

A SOCIO-ECONOMIC FRAMEWORK FOR ADOPTING GOVERNANCE MECHANISMS IN LARGE CONSTRUCTION PROJECTS

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Construction projects typically involve a series of inter-related transactions among project parties across project phases with the objective of delivering a complex endeavor. Therefore, the transaction governance literature provides a solid foundation for developing the governance theory of construction projects. However, analyze considering the project-based literature, the conceptualization and theoretical underpinning for determining the contingency factors that have significant role in selection of governance mechanisms varies widely. Although TCE perspective has been criticized for its weakness in predicting the effectiveness of different governance mechanisms, most of studies have limited to TCE-based factors and neglected the social motivators for adoption of governance systems. This is departing point for this paper to make a two-fold contribution to the construction projects' governance literature. Firstly, it analyses different frameworks in the transaction governance literature and identifies the antecedents for the adoption of the proper governance mechanisms. It also studies the application of these factors in the context of construction projects. Secondly, drawing upon transaction cost economics (TCE) and social capital theory (SCT), this study develops a socio-economic framework for including both project-based and relationship-based characteristics of construction projects in the choice of proper governance system. The framework serves as a platform for future knowledge development on the governance of construction projects.

Keywords: construction project, governance mechanism, social capital theory, transaction cost economic

INTRODUCTION

Large construction projects typically involve multiple stakeholders in a series of inter-related transactions across various project phases with the objective of delivering a complex endeavor. The expanding complexity of these projects, diversity of specialism along with geographical and cultural dispersion of project participants caused differentiation and led to complex project structures crossing organizational boundaries. Adopting effective governance mechanisms for such undertakings is critical to the effective and efficient delivery of these projects. Some scholars recognized the unique characteristics of the construction industry and attempted to develop specific frameworks for choice of governance mechanisms for construction

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projects (Eccles, 1981; Winch, 2001). Transaction cost economics (TCE) has been the dominant theory foundation for such studies.

One of the TCE's focuses is on determining the boundaries of the firm to see if transactions should be conducted inside the firm or externally in the market in order to minimize costs. Accordingly, Williamson defines governance structure as an "institutional framework within which the integrity of a transaction is decided and transactions are negotiated and executed" (Williamson, 1979, pp. 235,239). Based on this view, Eccles (1981) argues that in large construction projects the general contractor is central to the project relationships and the fairly stable collection of firms in each project contains both market and hierarchical governance characteristics. Then, he proposes a new structural form, called "quasi-firm" and posits that this construction project-specific governance structure contains aspects of both classical and neoclassical contracting and is intermediate between bilateral and unified governance structures. Another focus of TCE is on introducing the critical environmental factors that affect the choice of governance structure. TCE formulates a new institutional economics in terms of transactions (Williamson, 1979) and takes an economic view toward transaction performance and connects the best alignment between governance structure and contextual factors to the least governance cost (Williamson, 1979). Winch, drawing upon this economic view of TCE, recognizes specific characteristics of construction projects to justify the choice of governance structure in construction projects' context (Winch, 1989, 2001).

While transaction cost economics has been instrumental in identifying the antecedents of specific governance mechanisms in various transactions, studies start to show that the locus of firm boundaries and the choice of governance mechanisms are not only dependent on economics, but are also socially motivated (Granovetter, 1985). Incorporating social elements into firm boundary decisions help scholars better understand the difference in organizational boundaries under similar economic conditions. For example, Granovetter (1985) criticizes TCE for ignoring the role of social relations among transaction partners in formation of their economic behavior. Granovetter argues that economic and social motivations are interdependent and therefore transaction cost economics and social relationships are underpinning theories to study organizational boundaries. Particularly, considering and analyzing the interaction between economic factors and social relationships may help scholars to explain the variations in organizational forms in different contexts and the way these variations affect organizational performance. Sociologic perspectives such as social capital theory, social network theory, theory of trust, and institutional theory have been used in relevant studies to explain the role of social factors in determining the proper governance structure. However, none of these perspectives have "appropriability" (Coleman, 1988) to totally embrace the concept of "social relations" and reflect the related social factors, except social capital perspective (Adler & Kwon, 2002). Adler and Kwon (2002) mentioned that social capital, as an umbrella concept, can bring under the one notion various phenomena such as informal organization, trust, culture, social support, social exchange, social resources, embeddedness, relational contracts, social networks, and inter-firm networks.

