Coordination in contractual relations: Some preliminary findings from the Malaysian housing industry

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Abstract

The traditional general procurement route found in many housing projects in Malaysia is conceptualized as a governance structure following the transaction cost economics (TCE) approach. This approach has been used to examine governance structures in different economic sectors in several countries but evidence of its use in the context of developing countries is limited. This lack of evidence has prompted the authors to conduct a preliminary study to ascertain whether a TCE approach can explain construction governance structures in developing countries. This research does not discuss the trade-off that governs the choice of hybrids, market or hierarchies for organizing transactions. Rather, it takes advantage of existing research to substantiate the specific properties of hybrid organizations as governance structures. The main focus is *coordination*. Coordination is specified at two levels. At Level 1 is the coordination of specialization (i.e. the formation of the project team members) and at Level 2 is the coordination mode of the contracting parties (client and contractor) and the agents involved (the lead designer and project manager). A case survey method was adopted. Preliminary findings seem to suggest that clients have used hierarchical themes in the contracts and high powered incentives to coordinate within the contracting parties. The research findings suggest that all participants involved in the sample studied used governance structures symptomatic of a hybrid organization.

Keywords: transaction cost economics, procurement, governance structures, hybrid organizations, coordination.

Introduction

The construction industry in the United Kingdom (UK) is plagued by fragmentation, a claims culture resulting from non-payment by contracting parties, inefficient use of labour and material, adversarial relationships and wastages (Constructing the Team, 1994, Rethinking Construction, 1998, Modernizing Construction 2001, Building down Barriers, 2003). The experience of the Malaysian construction industry seems to suggest that similar problems have emerged, though not necessarily during the same period of time or of the same magnitude (Abdul Rashid and Morledge 1999, Hashim 1996). This is because the structure of the construction industry shares many similarities with that of the United Kingdom due to historical circumstances and affinities (Soo Hai and Sendut, 1979).

There are varied ways of explaining the reasons why problems occur within the framework in which construction is produced and delivered to clients by using different forms of analysis. These existing forms of analysis take into consideration analytical methods: some researchers have focused upon systems and process including the use of flow-charts, critical-

path analysis, process mappings (Davis and Newstrom 1989, Curtis et al 1991), while others have represented authority and responsibility relationships such as linear responsibility analysis and organizational structures (Mastermann 2001, Franks 1998, Loosemore 1999, Bennett & Grice 1990, Murdoch and Hughes 2001, Abdul Rashid and Morledge 1999, Hashim 1996).

Some other authors (Winch 1989; 2001, Winch and Compagnac, 1995, Chang and Ive 2000, Gruneberg and Ive 2000) have attempted to explain why this framework of procuring assets and services from the construction industry was initially designed in this manner by adopting a transaction cost economics (TCE) lens, taking into consideration that a) the parties to the contract have limited knowledge of each other and behave opportunistically, and b) the context in which procurement takes place such as uncertainty, frequency and asset specificity.

The move to explain the workings of the construction project from the perspective of TCE lens stems from the academic tradition that it is professionals from firms who make up a temporary project team. Therefore the inter-firm relations are as important, if not crucial to study. Eccles (1981) regards the construction project as a network of firms working together for the purpose of the project. Cherns & Bryant (1984) refer to the project organization as a temporary multi-organization whose articles of association are the contracts. The construction industry appears to be evolving procurement and management systems that lie somewhat between the market and hierarchy models, with packages of work let, possibly, through a market driven approach, but subsequently managed in a hierarchical context within the environment of the temporary project coalition (Pryke 2004).

Theoretical Framework

This research adopts a contracting approach to the study of organizations, following micro-analytical perspectives (Coase, 1988, Williamson, 1996) rather than analyses in direction as proposed by Douglass North (1981, 1990, 2004) The ability for formal organizations to enter contracts is critical to one of the major approaches to the economic analysis of organizations. In this view, as suggested by Alchian and Demsetz (1972), an organization is regarded as a nexus of contracts, treaties, and understanding among the individual members of the organization. This school of thought is somewhat different to the orthodox approach to the theory of the firm whereby the firm is regarded as a production function, and whether the activity to make or buy (the allocation of activity between firm and market) is taken as given. The firm is thus regarded as a 'black box', which inputs are transformed into outputs without referring to the organization that handles the production process.

