Selecting client's project control strategies in person-to-organization transactions

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Abstract

Selection of inter-personal and inter-organizational control strategies has been widely examined. However, it is not known whether the findings could be generalized to the person-to-organization relationship setting. Taking dwelling fit-out projects as the empirical setting, this study aims to investigate client's project control strategy selection in person-to-organization transactions. A questionnaire-survey of clients who had completed a dwelling fit-out project before was carried out in China. This study re-affirms that project quality ambiguity would decrease outcome control; project-related knowledge facilitates behavior control. Additional insights are obtained that perceived legal enforceability has positive impacts, whereas quality performance ambiguity has negative impacts, on social controls. Perceived legal enforceability is positively associated with outcome and behavior controls. This study contributes to the literature of project control strategy selection by adding a new antecedent of perceived legal enforceability and extends the findings to the person-to-organization transactions. Implications for project controls are provided in the end.
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1. Introduction

Formal and informal controls are common methods for managing projects (e.g., Choudhury and Sabherwal, 2003; Gyawali et al., 2013; Kirsch, 1997; Nieminen and Lehtonen, 2008; Tuuli et al., 2010). Prior studies examined the drivers and consequences of control strategies (Liu, 2015; Liu and Deng, 2015; Liu and Wang, 2016; Tuuli et al., 2010), the interplay between formal and informal controls (Piccoli and Ives, 2003) and portfolio of control strategies (Choudhury and Sabherwal, 2003; Kirsch, 1997). One key theme of the research stream is to investigate the conditions under which the control strategies are appropriate to cope with project hazards (e.g., Kirsch et al., 2002; Stump and Heide, 1996).

The selection of control strategies could be explained by the agency theory (Eisenhardt, 1985) and transaction cost economics (TCE) theory (Williamson, 1985). In the agency theory, the choice of control strategies depends on project characteristics (i.e., task

programmability and output measurability) (Eisenhardt, 1985) and controller's knowledge (Kirsch et al., 2002; Turner and Makhija, 2006). TCE provides another lens to look into project characteristics, arguing that transaction costs depend on a combination of three project features, namely asset specificity, uncertainty and transaction frequency (Dekker, 2004). These two theories mainly consider project characteristics and control strategies as independent and dependent variables respectively.

Although control strategy selection highlights project characteristics and project-related knowledge (e.g., Ning and Ling, 2015; Turner and Makhija, 2006), we know little about how perceived legal enforceability influence control strategies (Bai et al., 2016; Wang et al., 2016). This study seeks to provide a more nuanced understanding of control strategy selection through exploring how project characteristics (i.e., quality performance ambiguity), project-related knowledge and perceived legal enforceability influence control strategy selection. Quality performance ambiguity is highlighted as it is often companied with shirking and opportunism in the project development (Gray and Handley, 2015), which requires appropriate control strategies to cope with.

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Insights on the influence of regulatory context on control strategy selection would inform actors the distinction between different institutional systems.

Although the selection of project control strategies has been widely examined in the inter-personal and inter-organizational relationships (e.g., Kirsch, 1997; Nieminen and Lehtonen, 2008), it is not known whether the findings could be generalized to the person-to-organization project settings. Prior studies found the project-related knowledge is an important antecedent of control strategy selection (Kirsch et al., 2002). However, individual clients face greater knowledge deficiency than their partner in terms of project development, contract design and application. This knowledge deficiency would result in strong information asymmetry, which is a significant contributor to opportunistic behaviors (Das and Kumar, 2011). Thus, it would be significantly worthwhile to investigate how clients select project control strategies in person-to-organization business. A better understanding of the pattern of control strategy selection in person-to-organization projects would help the client to manage the relationship properly.

The dwelling fit-out projects in China was investigated as the empirical setting. In dwelling fit-out projects, controller is the individual client (i.e., personal level) and controlees are the appointed contractor (i.e., organizational level). The distinction of projects governed by person-to-organization relationships serves as the frame for this study. China's context is highlighted because China as an emerging market is experiencing a painful transition from relation-based to rule-based governance (Li, 2013). It is recognized that a stable legal institution for enforcing contract law nation-wide has not been established thus far (Luo, 2007). Thus, it would be imperative to examine whether the institutional environment would influence project control strategy selection.

