



The role of Transaction Cost Economics in Information Technology Outsourcing research: A meta-analysis of the choice of contract type

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ABSTRACT

Two recent reviews report that the empirical findings in information technology outsourcing (ITO) research are frequently inconsistent with the prevailing dominant analytical framework of transaction cost economics (TCE). While employing similar methodologies, the two reviews propose different strategies to resolve the inconsistencies. One is to improve the methodological rigor, specifically, the operationalization of TCE constructs. The other is to abandon TCE in favor of a new analytical framework. This paper presents a meta-analysis of the empirical findings on the choice of contract type as a function of task uncertainty. The results support both strategies. Refining the operationalization of TCE constructs, specifically of task uncertainty, would have improved the reliability of findings on TCE-based relationships between task uncertainty and the choice of contract type. However, independent of such methodological improvements, TCE is of limited relevance in recent ITO research for predicting the choice of contract type. Generalizing these findings, we conclude that ITO research requires a new analytical framework to further develop the theory of ITO and to provide sound guidance to the ITO industry.

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Introduction

Information technology outsourcing (ITO) theory has contributed significantly to the development of best practice in the ITO industry. For example, ITO research examines the decision to outsource (e.g., [Watjatrakul, 2005](#)) and how to establish effective formal and relational governance for ITO engagements (e.g., [Poppo and Zenger, 2002](#)). In this literature, transaction cost economics (TCE) is the dominant analytical framework from which many of the predictions in ITO research are derived (see [Aubert et al., 2012](#); [Dibbern et al., 2004](#); [Karimi-Alaghehband et al., 2011](#); [Klein, 2002](#); [Lacity et al., 2011](#)).

Two recent reviews report significant inconsistencies among the empirical findings for TCE-based predictions in the ITO literature (see [Karimi-Alaghehband et al., 2011](#); [Lacity et al., 2011](#)). The reviews employ similar methodologies and report similar levels of inconsistency. However, they present different explanations for the inconsistencies. [Karimi-Alaghehband et al. \(2011\)](#) argue that measurement errors and construct validity threats explain the inconsistencies. They call for more rigorous methodology, including the operationalization of TCE constructs. In contrast, [Lacity et al. \(2011\)](#) argue that TCE

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is an increasingly obsolete analytical framework for ITO research. They call for the development of an “endogenous” ITO theory.

We adopt meta-analysis to investigate the two explanations in the specific context of the relationship between task uncertainty (TU) and the choice of contract type (CT) in the ITO literature. We choose this relationship because TCE makes specific and unambiguous predictions about the choice of CT as a function of TU. To examine the two explanations, the meta-analysis investigates whether the cumulative findings for the relationship between TU and choice of CT in the ITO literature support the conclusions by [Karimi-Alaghehband et al. \(2011\)](#) and/or by [Lacity et al. \(2011\)](#) for the inconsistencies between empirical findings and TCE-based predictions.

The paper is structured as follows. First, we derive two hypotheses that model the assumptions that underpin the different conclusions drawn by [Karimi-Alaghehband et al. \(2011\)](#) and [Lacity et al. \(2011\)](#). Next, we explain how meta-analysis enables us to test each of the hypotheses, which would not be possible using the vote-counting methodology adopted by [Karimi-Alaghehband et al. \(2011\)](#) and [Lacity et al. \(2011\)](#). The results support both hypotheses. We discuss the results, potential limitations, and implications for theory and practice. In conclusion, we agree with [Lacity et al. \(2011\)](#) that the core challenge for future ITO research is to develop a new rigorous and powerful analytical framework.

Theoretical background

In IT outsourcing research, researchers frequently adopt the analytical framework of transaction cost economics (TCE) to model two critical decisions in ITO engagements. One is the decision to outsource IT, which is predominantly modeled as a function of asset specificity ([Crook et al., 2013](#)). This is commonly referred to as the ‘make-or-buy’ decision ([Riordan and Williamson, 1985](#)). The other decision and the focus of this paper is on the choice of “governance features” ([Williamson, 1991, p. 269](#)). This choice is modeled as a function of uncertainty. Governance features are “special adaptive mechanisms to effect realignment and restore efficiency when beset by unanticipated disturbances” ([Williamson, 1991, p. 272](#)).