The contracting approach used in this study adopts proceeds differently where a comparative approach is viewed instead. The 'make or buy option' is taken to be the big question, problematic and poses a dilemma (Coase 1937). The objective of this research is to address the alternative means of contracting by holding the decision to make or buy as a constant. The allocation of activity between firms and markets is not taken as given but is something to be derived.

The most fundamental unit of analysis in economic organization theory is the transaction. A transaction occurs when there is a transfer of goods and services from one individual or one corporate economic or productive entity to another person or corporate body. The way a transaction is organized depends on certain characteristics. For example, if one kind of transaction occurs frequently in similar ways, people develop routines to manage it effectively. If a transaction is

unusual, then parties may need to bargain about its terms, which raise the costs of carrying out the transaction. The basic notion of transaction cost economics is the fact that it is the properties of transactions that determine what constitute the most efficient governance structure.

The basic notion of Williamson's framework (1996) is that when many adjustments are needed to be implemented during the course of contract performance, the transaction costs of negotiating and enforcing a contract increases, and the great flexibility of a labour contract often used to create hierarchy saves, or compensates for the increment of transaction costs. Hierarchy structures will prevail over market coordination through contracts whenever it is difficult to specify the required performance in advance (Marschak, Blennan Jr. and Summers 1967), when the costs, prices, or quantities to reign at the time of the performances are uncertain (Macaulay 1963) or when team interdependences do not allow separate measurement of performances (Alchian & Demsetz 1972).

Contracts are often signed between two parties whereas the existing theory would suggest vertical integration. Uncertainty about costs, prices, and quantities tends to lead to vertical integration, or 'cost plus' contracts between corporate bodies as Thompson (1967) elaborated but automobile franchises and weapons procurement often involve contracts for shifting quantities and uncertain costs and prices (Macaulay 1966, Maher 1997).Team performance of technically interdependent production often leads to hierarchical controls (Alchian & Demsetz, 1972) but intimate technical dependence between engineering and construction do not prevent this split between contractors (Stinchcombe 1979, Maher 1997, Winch 1989; 2001). Other transaction-specific investments take place by agreement among firms; such as in rail freight (Palay 1984), petroleum coke (Goldberg and Erickson 1987), natural utilities (Masten and Crocker, 1985, Joskow 1987), that normally produces vertical integration has however, been put in a market coordination mode through contracts as well. Therefore performances can be adjusted to changing situations by contractual means and the administrations of performances can be set up by other kinds of contracts than labour contracts (Stinchcombe and Heimer 1985).

Some conditions in certain industries make it difficult, uneconomical, or impossible to specify the performances to be required at the time when a contract is signed. Stinchcombe and Heimer (1985) suggest that these may be divided broadly into:

a) difficulties of prediction of specifications the client will want to make of a contractor's performance,
b) client or contractor uncertainty about the costs of carrying out the performances, resulting in a wish to make strategic readjustments either in the performances or in the compensation during contract performance, and
c) Inability to measure clearly the performances to be demanded or the conditions determining compensation.

In certain industries and situations where it is inherently characterized by uncertainty, small numbers bargaining and teamwork, the contracting governance dominates the perceived theory that predicts hierarchy Stinchcombe and Heimer (1985). The general argument of the literature is that hierarchy is a general purpose structure for fulfilling functions for adjusting performances to an uncertain future flow of events. However, since it is observed that these functions are in fact arranged through contracts in particular industries, the contract must have had

contractual functional substitutes for hierarchy. In this sense, the contracts act as a simulation of hierarchy functions; hence the term 'contract as hierarchical documents' (Stinchcombe and Heimer 1985).