The paper is organized as follows. Section 2 presents literature about three control strategies (i.e., outcome control, behavior control and social control) and selection of control strategies. It is followed by a section reporting the conceptual framework and hypothesis development. The research method of a questionnaire-survey is presented in Section 4. Statistic results are presented in Sections 5 and 6. Discussion and conclusion are shown in the end.

2. Literature review

2.1. Control strategies

Control is defined as 'a regulatory process by which the elements of a system are made more predictable through the establishment of standards in the pursuit of some desired objective or state' (Leifer and Mills, 1996: 117). There are two broad categories of control mechanisms: formal control and social control (Das and Teng, 2001; Dyer and Singh, 1998).

In exchanges, formal control relies on the completeness and importance of contracts (Li et al., 2010). It establishes rules or norms for actors' behaviors; monitors actors' work through surveillance methods (Eisenhardt, 1985), and compares outcomes or behaviors with pre-determined ones. The tools used to curtail contractor's shirking and opportunism propensity are inspection, monitoring and failure penalties. There are two main modes of formal control: outcome control and behavior control. Outcome control relies on the assessment of the performance, whereas behavior control focuses on the process (Das and Teng, 2001).

2.1.1. Outcome control

Outcome control mechanisms specify outcomes to be realized and monitor the achievement of these targets (Dekker, 2004). The controller explicitly states desired outcomes and rewards the controlee based on the achievement of those goals (Choudhury and Sabherwal, 2003; Eisenhardt, 1985). Thus, outcome control relies on mechanisms that could specify desired outcome and measure the controlee's performance with respect to the specific outcome. Incentives are clearly aligned with a desired outcome (Turner and Makhija, 2006).

2.1.2. Behavior control

Behavior control mechanisms specify how controlee should act and monitor whether actual behaviors comply with the pre-specified behaviors (Dekker, 2004). Behavior control is featured by behavior monitoring and rewards (Dekker, 2004). Controller could prescribe specific rules and procedures, observe the controlees' behaviors, and reward the controlee based on the extent to which it follows pre-determined procedures (Kirsch, 1996).

Behavior controls encompass formalized standard, operating procedures, rules and routines (Abubakre et al., 2015). Abdi and Aulakh (2014) found that behavior control would be effective to prevent behavioral uncertainty (i.e., the inadequate common grounds and shared frameworks among controller and controlee).

2.1.3. Social control

Social control comprises risk taking, joint decision making and problem solving (Dekker, 2004). Formal controls tend to present a mechanistic view of the control process. But they ignore inter-personal mechanism that governs behaviors (Ashford and Tsui, 1991). Relationships built among actors can serve as informal control tools. Social control mechanism could govern partnership behaviors (Rowley et al., 2000), through promoting trust, mutual gain and reciprocity (Larson, 1992). Social control enables actors to coordinate functions and work out problems "on the fly" (Uzzi, 1997).

Prior studies found that the social controls have close interaction with the formal controls (e.g., Bygballe et al., 2014; Cao and Lumineau, 2015; Gregory et al., 2013) and the adoption of the social control mechanism could give rise to better project outcomes (e.g., Ning, 2014). Formal control and social control may substitute or complement each other. The reasons for the substituting effect could be manifested by "replacing" and "dampening"; the reasons for complements are summarized as "compensating" and "enabling" (Huber et al., 2013).

2.2. Selection of control strategies

Selection of control strategies could be explained by the agency theory and transaction cost economics theory (see a

review of Crosno and Brown, 2015). In the agency theory, Eisenhardt (1985) suggested that the choice of an appropriate control strategy depends on two project characteristics: task programmability and output measurability.