Studies that focus on the choice of governance mechanisms in the construction industry suffer from the same shortcoming—ignoring the social context that influence the choice of governance mechanisms, especially in cross organizational transactions. Although there were some attempts to incorporate the effect of social factors in forming project's governance structure (Badenfelt, 2010), these studies didn't have a

comprehensive view to consider both social and economic factors simultaneously and inclusively. This is a departing point for this study to contribute to both the literature on project governance and the construction management literature by developing a socio-economic framework for the choice of governance mechanisms in large construction projects. Drawing upon transaction cost economics and social capital theory, the framework takes into consideration of both project and relationship characteristics. This framework may enable clients or general contractors as responsible parties for making decision about project governance, to have better understanding of environmental factors that are important for the choice of different governance mechanisms in specific construction projects.

In following sections, firstly, literature on choice of governance mechanisms is reviewed. Then, the unique characteristics of construction projects and how these affects exchange conditions are discussed. Subsequently, we present a conceptual framework for the choice of governance mechanisms which combines both project characteristics and social factors. Finally, conclusions are drawn and future research directions discussed.

PERSPECTIVES ON INTER-ORGANISATIONAL RELATIONSHIPS GOVERNANCE

“Governance” is one of the most versatile terms in the literature which is used in a variety of ways and in diverse meanings. In the management and organization literature, one of the most popular applications of governance is related to mechanisms for controlling inter-organizational relationships (IORs) among two or more parties (Ruuska, Ahola, Arto, Locatelli, & Mancini, 2011). The literature on IORs governance is apparently divided into two major streams that each part is focusing on one crucial question. Firstly, “What are the typical governance mechanisms and what is the nature of the relationship between these mechanisms in explaining transaction performance?” Secondly, “What are the antecedents that lead to the adoption of these governance mechanisms?”

Addressing the first question, the existing literature has generally categorized governance mechanisms into two types, formal and informal governance mechanisms. Formal governance mechanisms mostly focus on formal and prescribed form of control and utilizes more tangible instruments (e.g. contracts, financial and non-financial reports, rewards, etc.) to regulate the inter-organizational transactions. The second type of governance mechanisms are informal mechanisms that mainly focus on deploying informal means (e.g. frequent interactions, informal socialization, joint problem-solving, joint decision-making) to govern transactions among exchange partners. The main focus of this study, however, is on the second question to identify and categorize the existing predictive factors and the underlying theories for explaining them and then customize the applicable factors for the construction industry.

Reviewing transaction governance literature shows that transaction cost economics (TCE) has been underlying paradigm for explaining the predictive conditions in adoption of proper governance mechanisms (Williamson, 1979). TCE assumes that the main motivator for transaction partners to adopt various governance mechanisms in their inter-organizational relationships is to minimize transaction costs (Poppo & Zenger, 2002). This economic view considers transaction as the basic unit of analysis and introduces several transaction characteristics as antecedents of governance mechanisms, including asset specificity, uncertainty, and frequency (Williamson,

1979). Although TCE has generated significant insights, there have been some inconsistencies in some research findings in explaining the relationship between TCE-based factors and efficiency of selected governance mechanisms. For example, Poppo and Zenger (2002) pointed out that relationship between environmental dynamism and relational governance is positive, whereas Joshi and Campbell (2003) asserted that this relationship is not always positive and is affected by the partners' collaborative approach. Similarly, whilst TCE-based studies (e.g. Simon, 1991) believed that the partners stop cooperation when they know the "repeated game" is ending, Uzzi (1997) indicated if there were embedded relationships between partners, they continued their cooperation even after approaching the endgame. These new findings revealed the narrow rationality of TCE perspective on explaining transactional relationships and consequently led to emergence of social and institutional factors. Supporting this idea, Zhou et al. (2003) mentioned three motivators for the behavior of partners in transaction relationships including: (1) transaction costs, (2) social relations, and (3) institutional constraints. Moreover, some studies have examined the role of trust in adoption of formal and informal governance mechanisms (Das & Teng, 1998; Sengun & Wasti, 2009). For example, Sengun and Wasti (2009) argued that the level of trust between partners is positively associated with informal governance in exchange relationships, whereas formal governance is negatively related to trust.