Research methods

This research is concerned with drawing out hierarchical themes that are inherent in the contracting system, therefore there must be sufficient case studies to allow for meaningful frequency counts across the cases and to attain some measure of 'replication logic'(Yin 2003, Miles and Huberman,1994). The importance of this approach has been responsible for some of the most influential contributions to organizational analysis- Woodward (1966), Lawrence and Lorsh (1990), Kanter (1985)- have used varieties of multiple case studies across ten or more cases.

The method advocated here is a multiple case survey method in which the essence of the method is of articulation of new insights and pattern recognition across cases. The unit of analysis is the production units of the project, which are defined here as those responsible for architectural design, the project management and actual construction. The basic fieldwork approach is the case study, and the objective is a meta-analysis of existing cases and the lines of enquiry follows 'replication logic' in its formulation.

The sample of companies studied followed some of the themes developed in the concept of expert clients. The case project selected was on the basis of a) type i.e. landed housing property b) middle to high income product markets c) uses the traditional general contracting governance route d) have been completed within the last 4 years e) large-scale (more than 80 units) and f) generally similar construction methods and technology.

The case survey methodology requires consistency in method between cases, and the standardized collection of some key items of data. It was, therefore, decided that a more structured research instrument than is normal in a case study research be used. The instrument formed the basis of interviews with key informants in the case projects. The aim was to interview the professionals responsible for the design and construction process, and the management of the total process itself. Additional interviews took place based upon earlier informants. For the purpose of this paper, a total of nine informants were interviewed in two housing projects from November 2007 until April 2008. Each set of interviews, together with supporting documentary data, was written up as a case study and returned to each informant for validation. Their comments were incorporated in a second version of the case study which formed the basis for the survey analysis presented here. A feedback session, to which all representatives from all the case projects will be invited, shall be conducted when all interviews from the 10 case projects have been completed. The purpose of this feedback session is for the researchers to present and discuss key findings of the research to the respective informants.

The research instrument has five sections. Sections A and B of the instrument are aimed at establishing the operating environment of the company that owns the case project. Sections C, D and E focused on external and internal modes of coordination governance of the case project. Section C engages with Coase's boundaries of the firm conundrum (the make or buy question) developed in earlier discussion. Having 'chosen' the mode of governance for the case project, Section D deploys basic structural analysis of the operationalisation of the contracting mode. Section E then focused

on the assessment of the mechanisms of contracting governance by key informants within the internal coordination function.

In the interviews, extensive additional notes were taken as the discussion developed. The research instrument was seen as a sketch for the interview, and not a comprehensive design. Interviews typically lasted 60 minutes, and were supported by tours of the office and building sites, lunch-time discussions, collection of documentation, and follow up telephone conversations for clarification of points. All data were collected on a confidential basis both within and between cases. For this reason, information which might reveal the identity of the cases is not used.

The main research questions of the study are: a)What are the coordinating (market or hierarchical) mechanisms that a client would adopt at different stages of the construction project in order to alleviate the adverse effects associated with horizontal fragmentation intrinsic in the traditional general contracting procurement system?, and b)Why is that the case?

Research Objectives

This research analyses the coordination function in the traditional general contracting procurement route within housing projects in Malaysia. The procurement route is conceptualized as a governance structure following a transaction cost economics (TCE) approach. The research objectives are to: a) identify the operational approach of how clients form the temporary project organizations (the make or buy decision), and b) explore, from the client's organization perspective, the operational coordination function characteristics or variables.

The main tenet of TCE is to answer the make or buy question – the trade-off of organizing transactions in a market or hierarchy governance modes. However, the choice to organize a transaction has not been limited to a market or hierarchy structure because currently more research has discovered the emergence of 'hybrid organizations'.(Menard 2004) Hybrid organization's mode of governance oscillates between a market and hierarchy structure in which there is no clear demarcation except with respect to the specific properties of the transaction. This research does not discuss the trade off that governs the choice of hybrids, market or hierarchies for organizing transactions. Rather, it has taken advantage of existing and on going studies for substantiating the specific properties of hybrid organizations as governance structures.