Task programmability refers to the degree to which managers understand the transformation process in which appropriate behaviors would take place (Das and Teng, 2001). Task programmability is strongly related to the choice of compensation package. Output measurement ambiguity indicates the difficulty of defining ex ante and verifying ex post the products and services procured in the contract (Anderson and Dekker, 2005). When the performance is difficult to measure, controlees would have incentives to limit their efforts, because controller cannot accurately measure or reward the outcome (Zhou and Poppo, 2010).

The main tenet of TCE is to "align transactions, which differ in their attributes, with governance structures, which differ in their costs and competencies, in a discriminating (mainly, transaction-cost-economizing) way" (Williamson, 1991: 277). Transaction costs depend on a combination of three project characteristics (i.e. asset specificity, uncertainty and frequency) (Dekker, 2004). van Fenema and Loebbecke (2014) argued that the lower the level of project uncertainty and interdependence, the more controllers would adopt formal controls rather than social control to cope with the hazards.

3. Conceptual framework and hypothesis development

The conceptual framework is shown in Fig. 1. Specific hypotheses are elaborated below.

3.1. Project-related knowledge

Outcome controls need to specify outcomes in a manner that affords little uncertainty over the outcome measurement (Turner and Makhija, 2006). This requires that controller should have complete outcome-related knowledge. Prescribing specific behaviors in behavioral control is also knowledge-based; the controller must believe that it knows better than the controlee the optimal process to follow in the specific context of project (Choudhury and Sabherwal, 2003).

Prior studies found that controller's project-related knowledge facilitates behavior control (e.g., Eisenhardt, 1985; Kirsch et al., 2002). Knowledgeable controller would be more confident to

specify the exact process the controlee should follow (Choudhury and Sabherwal, 2003). Thus, it is hypothesized that:

H1. Clients those who have a higher level of project-related knowledge would implement (a) outcome control, (b) behavior control and (c) social control to a greater extent.

3.2. Perceived legal enforceability

Legal enforceability refers to "the extent to which the enforcement of legislation and regulations is effective and the legal framework is complete in providing protection for economic transactions" (Bai et al., 2016: 13). When legal frameworks fail to protect client's interests, unlawful behaviors (e.g., contract violations) might prevail (Ho, 2001). This is because it is difficult to execute the legal process to protect against unlawful behaviors (McMillan and Woodruff, 1999).

Under this circumstance, client might resort to the social controls. Sheng et al. (2011) supported that business ties are beneficial when legal enforcement is inefficient. Zhou and Poppo (2010) reinforced that when managers do not perceive the legal system as credible, they would resort to relational reliability to safeguard transactions. When managers perceive that legal system can protect their firm's interests, they tend to use explicit contracts rather than relational reliability to safeguard hazards. Thus, the hypotheses are set out as:

H2. Clients those who perceive legal enforceability to a higher extent would adopt (a) outcome control and (b) behavior controls to a higher extent; and (c) social controls to a lower extent.

3.3. Quality performance ambiguity

Performance ambiguity is referred to "the inherent difficulty faced by the buyer in accurately evaluating the supplier's performance" (Stump and Heide, 1996:436). High performance ambiguity indicates inherent difficulties in assessing controlees' product and service performance (Anderson and Dekker, 2005; Gray and Handley, 2015) and contractual compliance (Carson et al., 2006; Stump and Heide, 1996). Therefore, controlees would limit their efforts (Zhou and Poppo, 2010), thereby problems of potential shirking might arise (Mooi and Ghosh, 2010; Wathne and Heide, 2000). This would increase client's hazards.

Three dimensions would contribute to quality performance ambiguity: low testability, low monitorability, and low root-cause assignability (e.g., Eisenhardt, 1985; Gray and Handley, 2015). As quality performance ambiguity increases, the link between quality performance and rewards would be difficult to build. Therefore, contractors would shirk in activities that affect project quality.

