



# Disentangling the impact of cost transparency on cooperation efficiency in exchange partnerships

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## ABSTRACT

Drawn upon the marriage of transaction cost economics and social exchange theory, this study aims to examine the effect of cost transparency on cooperation efficiency in a cooperative exchange between a manufacturer and its key suppliers. It also investigates the contingent impact of the contextual factor (e.g., demand uncertainty) and contractual factor (e.g., contract specificity) on the link between cost transparency and efficiency. The results of path analysis of survey data collected from China indicate a curvilinear relationship between transparency and efficiency in the context of Chinese manufacturers. The findings of this study also show that this curvilinear relationship is contingent on demand uncertainty and contract specificity, which exert interacting effects on the transparency-efficiency connection. This study discusses contributions to the frontier of existing theories, implications for practitioners, and future stream of research.

## 1. Introduction

In a buyer-supplier cooperative relationship, a buyer's competitive advantage depends on its suppliers' capabilities as well as its own competitive priorities (Arnold, 2000). It is of paramount importance for a buyer to have access to its major suppliers' information. Transparency is a crucial driving factor of a highly effective supply chain and it enables a firm to achieve its potentials in a competitive business environment (Wilding, 2003). In particular, transparency of cost information of a supplier plays a crucial role in the sustainability and efficiency of cooperative exchanges. Cost transparency refers to a supplier's disclosure of cost information on raw materials, labor, and overhead of the products it supplies to a buying firm. Prior studies suggested that information acquisition transparency is beneficial to manufacturers, but it has a double-edged sword effect on retailers (Li et al., 2014). The prior study focused on the confidentiality of information acquisition in a two-echelon supply chain. Huang and Yang (2016) highlighted forecasting with disclosing and hiding information status between suppliers and retailers. It shows that forecasting cost and production cost variance determine the production quantity of the suppliers. Exchange inefficiency in a supply chain doesn't solely result from information asymmetry (Çakanyıldırım et al., 2012). Although the studies discussed

above emphasized the importance of information acquisition and the conditions under which a supplier or a retailer could benefit from the information, they didn't explore the mechanism of the impact of cost transparency of a supplier on a buyer's cooperation efficiency. In the study of cost transparency, supply chain management researchers have focused their attention on interorganizational cost management and open-book accounting. In a cooperative exchange between a manufacturer and its major supplier, as two effective approaches to sharing cost information, interorganizational cost management and open-book accounting motivate and facilitate cost transparency through boosting trust and improving relational stability (Carr and Ng, 1995; Seal et al., 1999; Hoffjan et al., 2011), and they also lead to the success of a cooperation (Moller et al., 2011). Transparency makes a cooperative partnership efficient through enhanced "shadow of the future", which was used to describe the cooperative parties' expectation of a long term partnership (Axelrod, 1984). As such, when one exchange party has the information of the other party's moves, cooperation efficiency will be improved. Based on the work of Hoffjan et al. (2011), we define cooperation efficiency as the performance reflected in optimal prices safeguard, price change management, cost reduction, risk management capability improvement, and cost-efficient product development. It also implies the responsiveness to the changing market. Cooperation efficiency is

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different from supply chain efficiency, which is characterized by longer production lead time, high set-up costs, low unit cost but lack of responsiveness (Randall et al., 2003). In the discussion of efficient supply chains, Randall et al. (2003) explained that in an efficient supply chain, companies usually need to carry large safety stocks and have long production lead times due to large batch sizes and other constraints of capacities. As a joint cost management effort in improving cooperation efficiency, open-book accounting, on the other hand, induces a buyer to conduct cost benchmark analyses among its competing suppliers, which results in the failure of the implementation of open-book accounting (Kajueter and Kulmala, 2005). The potential opportunistic behavior of the dyads results in a loss of efficiency of the partnership (Brusset, 2014). The aforementioned inconsistency of the influence of cost information sharing efforts warrants a profound assessment of the link between cost transparency and cooperation efficiency.

The established literature on the driving factors of cooperation efficiency is subject to several limitations. First, few studies examine the drivers of cooperation efficiency from the lens of cost transparency. Practices for improving cooperation efficiency have been put forward (Moller et al., 2011; Kim and Netessine, 2013; Pomponi et al., 2015), however, few studies explore how cost transparency impacts cooperation efficiency. Prior studies on the driving factors of cooperation efficiency mainly focus their attention on joint cost management efforts (Moller et al., 2011), mutual trust (Ha et al., 2011; Pomponi et al., 2015), and supply chain integration (Danese and Romano, 2011, 2012). As well as the positive effect of sharing cost information by a supplier, unfavorable consequences of this practice have also been a concern in existing research. A buying firm can take advantage of its supplier's transparent cost information and behave opportunistically in the price negotiations (Dekker, 2004), which would increase the fixed costs (Agndal and Nilsson, 2009), deteriorate the established relationship and trust (Carr and Ng, 1995; Seal et al., 1999), thus lower the efficiency of the cooperation. Because of the both positive and negative impacts of cost transparency, further investigation is required for a better understanding of its profound impacts.

