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journal homepage: www.elsevier.com/locate/jsisA multi-level investigation of information technology outsourcing[☆]Benoit A. Aubert^{a,*}, Jean-François Houde^b, Michel Patry^a, Suzanne Rivard^a^a HEC Montreal, 3000 Chemin Côte-Sainte-Catherine, Montréal, Canada H3T 2A7^b Wharton School, University of Pennsylvania, 1400 Steinberg Hall-Dietrich Hall, 3620 Locust Walk, Philadelphia, PA 19104-6372, USA

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ABSTRACT

This study proposes and tests a model of the information technology (IT) outsourcing decision that includes antecedents of both transaction costs and production costs. Production costs show the most robust influence on governance. Skills required to execute the activities, interdependence between the activities, and firm-level characteristics – uncertainty and knowledge intensity – are the main explanatory variables of the decision. Transaction-level uncertainty is the only transaction cost variable found to influence the decision.

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1. Introduction

Deciding whether an activity should be conducted within the firm or contracted out is an ongoing concern for both research and practice, including in the information systems (IS) field (Lacity et al., 2010). Transaction cost theory (TCT) has been influential in explaining this decision in many domains. Under TCT, the choice of the governance structure depends on two sets of costs: transaction costs (searching for suppliers, negotiating contracts, monitoring and evaluating performance) and production costs, the sum of which firms aim to minimize (Williamson, 1985).

Interestingly, while TCT explicitly mentions both transaction costs and production costs, the vast majority of TCT-based studies focus on transaction costs and transaction-level variables (Geyskens et al., 2006) and omit production costs. In the IS field, an exception of note in terms of costs is Ang and Straub (1998) who found that supplier production cost advantage led to a greater degree of IT outsourcing and that transaction costs were negatively related to the degree of outsourcing. In terms of variable level, Loebbecke and Huyskens (2006) examined the role of firm-level variables and found that capability-related elements (relevance of applications and vulnerability associated with capabilities) had significant influence on the outsourcing decision.

The literature on the boundary of the firm suggests that production costs can be accounted for in explanations of outsourcing decisions along three perspectives: economies of scale, coordination of interdependent activities, and capabilities (Langlois and Robertson, 1995). Economies of scale provide an unsatisfactory explanation (Langlois and Robertson, 1995). In IS, Lacity and Willcocks (1998) showed that economies of scale did not explain outsourcing decisions: comparable percentages of large and small datacenters achieved cost savings through outsourcing, and when they selected insourcing, small and large datacenters were able to reach cost saving targets.

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The need to coordinate interdependent activities leads firms to keep these activities under their control. If activities are independent, outsourcing one of them does not create coordination problems and does not affect the efficiency of the other activities (Langlois and Robertson, 1995). Outsourcing an interdependent activity would create such problems and would limit the firm's innovative capacity, because it would not control all the interdependent components (Langlois and Robertson, 1992). In IS, Bahli and Rivard (2005) are among the few who refer to task interdependence as a risk factor in an outsourcing decision. They suggest that outsourcing activities that are interdependent with other activities entails coordination problems, misalignments, and higher production costs.

The capabilities perspective suggests that organizations retain the activities for which they have superior capabilities, ensuring efficient production (Espino-Rodríguez and Padrón-Robaina, 2006). Alternately, firms outsource those activities for which they lack capabilities. This corresponds to two IT outsourcing motivations identified by Lacity et al. (2010): focus on core capabilities and access to expertise. Capability analysis involves both transaction-level variables, – e.g., the skills required to perform an activity (Poppo and Zenger, 1998) – and firm-level variables, – e.g. capabilities that firms develop to compete in their industry (Loebbecke and Huyskens, 2006).

This study aims at advancing current knowledge on the antecedents of IT outsourcing decisions by proposing and testing a model that includes antecedents of both transaction costs and production costs. With respect to transaction costs, the model retains two key transaction-level characteristics: uncertainty and asset specificity. With respect to production costs, it includes transaction-level characteristics – transaction-level capabilities and interdependence among activities – and firm-level characteristics – uncertainty and knowledge intensity. The study also aims to refine our understanding of IT outsourcing by analyzing decisions about several IT activities, rather than about a portfolio of activities. This approach addresses an issue raised by Dibbern et al. (2004) who mentioned that by looking at IT activities as a group, researchers were overlooking the issue of interdependence between activities. This study expands this line of research by analysing simultaneously several activities inside each firm, thus measuring transaction-level elements and enabling an assessment of interdependence, and by analyzing firm-level elements, thus providing a multi-level analysis of the outsourcing decision.

The study does not attempt to assess which perspective provides the best explanation, or which level of analysis offers more explanatory power. Instead, it contributes to knowledge by providing a richer analysis that includes both production and transaction costs, and both transaction and firm level perspectives. In doing so, the study espouses Garrouste and Sausier's (2005) view that the establishment of a theory of the firm depends on the integration of its various components. It is a step toward a dialog between different theories (Madhok, 2002) and between IS and its reference disciplines, the former informing the latter (Lacity et al., 2010).

2. Theoretical development

The following paragraphs introduce the key variables influencing transaction costs and those influencing production costs, and derive research hypotheses.

2.1. Transaction costs

Exchanges between client and supplier entail transactions costs. When they become too high, the firm might decide to internalize the activity. Three transaction characteristics explain the magnitude of transaction costs: asset specificity, uncertainty, and frequency (Williamson, 1985).

Asset specificity is the difference between the value of an asset in its first best use and its value for an alternative usage (Pisano, 1990). It creates a lock-in problem where one party can be held hostage and asked an unfair price. Contracting for activities requiring specific assets is more costly than contracting for generic activities. This leads organizations to manage these activities in-house. The role of asset specificity has been supported in many sectors: auto parts (Monteverde and Teece, 1982), aerospace (Masten, 1984), and aluminum (Hennart, 1988). However, asset specificity was not found to lead to integration in the semiconductor industry (Leiblein and Miller, 2003). In IS, the results are mixed (Lacity et al., 2010). For example, in the presence of specific assets, Poppo and Zenger (1998) found that firms kept activities in-house and Barthelemy and Geyer (2005) observed that firms used subsidiaries instead of relying on outsourcing. However, Nam et al. (1996) obtained conflicting results. Using three different measures of specificity, they obtained significant results solely for the implicit knowledge associated with the transaction. Similarly, Lacity and Willcocks (1995) and Loebbecke and Huyskens (2006) could not find support for the role of asset specificity in the outsourcing decision. Aubert et al. (2004) found asset specificity to be positively linked to outsourcing, contradicting the prediction from TCT. Assessing TCT-based studies explaining IT outsourcing decisions, Karimi-Alagheband et al. (2011) found support for the role of asset specificity in only 40% of 23 studies. It is suggested here that these mixed results could be due to the fact that earlier studies took into account only a transaction cost perspective, at only one level, that of the transaction. Not accounting for production costs and/or firm-level differences could explain the mixed findings. Therefore, this study will test the basic transaction cost hypothesis, in terms of the role of asset specificity.

H₁. Asset specificity will be negatively associated with the extent of outsourcing.

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