According to aforementioned perspectives, sociological theories (e.g. social network theory, institutional theory, theory of trust) have been applied to predict the variations in economic transactions that are not captured by the logic of TCE. That is, they explain the effect of relational factors on the behavior of exchange partners and provide additional insights on the adoption of governance mechanisms in transactional relationships (Li, Xie, Teo, & Peng, 2010).

EXCHANGE CONDITIONS IN CONSTRUCTION PROJECTS

As a classic definition, a transaction occurs whenever 'a good or service is transferred across a technologically separable interface' (Williamson, 1981, p. 552). Having said that, a construction project can be assumed to be a combination of transactions that are taking place among project participants, to deliver the project outcome. Therefore, construction projects require effective governance system in order to regulate these transactions for delivering value for the client (Winch, 2001). There have been a number of attempts to develop a framework for adoption of appropriate governance mechanisms in construction projects (Walker & Wing, 1999; Winch, 2001). However, focus of these studies has been mostly on TCE perspective, ignoring the effect of social characteristics. In this sense, the TCE-based concept of transaction hazard has been customized to the construction project context and a number of project characteristics that play a key role in estimating the degree of complexity and uncertainty of these projects have been introduced. In this section, we review the relevant literature to elucidate the meaning of all environmental factors in the context of construction projects and their effects on the choice of governance mechanisms. Then, based on findings, we propose a new framework that combines the effect of economic and social factors in predicting the proper governance system for construction projects.

Project Characteristics

As mentioned before, in transaction governance literature, transaction is considered as the unit of analysis and some features of transaction have been introduced as antecedents for adoption of specific governance mechanisms. The most common

factors are uncertainty, complexity, and asset specificity. However, there isn't any consensus among scholars about explanation and interpretation of these concepts. In the following paragraphs, the original meaning of these concepts and the relevant interpretation of them in the field of construction projects will be explained.

Complexity

Transaction complexity has been defined as the existence of many interdependent and interrelated skills and organizational routines that spans the firm boundaries and consequently requires the transaction parties to take part in each other's activities in a regular basis (Gulati & Singh, 1998). Although the concept of project complexity and its operationalization has received little attention in construction project literature, there were some studies that tried to build a foundation for this concept (Baccarini, 1996; Fellows & Liu, 2012). For example, Baccarini (1996) devised a comprehensive definition for project complexity in the field of construction projects by reviewing the relevant literature. Baccarini defined the project complexity as 'consisting of many varied interrelated parts' and operationalized it in terms of 'differentiation' and 'interdependency'. He articulated differentiation as 'the number of varied elements', e.g. tasks, specialists, components, whereas the interdependency is related to the degree of interrelatedness between elements. Both differentiation and task interdependence increase the need for cooperation and mutual adaptation between project partners. They also promote ambiguity in terms of predicting the results of any failure in the project that causes complicated situation for partners in finding the responsibility of each party and sharing the loss. For reducing this ambiguity and safeguarding project partners against opportunism, most of scholars suggest the usage of formal control mechanisms such as equity or property rights as well as more detailed contracts (Lin et al., 2012). Also, it is predicted that the increase in the complexity of the project lead to the decrease in the level of informality in partner's relationships. That is, instead of having casual meetings or informal working communications and information exchange, the partners prefer to document everything in order to make the future claims possible.

Uncertainty

Some studies used uncertainty as a general concept (Dekker & Abbeele, 2010; Winch, 2001), whereas other scholars considered different aspects of uncertainty like behavioral uncertainty (Kirsch, Ko, & Haney, 2010; Lin et al., 2012; Rooks, Raub, & Tazelaar, 2006), environmental uncertainty (Cannon, Achrol, & Gundlach, 2000; Carson, Madhok, & Wu, 2006; Claro, Hagelaar, & Omta, 2003; Dekker, 2004; Lin et al., 2012), or task uncertainty (Cannon et al., 2000; Dekker, 2004; Turner & Simister, 2001). Williamson (1979) defined uncertainty as a problem that is originated from unpredictable consequences of human nature, such as bounded rationality and self-interest. He argued that environmental uncertainty appears when the business environment is unstable and the firm cannot predict following changes in the market and technologies and the consequences that are associated with these changes. Some studies used 'monitoring problems' or 'behavior observability' as an indicator for behavioral uncertainty that refers to the client's difficulties to assess the quality of the product or services provided by the contractor at the time of delivery, to compare tenders, to compare it with alternative products or services, and to compare the price-quality relation of alternative contractors (Kirsch et al., 2010; Rooks et al., 2006). Like complexity, uncertainty creates high level of ambiguity between partners.