To cope with potential problems, formal controls might be a possible solution. For example, contracts may include provisions (i.e., extensive descriptions of roles and responsibilities) for monitoring contractor's behaviors (Argyres and Mayer, 2007). The formal approaches provide a benchmark against which contractor's behaviors can be judged to involve shirking or not.
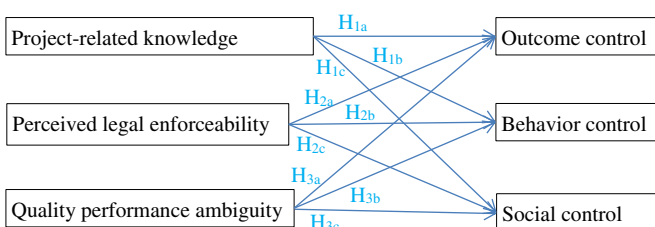

Fig. 1. Conceptual framework.

However, as the environment becomes complex, it would lead to problems relating to incompleteness of contract (Argyres and Mayer, 2007). Thus, it is argued that quality performance ambiguity may inhibit formal controls. Low testability and/or a lack of root cause assignability render great difficulties in linking quality outcome to contractor's rewards. This would in turn result in contractor's performance shirking. Low monitorabilty would also impede the effectiveness of inspects and checks, because it would complicate the link between observed behaviors and quality outcomes (Turner and Makhija, 2006). As the formal controls would be crowded out, clients would be inclined to adopt social controls to safeguard their interests. Thus, the hypotheses are set out as:

H3. A higher level of quality performance ambiguity is associated with a lower level of (a) outcome control and (b) behavior control, and a higher level of (c) social control.

4. Research methods

4.1. Research setting

We selected dwelling fit-out project controls in China as our empirical context. Fit-out refers to the process of making interior spaces suitable for occupation. The base construction is completed by the developer, and the final fit out by the occupant. Occupant (i.e. the client) appoints a decoration company as the contractor to undertake the final fit-out works. The work package may comprise interior design, construction, supply of construction material, furniture, finishes and equipment, and maintenance.

4.2. Sampling

Clients who had the experience of dwelling decoration before were approached using the purposing sampling strategy given that no official directories are available. The sample strategy might not render biased and skewed results as the sample covers a broad spectrum of family incoming, age, industries, dwelling areas, project amount and duration (see Table 1).

A total of 348 survey questionnaire were sent out between May and July 2016 with the help of local decoration association. Of these, 265 responses were received, giving a response rate of 76.1%. Such a higher response rate was attributed to two reasons. First, the local decoration association provided reliable contact information. Second, face-to-face interviews were adopted to collect the questionnaires. Despite its time-consuming, this method was effective to generate high-quality information and high response rate.

4.3. Measurements

The procedures recommended by Gerbing and Anderson (1988) were adopted to develop the questionnaire. First, 94 cases studies were initially carried out to understand industry practices. The case studies revealed that controls are important tools in managing dwelling fit-out projects. But, client still failed to

Table 1
Descriptive analysis results.

	Measurement	Frequency	Percentage
Gender	Male	167	63.3
	Female	97	36.7
	Total	264	100.0
Age	20–30	117	44.3
	30–40	104	39.4
	40–50	31	11.7
	>50	12	4.5
	Total	264	100.0
Number of family members	$\leqq 3$	158	59.8
	4	74	28.0
	$\geqq 5$	32	12.1
	Total	264	100.0
Company size	Small	84	31.8
	Medium	110	41.7
	Large	70	26.5
	Total	264	100.0
Local company	No	53	20.1
	Yes	211	79.9
	Total	264	100.0
Areas (m^2)	$\leqq 60$	9	3.4
	61–90	72	27.2
	91–120	103	38.9
	>120	81	30.6
	Total	265	100.0
Contract amount (thousand RMB)	$\leqq 50$	30	11.3
	60–100	83	31.3
	110–150	96	36.2
	$\geqq 160$	56	21.1
	Total	265	100.0
Duration (days)	$\leqq 60$	41	15.5
	61–90	130	49.1
	91–120	64	24.2
	>120	30	11.3
	Total	265	100.0

manage it properly. The dwelling decoration business is one of the low-trust sectors in China. Combined with prior studies, an initial questionnaire was developed. Second, 25 in-depth interviews with representatives from decoration companies and clients were undertaken to further refine the questionnaire. Third, the questionnaire items were pretested with six clients who had dwelling decoration experience. Feedbacks were elicited to clarify the measurement instruments and appropriateness of the terminologies. After the pre-test, the questionnaire was refined and finalized.