In Williamson's (1996) analysis of governance structure, he states that the appropriate governance structure will economize on the incidence of transaction costs. Governance structure is the institutional matrix in which the integrity of a transaction is decided. It can be deduced that a procurement route works in the same manner as well, and thus procurement routes can be regarded as governance structure to projects. This is because procurement routes, like governance structures establishes: a) the institutional arrangements/ matrix or contractual relation between economic entities (i.e. client, contractor and the consultants) in that project organization and b) this structural governance structure can be either hierarchy, market or hybrid form of governance. The theory of Williamson adopted also posits that transactional considerations are typically decisive in determining which mode of organization will obtain in what circumstances and why.

The main theme focused upon is the coordination function. Table 1 shows the framework of inquiry at each case project. Coordination is specified at two levels. At Level 1 is the coordination of specialization (i.e. the formation of the project team members) and at Level 2 is

the coordination mode of the contracting parties (client and contractor) and the agents involved (the lead designer and project manager). At Level 1, due to the fact that the questions are at the strategic level of the formation of the team members of the housing project, the designated person to be interviewed is the General Manager. At level 2, where it is the daily operations of managing and supervising the project, the persons responsible for this process will be the Project Manager, the Architect and the Main Contractor. If all these three functions (project manager, architect and contractor) are performed by external companies; for example the developer does not have in-house capabilities, the questions are then directed to the external companies that have formed the temporary project team.

Research results

The preliminary findings of the research project are limited to studies done on two cases. The case projects are identified as HDA and HDB respectively. Both development companies who are the project owners are public listed companies and operate in the state of Selangor. Both projects were a development for the erection of semi-detached housing in the upper-middle income price range. The

Table 1 : Framework for interview sessions

LEVELS OF ENQUIRY **(Summary of questions)**	**Tentative Person to be interviewed and the Time Duration**
Level 1: (Strategic Level and 'Anchoring' of Project) 1) Company profile and history 2) Project profile of one housing project (all subsequent questions must be answered within the context of this particular project) 3) What are the attributes that defines the choice for an: a) Architect b) Project manager c) Main Contractor 4) If any one of those functions is part of your company or subsidiary, when was it created? Does it have any other external clients? 5) Why did you internalize these functions?	*General Manager* (30-40 Minutes)
Level 2: (Daily operations and monitoring of project) The Client then enters a few contracts (with the Consultants and Main Contractor if these functions are not internalized) to administer the temporary project organization. How will the client coordinate these agents (consultants and contractor) from different firms to work together for this housing project?	*a)Project Manager* *b)Architect* *c)Main Contractor* (40-50 Minutes for each person.)
IF HOWEVER the 'Design', 'Project Management' and 'Construction' are done by external firms, the researcher will carry on with the Level 2 questions with the respective parties.	*External companies*

Table 2. Summary of preliminary findings for two case projects.

	LEVELS OF COORDINATION	HDA	HDB
1.	The formation of the construction team	1) There exists an internal architecture and planning department in the firm. 2) There exists an internal project management department in the firm. 3) There exists a subsidiary contracting company	1) Selects from a pool of five external architecture and planning firms. 2) There exists an internal project management department in the firm. 3) Selects from a pool of three external contracting companies
2.	Attributes (apart from performance) in the nexus of contracts	1) Internal labor adaptations for internal workers 2) Frictions with contractor are harmonized in Board Meetings of parent company	1) Negotiated contracts 2) Incentive given in monetary terms for any savings in time.

general picture that emerges from these two case projects is that they have been enjoying good profits in a non-saturated product market. The projects have achieved 90 percent sales during the first launch of the projects. This is also due to the fact that both housing developers have a very good reputation for building good quality homes. None of them are participating in building houses in any other countries though during one of the interviews, one of the managers have mentioned that the company is actively searching for land banks in other part of Asian countries.