Accordingly, partners will try to reduce the probability of opportunistic behavior and guarantee the stability by utilizing more contractually arranged governance structure

in the project. This formalization, also, facilitates the planning and execution of the project activities (Dekker, 2004).

Asset specificity

Williamson (1979) defined asset specificity as 'the degree to which an asset can be redeployed to alternative uses and by alternative users without sacrifice of productive value'. Asset specificity can refer to different kinds of assets such as human asset and physical asset. The physical asset refers to investments such as equipment, machineries, materials etc. Whereas human asset refers to HRM investments, such as training of staff in terms of knowledge about the partner, methods to deal with the partner, and other business practices specifically to operate with the selected partner (Hoetker & Mellewigt, 2009). Prior research argues that asset specificity is an important transactional attribute that affects the choice of governance system (Lin et al., 2012). When a firm make transaction-specific investment in a project, its partner may exploit the situation by threatening it to terminate the contract, which results in losing the value of specialized assets. Facing such threats, the investor company must trade off between value losses and the cost of contract. The increase in the potential value loss due to transaction-specific investment will justify the more complex and detailed contracts to cover the consequences of breach and termination as well as the processes by which such threats will be handled (Reuer, Ariño, & Mellewigt, 2006). Also, it is assumed that high level of asset specificity, particularly when the assets are mainly knowledge-based, will make informal governance mechanisms even more preferable than formal governance mechanisms because it may help overcome the embedded and tacit nature of knowledge-based assets (Hoetker & Mellewigt, 2009).

Relationship Characteristics

As discussed before, inconsistencies in TCE interpretations about some exchange conditions led to emergence of different explanations that were based on sociological theories such as social network theory, institutional theory, and theory of trust. We posit that all the sociological factors that have been covered by these theories can be collected under the social capital theory as an umbrella concept for explaining all the sociological conditions in exchanges among project partners. The source of the social capital is the social relations among exchange parties. Adler and Kwon (2002) distinguishes social relations from market and hierarchical relations and assumes that any concrete relation is likely to involve a mix of all three types. It also argues that market and hierarchical relations nurture the social relations. Social capital, like other forms of capital, is a long-lived asset and can be escalated through investment in building network of relations among exchange partners (Adler & Kwon, 2002). As a set of resources rooted in relationships, social capital has three different attributes: structural capital, cognitive capital, and relational capital (Nahapiet & Ghoshal, 1998). In the following paragraphs, we define each of these dimensions of social capital and discuss their potential effect on the choice of governance mechanisms.

Structural social capital

According to social network theory, the structure and the quality of social relations between partners affect the form of economic actions (Uzzi, 1997). In the context of inter-organizational relationships, embedded relationships facilitates joint activities and reduces behavioral uncertainty (Li et al., 2010). This definition is very close to the meaning of the structural social capital that reflects connections among individuals or organizations and how they share information. Based on the definition, structural social capital is related to prior ties between project partners and the quality of past

collaboration. Hence, organizations that had more collaborative experiences in the past may have better understanding of each other and those repeated interactions may provide more information about the nature of the other partner (Zhang, Wan, Jia, & Gu, 2009). This familiarity may decrease the effect of uncertainty as well as the risk of exploitation and opportunism. Thus, we can claim that structural social capital among project partners can moderate the positive (negative) relationship between project characteristics and the efficiency of formal (informal) governance mechanisms.

Cognitive social capital

Institutionalization in the context of inter-organizational relationships is a formalization process that strengthens the inter-firm relationship beyond the interpersonal relationship between boundary spanners. That is, the well-developed relational norms, shared goals and shared values through institutionalization of exchange partners' relationships can positively influence the use of formal and informal governance mechanisms (Li et al., 2010). Reviewing the definition of cognitive social capital, the focus is on shared values and common vision among partners that is considered as a capital that may encourage the development of trusting relationship (Tsai & Ghoshal, 1998). According to the literature, due to the similar background and expectations, the project partners that have shared values may have more effective communication with each other. This communication is further facilitated by the fact that the partners have implicit understanding of each other because of shared values. Additionally, partners who share values are more likely to make commitments prior to formal cooperation, which strengthens the bonds among them and nurtures the trust (Zhang et al., 2009). So it is predicted that cognitive social capital among project partners moderates the positive (negative) relationship between project characteristics and the efficiency of formal (informal) governance mechanisms through reducing the uncertainty and spreading the feeling of confidence.