All the measurement items were measured with a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). Four indicators were used to measure *quality performance ambiguity*, adapted from Gray and Handley (2015). These are: 1) it is difficult to observe all quality problems through inspecting and monitoring; 2) it is difficult to determine whether quality problem is attributable to the contractor; 3) it is difficult to assess whether contractor is compliance with the contractual procedures and construction methods; and 4) it is difficult to assess whether the information provided by the contractor is reliable.

Project-related knowledge. Since there are no established measurements available for the dwelling fit-out projects, the measurement of project-related knowledge was newly developed based on the case study and interview results. It

comprised: 1) I have sufficient knowledge about the finishes, materials; 2) I have sufficient knowledge about the construction method; 3) I have sufficient knowledge about the operational procedures of dwelling fit-out projects.

Perceived legal enforceability was operationalized as: 1) when conflicts arise, the legal system protects my interests; and 2) the legal system could restrain contractor's cheating and fraud behaviors (Zhou and Poppo, 2010).

Outcome control was manifested by: 1) I specify the performance standards in contract which is seen as the basis for monitoring; 2) I specify the deadlines which are seen as basis for controlling; and 3) I strictly control and monitor the accomplishment of the targets (Heide et al., 2007).

Behavior control was adapted from (Heide et al., 2007) and operationalized as: 1) I check all material brands and quality delivered to the site in person; 2) I go to site frequently in order to monitor contractor's behaviors; 3) I request the contractor to update progress information on a regular basis.

Social control was adapted from Li et al. (2010) and Heide and Miner (1992). It was assessed by asking the respondents to indicate whether control was exercised through: 1) participatory decision-making; 2) joint problem solving; 3) fine-grained information exchange; 4) when some unexpected situation arises, we would rather work out a new deal than hold each other to the original terms; 5) we are open to modifying the agreements if unexpected events occur.

All constructs and associated measurement were refined before hypothesis testing through a confirmative factor analysis. Partial Least Square-Structural Equation Modeling (PLS-SEM) was selected because it is able to identify key driving constructs (Hair et al., 2011; Ringle et al., 2005; 2012), and has minimum demand for sample size (Reinartz et al., 2009).

5. Descriptive results

The profile of the respondents and their projects are presented in Table 1. The results show that two thirds of the respondents are males. The majority of the respondents are of the age below 40, indicating that this generation is major force in the property purchase market. Over half respondents indicated that they have three or fewer number of family members.

The results show that nearly half contractors are medium-size firms. The vast majority respondents chose local companies. Over half of the dwelling fit-out projects are of medium complexity, over 60% being below 120 m^2, over half being below 130 thousand RMB, and 65% of a construction period shorter than three months.

6. Model evaluation

6.1. Measurement model evaluation

Tables 2 to 4 show the evaluation results of the measurement models. Table 2 shows that all loadings are greater than 0.50 with t-values greater than 2.58 (Hulland, 1999). This indicates acceptable indicator reliability. A high level of reliability of internal indicators within each factor was obtained as the values

of composite reliability (CR) are over 0.7 (Bagozzi and Yi, 1988).

A satisfactory level of convergent validity of the factors was achieved by examining the values of the average variance extracted (AVE) more than 0.5. Two indicators were used to assess discriminate validity. The AVE of each factor is higher than its squared correlation with any other factors (see Table 3), and each measurement item has the highest loading on the corresponding factor (see Table 4). These together indicate a satisfactory discriminate validity of the factors (Fornell and Larcker, 1981). After LS-SEM, these results reveal that the measures in this study possess adequate reliability and validity.