Second, prior studies examine the impact of cost transparency based on the cost management theory (e.g., Hoffjan et al., 2011; Moller et al., 2011). Since a supplier's transparent cost information induces the buying firm's opportunistic behavior in the negotiation process, a rational supplier would share manipulated cost data and behave opportunistically (Hoffjan et al., 2011; Lamming et al., 2005). This reciprocity would largely increase the transaction costs for the dyads and undermine the established trust and relationship. Relational factors partially determine the adoption of cost management and cost information sharing (Kajueter and Kulmala, 2005). Cost management theory lacks the dual capabilities of explaining the transactional and relational consequences of cost transparency. Social exchange theory embraces two elements, trust and dependence, which were related to the ability to adjust to evolving environment and sustain a long-term relationship (Mody, 1993; Parkhe, 1993). It also contends that the costs exchange partners are willing to expend on a cooperation relate to the expected rewards of the partners. In this stand, cost of transparency is that exchange partners want to pay since transparency enables a firm to develop competitive products and increase profit margin as well as induces transactional and relational considerations (Sinha, 2000). In the existing literature, incorporating the marriage of transaction cost economics and social exchange theory in the assessment of the role of cost transparency is scarce.

Third, few studies have examined the contingent roles of contextual and contractual factors (e.g., demand uncertainty and contract specificity respectively) in the investigation of the effect of cost transparency. Based on the extant literature, we have little knowledge about the interacting effect between them. Demand uncertainty is caused by lack of availability of cooperation partners and lack of knowledge about changes in markets (Cook, 1977). Social exchange theory suggests that interorganizational exchanges are effective in reducing uncertainty (Levine and White, 1961; Blau, 1964a,b). As two elements of social exchange theory, trust and

dependence in the exchanges exert significant impact on the flexibility of a cooperative party in responding to demand fluctuations (Young-Ybarra and Wiersema, 1999). Demand uncertainty mainly comes from the policies and ordering procedures of supply chain companies instead of customers with evolving purchasing behavior (Wilding, 2003), it is also a major contextual factor for the efficiency improvement in the field of supply chain management (Blome et al., 2013) and its interaction with disclosure of cost information by the supplier may imply the changes in the efficiency of a cooperative partnership between the dyads. Informed by transaction cost economics, formal contractual governance curtails the opportunism induced by the disclosure of supplier cost information, therefore, a formal contract specifying the rules and obligations of participating parties in the cooperation is crucial in suppressing opportunism, reducing transaction cost, and entailing an efficient cooperation when coupled with the release of supplier cost information. Thus, both contextual (demand uncertainty) and contractual (contract specificity) factors may serve as contingency variables in the link between cost transparency and cooperation efficiency.

To fill the research gaps, this study aims to investigate how supplier cost transparency relates to cooperation efficiency in a manufacturer's cooperative partnership with its major supplier. Our study contributes to the extant literature on supply chain management in several ways. First, grounded in the nexus of transaction cost economics and social exchange theory, this study examines the nonlinear effect of cost transparency on cooperation efficiency in a buyer-supplier partnership. Previous studies emphasize the benefits of cost transparency in a cooperative relationship, however, in this research we argue that high level of cost transparency of a supplier may decrease cooperation efficiency due to the potential opportunism caused by the advantageous benefits received by the manufacturer. The marriage of these two theories helps us gain meaningful insight into how cost transparency relates to cooperation efficiency and pave the path for the efforts of framing the theory in the area of cost transparency. Second, uncertainty induces enhanced inter-firm coordination to be better situated and adapted to the changing market (Buvik and Grünhaug, 2000). On the other hand, evolving customer demand makes it complicated to increase cooperation efficiency because of the turbulent market changes and resultant increased costs, we investigate the contingent effect of demand uncertainty on the nonlinear link between cost transparency and cooperation efficiency. Third, contractual governance plays a crucial role in cooperative relationships to curtail potential opportunism due to the release of a supplier's cost information, this study examines the joint effect of contract specificity and cost transparency on cooperation efficiency.

This study is structured as follows. First, we discuss the theoretical background followed by hypotheses development. Second, we present the methodology of this study including sampling, data collection, data analyses, and results. Third, we provide a detailed discussion of theoretical contribution to researchers and managerial implications to practitioners in supply chain management as well as future research directions.

## 2. Theoretical background and hypotheses development

### 2.1. Marriage of transaction cost economics and social exchange theory

Transaction cost economics and social exchange theory have been widely used in grounding formal and relational factors curtailing opportunistic behavior from cooperative partners. Transaction cost economics contends that exchange partners have the potential to behave in an opportunistic way (Reich and Mankin, 1986). In the exchanges between partners, specific assets can bound a company to a certain action, which was described as "locked-in" (Ghemawat, 1991), which can be created through investing in specific assets in order to curtail the opportunism since exchange partners are locked into a long-term relationship (Williamson, 1985; Kau, 1989; Parkhe, 1993). Through investing in specific assets, credible commitments are fostered and exchange

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