Discussion

In HDA, it is can be deduced that the company has internalized all critical functions of design, management and construction of the built product. The reason cited was that it was a crucial factor in terms of trying to alleviate the problem of uncertainty in design and time when they have to deal with external firms. The researchers are still in the midst of analyzing the extent of asset specificity and frequency of the work done that has given rise to the internalization of these functions. The project owner has internalized the design and project management functions that traditionally were performed by external firms in one company and the contracting firm was a subsidiary company. Frictions within the consultants were dealt within the remit of internal labour contract/ unified governance. The advantage of vertical integration is that adaptations in both quantity and pricing can be made in a sequential way without the need to consult, complete, or revise

inter-firm agreements. Price adjustments in vertically integrated enterprises will be more complete than in inter-firm trading because the firms are not on separate profit streams. Quantity adjustments can be implemented by the project owner whenever the need arises to maximize the joint gains to the transaction. In times when uncertainty is high at both project level and institutionally; but the project owners are in recurrent transactions of producing homes to a non-saturated product market, bilateral governance structures will often give way to unified governance. However the formal relationship between the project owner and its subsidiary contracting company was based on bilateral governance whereby contracts were still being signed for the purpose of the housing project. Incentives systems found here was critical in determining the success or failure of performance. An example was a Cost-Plus contract whereby the project owner assumed all proportions of the cost overruns when an acceleration order was given in order to decrease the production period.

In the case of HDB, the incidence of bilateral governance (also known as relational contracting) involving partners (architects and contractors) remaining independent but committing themselves to long-term relationships are discovered. This is due to the fact that both parties have invested in transaction-specific asset which are not easily deployable to other uses. This can also be termed as 'Fundamental Transformation'. Initial bidding sets place when a tender is placed in the market. Upon reaching satisfactory terms and agreements, contract execution takes place. Ex post competition will arise at the contract renewal interval. The number of bidders here depends on whether the initial winner of the previous contract has made durable transaction specific investments; human or physical. If the initial winner has no 'specifics' (transaction specific investments), then the company holds no added advantage at the contract renewal stage. If, on the other hand, the initial winner has made specific investment during the course of a previous contract, this has an added advantage and the rivals do not operate at parity with the initial winner in the next contract renewal stage. Here, the relationship has been transformed into a bilateral dependency. In the case of HDB, the contractor has invested in forging relationship with the supplier of the main component building material that makes their bid price the most competitive without compensating the quality of the material.

Bilateral dependency can be manifested intertemporally or through unanticipated consequence of long-term relationships. This can be seen when the amount of contract savings have been shared equally by both the housing developer and the contractor. Under bilateral trading, internal organisation of both parties will enjoy comparative adaptive capacity than if they were to be in the market but at the trade-off of escalating administration costs. It permits both parties to deal with uncertainty/ complexity in an adaptive, sequential fashion without incurring the same types of opportunism hazards that market contracting would pose.

Conclusions

Preliminary findings seem to suggest the choice of governance mode does not necessarily depend on the type of project but more on the attributes of the transactions in hand (either in engaging the work of a contractor or a designer) and the degree of uncertainty perceived by the project owners. In the case of HDA, companies have come together to work in clusters based on long term relationships (Note that these relationships; historically, were based on the fact that these actors were technically competent in the first

place) and this has created transaction specific savings at the 'interface' or points of contacts between the three economic agents. At the interface, familiarity has realized economies of communication; specialized language develops as experience accumulates and nuances are signalled and received in a sensitive way. Both institutional/ company and personal trust relations evolve. When personal integrity is believed to be operative, project actors located at the interfaces have refused to be part of opportunistic efforts to take advantage of the original contract when at times the spirit of exchange was weakened. It was apparent in this case that idiosyncratic exchange relations which feature personal trust has survive greater stress and parties have display greater adaptability to each other. Similarly in the case of HDB, transaction specific savings at the interface was apparent between the project owner and its subsidiary contracting company.

In this preliminary analysis, it can be concluded that coordinating or selecting consultants and contractors at random from the market place might be accruing less transaction specific savings than selection based on familiarity, given technical competence of these actors are similar. In the operationalization mode of coordinating or administering the project actors within the context of the construction project in hand, it appears that both case studies have used hierarchical themes in the contract as well as high-powered incentives, symptomatic of a hybrid form of governance.

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