6.2. Structural model evaluation and hypothesis testing

Table 5 presents structural model evaluation and hypothesis testing results. The results show that six of nine path coefficients have a t-value greater than 1.96, indicating they are statistically significant at the 0.05 level. Four hypotheses (i.e., H1$_b$, H2$_a$, H2$_b$ and H3$_a$) are supported, while two hypotheses (i.e., H2$_c$ and H3$_c$) are not supported in the hypothesized sign.

7. Discussion

7.1. Effects of project-related knowledge on control strategies

The results show that project related knowledge would increase the implementation of behavior control (H1$_b$). This is in line with prior studies (e.g., Turner and Makhija, 2006) that client's understanding of project development is a key factor of determining behavior control. A controller with greater knowledge of appropriate behaviors may be more likely to implement behavior controls (Kirsch, 1997). Choudhury and Sabherwal (2003) explained that knowledgeable controller would be more confident to specify the exact process the controlee should follow.

The results show that project-related knowledge has no significant impact on outcome (H1$_a$) and social controls (H1$_c$). Due to bounded rationality, it is almost impossible for client to anticipate appropriate performance standards. During the project, clients might also propose various change orders, which would influence the cost and schedule target as stipulated in advance. The project-related knowledge would hardly facilitate outcome controls.

Project-related knowledge has no significant impact on social controls because social control promotes trust, mutual gain and reciprocity (Larson, 1992). Building a relational contract requires developing a shared understanding of not only the necessary task knowledge (i.e., what each party is supposed to do) but also the necessary relational knowledge (i.e., what each party could do) (Gibbons and Henderson, 2012).

7.2. Effects of perceived legal enforceability on control strategies

The study found that perceived legal enforceability would increase the adoption of outcome (H2$_a$) and behavior control

Table 2
Measurement model evaluation.

Code	Indicators	Loading	T value	Parameters
PRK1	I have sufficient knowledge about the finishes, materials	0.9451	32.8936	Project-related knowledge,
PRK2	I have sufficient knowledge about the construction method	0.939	23.4497	CR = 0.9472, AVE = 0.8568,
PRK3	I have sufficient knowledge about the operational procedures of dwelling fit-out projects.	0.8919	18.7802	Cronbach's Alpha = 0.9191
PLE1	When conflicts arise, the legal system protects our interests	0.9237	68.8703	Perceived legal enforceability,
PLE2	The legal system could restrain contractor's cheating and fraud behaviors	0.9138	51.5737	CR = 0.9155, AVE = 0.8441, Cronbach's Alpha = 0.8155
OC1	I specify the performance standards in contract which is seen as the basis for monitoring	0.8901	51.6635	Outcome control, CR = 0.8974, AVE = 0.745,
OC2	I specify the deadlines which are seen as basis for controlling	0.8907	55.7438	Cronbach's Alpha = 0.8302
OC3	I strictly control and monitor the accomplishment of the targets	0.8058	20.393	
SC1	Participatory decision-making	0.7838	22.3061	Social control,
SC2	Joint problem solving	0.7985	27.2038	CR = 0.8921, AVE = 0.6233,
SC3	Fine-grained information exchange	0.8113	28.6867	Cronbach's Alpha = 0.849
SC4	When unexpected situation arises, we would rather work out a new deal than hold each other to the original terms	0.7844	24.4093	
SC5	We are open to modifying the agreements if unexpected events occur	0.7689	31.0991	
BC1	I check all material brands and quality delivered to the site in person	0.9129	4.0239	Behavior control,
BC2	I visit site frequently in order to monitor contractor's behavior	0.7265	3.4164	CR = 0.8077, AVE = 0.5888,
BC3	I request the contractor to update progress information on a regular basis	0.6368	2.8623	Cronbach's Alpha = 0.7142
QPA1	It is difficult to observe all quality problems through inspecting and monitoring	0.8885	42.5044	Quality performance ambiguity, CR = 0.912, AVE = 0.7232,
QPA2	It is difficult to determine whether quality problem is attributable to the contractor	0.9013	46.3289	Cronbach's Alpha = 0.8707
QPA3	It is difficult to assess whether contractor is compliance with the contractual procedures and construction methods	0.8827	45.6729	
QPA4	It is difficult to assess whether the information provided by contractor is reliable	0.7155	8.2749	

Note:
a: T-values for a two-tailed test are 1.65 (significance level = 10%), 1.96 (significance level = 5%) and 2.58 (significance level = 1%).
b: CR: composite reliability.

