, P. L. (1987). Contract Duration and Relationship-Specific Investments: Empirical Evidence from Coal Markets. *American Economic Review*.
6. Klein, Crawford, RA Alchian, AA. (1978). Vertical integration, appropriable rents, and the competitive contracting proces. *Journal of Law and Economics*, 21, 297-326.
7. Lacity, M. C. and Willcocks, L. P. (1995). Interpreting information technology sourcing decisions from a transaction cost perspective: Findings and critique. *Accounting, Management and Information Technologies*, 5(3-4), 203-244.
8. Lacity, M. C. and Willcocks, L. P. (1998). An empirical investigation of information technology sourcing practices: Lessons from experience. *MIS Quarterly*, 22(3), 363-408.
9. Lee, J., Miranda, S. M. and Kim, Y. (2004). IT outsourcing strategies: Universalistic, contingency, and configurational explanations of success. *Information Systems Research*, 15(2), 110-131.
10. Lohtia, R., Brooks, C. and Krapfel, E. (1994). What constitutes a transaction-specific asset? An examination of the dimensions and types. *Journal of Business Research*, 22, 261-70.
11. Masten, S.E. Meehan, W. and Snyder, E.A. (1991). The costs of organization. *Journal of Law, Economics and Organization*, 7(1), 1-25.
12. Mclellan, K., Marcolin, B. and Beamish, P. (1995). Financial and Strategic Motivations behind IS Outsourcing. *Journal of Information Technology*, 10, 299-321.
13. Miranda, S. M. and Kim, Y. (2006). Professional versus political contexts: Institutional mitigation and the transaction cost heuristic in information systems outsourcing. *MIS Quarterly*, 30(3), 725-753.
14. Noordeweier, T., John, G. and Nevin, J. (1990). Performance outcomes of purchasing arrangements in industrial buyer-vendor relationships. *Journal of Marketing*, 54(4), 80-93.
15. Rindfleisch, A. and Heide, J. B. (1997). Transaction cost analysis: Past, present, and future applications. *Journal of Marketing*, 61(4), 30-54.
16. Williamson, O. E. (1975). *Market and Hierarchy: Analysis and Antitrust Implications*. Free Press, New York.
17. Williamson, O. E. (1979). Transaction-cost economics: The governance of contractual relations. *Journal of Law and Economics*, 22(2), 233-261.
18. Williamson, O. E. (1981a). The economics of organization: The transaction cost approach. *The American Journal of Sociology*, 87(3), 548-577.

19. Williamson, O. E. (1981b). The modern corporation: Origins, evolution, attributes. *Journal of Economic Literature*, 19(4), 1537-1568.
20. Williamson, O.E. (1985). *The economic institutions of capitalism: Firms, markets, relational contracting*. New York, NY: Free Press.
21. Williamson, O. E. (1987). Transaction cost economics: The comparative contracting perspective. *Journal of Economic Behavior & Organization*, 8(4), 617-625.
22. Williamson, O. E. (1992). Markets, hierarchies, and the modern corporation: An unfolding perspective. *Journal of Economic Behavior & Organization*, 17(3), 335-352.
23. Williamson, O. E. (1996). *The Mechanisms of Governance*. Oxford University Press, New York.