Here, we examine the empirical findings on the choice of contract type (CT), which is an important example of the application of TCE-based governance features in the ITO literature. Realignment transactions in response to disturbances incurs costs ([Williamson, 2008](#)). The choice between different contract types, specifically time-and-material (TM) contracts and fixed-price (FP) contracts, allocates those additional costs to the parties to the contract ([Hoermann et al., 2015](#)). In the ITO context, monitoring costs and renegotiation costs are allocated to the vendor or the client ([Osei-Bryson and Ngwenyama, 2006](#); [Susarla et al., 2009](#)).

Under TM contracts, vendors are remunerated on the basis of reported working hours or working days. The client carries the risk of budget overruns. The client incurs monitoring costs to limit the risk of vendors charging for more resources than the project goals require. In FP contracts, budget overruns affect the project profitability for the vendor ([Ethiraj et al., 2005](#); [Gopal and Koka, 2012](#); [Gopal and Sivaramakrishnan, 2008](#); [Gopal et al., 2003](#)).

Therefore, FP contracts provide strong incentives for vendors to manage projects efficiently ([Bajari and Tadelis, 2001](#); [Corts and Singh, 2004](#); [Kalnins and Mayer, 2004](#)). For example, vendors assign more trained personnel to FP projects compared with TM projects ([Arora and Asundi, 1999](#); [Gopal and Sivaramakrishnan, 2008](#)). In general, FP contracts incur lower monitoring costs compared with TM contracts because of the different incentive structures.

In contrast, renegotiation costs are higher under FP contracts compared with TM contracts ([Bajari and Tadelis, 2001](#); [Corts and Singh, 2004](#); [Kalnins and Mayer, 2004](#)). FP contracts typically include detailed project plans, specify the functional requirements, service levels, and costs ([Fink et al., 2013](#)). When unforeseen contingencies occur, project specifications must be renegotiated, which generates additional costs ([Bajari and Tadelis, 2001](#)). This is not the case under TM contracts, which, compared with FP contracts, include more coarse-grained plans that allow for adjustments to specifications during the course of the project ([Fink et al., 2013](#)). So, under TM contracts, vendors are more willing to accept adjustments without the need for costly renegotiations ([Kalnins and Mayer, 2004](#); [Susarla et al., 2009](#)).

TCE models this choice between FP contracts and TM contracts as a problem of minimizing transaction costs, which are a function of task uncertainty (TU). Indeed, ITO engagements “could well become nonviable when the frequency of disturbances reaches a high level” ([Williamson, 1991, p. 291](#)). In high TU contexts, the lower renegotiation costs under TM contracts compared with FM contracts outweigh the lower monitoring costs under FP contracts compared with TM contracts. In low TU contexts, the lower monitoring costs under FP contracts compared with TM contracts outweigh the lower renegotiation costs under TM contracts compared with FM contracts (see, for example, [Bajari and Tadelis, 2001](#); [Crocker and Reynolds, 1993](#); [Dey et al., 2010](#); [Kalnins and Mayer, 2004](#); [Susarla et al., 2009](#)). Formally, TCE predicts that *the frequency with which TM contracts are chosen instead of FP contracts is a positive function of TU*.

Restricting our meta-analysis to the relationship between TU and choice of CT allows us to investigate whether the inconsistent empirical findings in the ITO literature are a function of the methodologies employed and/or the relevance of the TCE analytical framework. To test the former explanation, we examine whether the correlation between TU and CT is contingent on how TU is operationalized (see [Karimi-Alaghehband et al., 2011](#)).

To do this, we compare the effect of the five measures of, or proxies for, TU on the magnitude of the relationship between TU and CT. The five constructs are technological uncertainty (e.g., [Banerjee and Duflo, 2000](#); [Kalnins and Mayer, 2004](#); [Maruping and Ahuja, 2012](#)), requirements uncertainty (e.g., [Gopal and Koka, 2012](#); [Huckman and Staats, 2011](#); [Rai et al., 2009](#); [Susarla, 2012](#); [Susarla et al., 2009](#); [Tiwana, 2010](#)), technological complexity (e.g., [Bapna et al., 2012](#); [Chen and](#)

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