Relational social capital

Two dimensions of trust, goodwill trust and competence trust (Das & Teng, 1998, 2001), are closely related to the calculation of different types of perceived risk. This distinction parallels the idea that trust is the expectation of a partner fulfilling a collaborative role in a risky situation (Nootboom, 1996), and relies on both the partner's intention to perform and its ability to do so. Goodwill trust is linked to relational risk, and refers to the expectation that a partner intends to fulfill their role in the relationship. Competence trust refers to the expectation that partners have the ability to fulfill their roles. This is related to performance risk, and can be measured as the contractor's resources and reputation. As explained by Nahapiet & Ghoshal (1998), trust is the most important indicator of relational social capital. Existence of trust among project partners has a great influence on shaping collaborative atmosphere in the project and facilitates the efficiency of informal mechanisms. As a result, we claim that relational social capital moderates the positive (negative) relationship between project characteristics and the efficiency of formal (informal) governance mechanisms.

Figure 1, demonstrates the project characteristics and relationship characteristics as two types of contextual factors and their effect on the adoption of different governance mechanisms in construction projects.

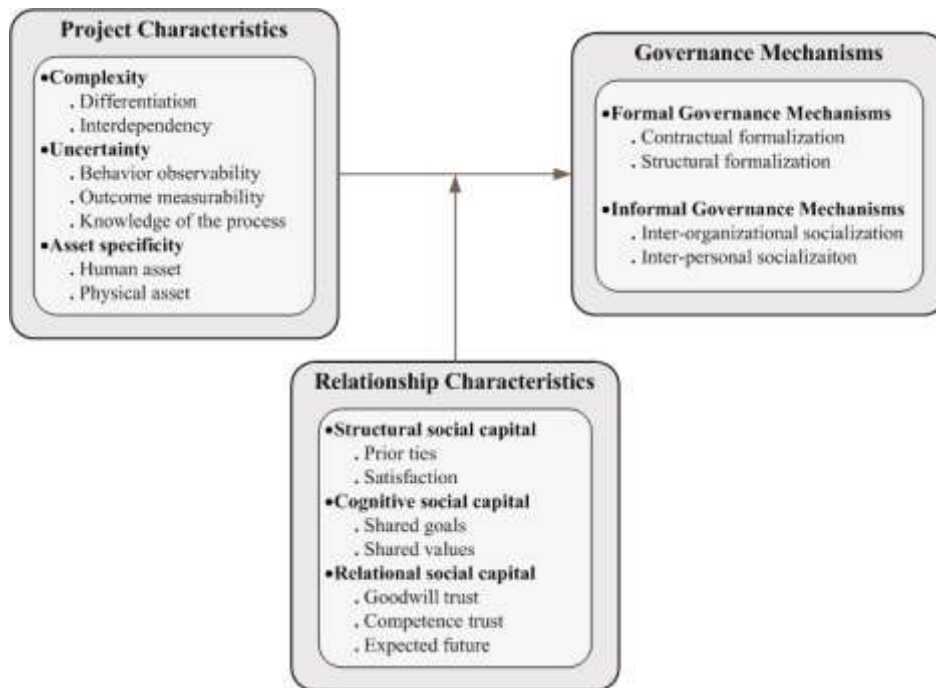


Figure 1: Socio-economic framework for adoption of governance mechanisms

CONCLUSIONS

This paper started with a review of the current literature on construction project governance and identified the limitations of the existing governance frameworks. It showed that extant literature focused mainly on economic factors for determining the governance structure in construction projects, while neglecting the important role of relational factors that are embedded in the relationship among partners. A new framework has been proposed which has taken into account both economic and social aspects of construction projects. Furthermore, the framework divided the antecedents into two categories including project characteristics and relationship characteristics. The new framework provides a more comprehensive perspective on the antecedents of adopting specific governance mechanisms. This integrative perspective gives project planners a more comprehensive view over the project and helps them to hire more efficient governance mechanisms to regulate the relationships among project partners. However, more research should be done to investigate the relationship between these factors and formal and informal governance mechanisms in construction projects. Moreover, it is suggested that the association of these factors and their interaction be empirically investigated in future studies.

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