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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.

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

1. Introduction

The transaction cost theory (TCT) has been around for nearly seven decades, and it received quite a bit of prominence recently when Ronald Coase was awarded the Nobel Prize in Economics for his early work on transaction costs (Coase, 1937). This interest was catalyzed by the work of Williamson (1975) who in his seminal book *Markets and Hierarchies* took an inter-disciplinary approach to studying transaction costs as a social science phenomenon. As a result of this work, researchers in sociology, organizational theory, law, finance, information systems, and marketing have gained insights into a variety of issues through a transaction cost lens (Barney, 1990). In their comprehensive conceptual review on transaction cost analysis, Rindfleisch and Heide (1997) have listed a number of empirical studies that test hypotheses based on TCT using data from business organizations. So while originating from the economics discipline, it has generated considerable debate among scholars beyond the economics discipline (Ghoshal and Moran, 1996). Yet, little use has been made of this theory in the operations management (OM) literature. In particular, with the growing importance of supply chain management within the OM discipline, considerable opportunities exist for better understanding and application of TCT to OM problems and methodologies. Within OM itself, greater potential exists for application of

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TCT to manufacturing rather than services, as also evidenced by a preponderance of TCT studies that have been conducted in the past using data gathered from manufacturing firms (Rindfleisch and Heide, 1997). So we will retain in our study a focus on the manufacturing sector within the broader rubric of OM discipline, and investigate the application of TCT to operations and supply chain management problems.

TCT, as discussed by Williamson (1975), puts the notion of "transactions" or units of exchange as the focal point of the theory. He provides a carefully crafted perspective on the nature of governance structures that can exist between organizations under various exogenous conditions. A popular perspective espoused by Williamson (1975) argues for market versus hierarchical governance structures based on the level of opportunism present in the relationships. Markets and hierarchies (or firm) are proposed as alternative instruments for completing a set of transactions. The choice of instrument (alternatively also known as governance mechanism) depends on the relational efficiency of each. A number of antecedent conditions can influence governance mechanisms through the level of transaction costs.

TCT, while representing an economic perspective differs from classical economics by incorporating the concept of a *firm* as germane to its analysis. A firm is viewed as a governance structure as opposed to a production function. TCT's basic premise is that the cost of doing transactions (i.e. the cost of economic exchange) could be too high under certain conditions. In those cases, organizing the economic transaction within the firm or *hierarchy* governance structure might be superior to organizing it as a *market*-based governance structure. The basic tenets of this theory are based on assumptions about human behavior that have been refined by Williamson (Williamson, 1975, 1985) from Coase's original work.

It is unfortunate that despite the rich perspectives offered by TCT, its use by researchers in OM has been limited at best. In particular, considerable opportunities exist within the OM discipline for evaluating many supply chain management related issues from the TCT perspective. Why this has not occurred may partially be due to the relatively recent attention paid to social science representations and methods as applied to OM, the limited use of economics as a reference discipline, the unique and occasionally opaque vocabulary associated with the theory, and the lack of clear direction on applicability of TCT to OM issues. We seek to change this by making a case for TCT specifically within the OM arena and attempting to provide conceptual and empirical facilitation for future research. Specifically, this study has five objectives:

- To provide a cogent discourse on TCT, its key assumptions, constructs, and propositions.
- To summarize empirical studies in other disciplines which have obtained data within a manufacturing or operations context.
- To provide a general description and overview of TCT-based constructs that are available in the literature to OM researchers for future research.
- To describe the empirical measurement of the central transaction cost construct that has not been as well operationalized in prior literature.
- To describe implications of the conceptual, empirical, and operational synthesis for future research in OM and supply chain management in particular.

The next section develops the assumptions, constructs and propositions of TCT. This is followed by a summary of empirical research that uses the TCT perspective and is relevant to OM research since the data in these studies are from manufacturing firms. The final section builds upon the first four sections by describing implications for future work in operations and supply chain management research.

2. Transaction cost theory

Since TCT is a complex theory, it is useful to demarcate its key assumptions, constructs, and propositions in a manner that facilitates its application to a variety of OM issues.

2.1. Key assumptions

Two key assumptions characterize TCT (Rindfleisch and Heide, 1997). These can be summarized under the titles of *bounded rationality* and *opportunism*. Bounded rationality, a concept first articulated by Herbert Simon in 1957, refers to the neurophysiological and language limits of individuals (Simon, 1957). In an organizational context, while decision-makers might want to act rationally, they are limited in their