(H2$_b$). This is in agreement with Zhou and Poppo (2010) that when managers perceive that the legal system can protect their interests, they tend to use explicit contracts to safeguard transactions. Legal systems underpin contract enforcement (Zhou and Poppo, 2010) and protect clients against contractual violations (McMillan and Woodruff, 1999).

Outcome and behavior controls specify outcome and behavior targets and reward contractor based on the actual outcome and behavior performance (Eisenhardt, 1985). An effective legal system imposes regulatory pressures on contractor to follow the standards. Therefore, it protects clients from contactor's potential denial of responsibility (Bai et al., 2016).

The study found that perceived legal enforceability is positively associated with the adoption of social control (H2$_c$). This is inconsistent with Zhou and Poppo (2010) who found that

when managers do not perceive the legal system as credible, they would resort to relational reliability to safeguard transactions. This might be because when clients believe that the legal

Table 4
Cross loadings for individual measurement items.

Code	PRK	PLE	QPA	BC	OC	SC
PRK1	**0.939**	0.1237	−0.1431	0.1733	0.1399	0.1155
PRK2	**0.8919**	0.1843	−0.1641	0.1419	0.1123	0.1555
PRK3	**0.9451**	0.1634	−0.1493	0.2501	0.2026	0.2208
PLE1	0.1551	**0.9237**	−0.223	0.271	0.5231	0.4411
PLE2	0.1571	**0.9138**	−0.2447	0.2412	0.4725	0.4478
QPA1	−0.0862	−0.2592	**0.8885**	−0.1478	−0.2832	−0.2733
QPA2	−0.1629	−0.2286	**0.9013**	−0.1736	−0.2654	−0.2876
QPA3	−0.215	−0.1829	**0.8827**	−0.1692	−0.2833	−0.2531
QPA4	−0.0765	−0.1934	**0.7155**	−0.0822	−0.1857	−0.2067
BC1	0.1811	0.3202	−0.2728	**0.9129**	0.5314	0.5754
BC2	0.1692	0.0809	0.0421	**0.7265**	0.2595	0.3401
BC3	0.1627	0.1116	0.0478	**0.6368**	0.2911	0.2904
OC1	0.2088	0.5218	−0.3193	0.4535	**0.8901**	0.5633
OC2	0.0816	0.4971	−0.2364	0.4196	**0.8907**	0.4926
OC3	0.1526	0.3632	−0.2164	0.4942	**0.8058**	0.4429
SC1	0.189	0.4014	−0.2446	0.47	0.4986	**0.7838**
SC2	0.0779	0.3937	−0.1864	0.4287	0.4336	**0.7985**
SC3	0.0784	0.4063	−0.2071	0.4248	0.4861	**0.8113**
SC4	0.2155	0.3145	−0.2382	0.4844	0.4712	**0.7844**
SC5	0.1738	0.384	−0.3081	0.4512	0.4148	**0.7689**

Note: Highest loadings are shown in bold.

Table 3
Correlation matrix and square root of AVE of factors.

Code	QPA	BC	PRK	PLE	OC	SC
QPA	**0.8504**					
BC	−0.1729	**0.7673**				
PRK	−0.1631	0.2142	**0.9256**			
PLE	−0.2541	0.2792	0.1698	**0.9187**		
OC	−0.3032	0.5218	0.1726	0.5425	**0.8631**	
SC	−0.3023	0.5723	0.1865	0.4836	0.5839	**0.7895**

Note: Bolded numbers are square roots of AVE.

Table 5
Structural model evaluation and hypothesis testing results.

Code	Path	Mean	Std. Deviation	T-value	Inference
H_{1a}	PRL→OC	0.0667	0.0573	1.0823	n.s.
H_{1b}	**PRL→BC**	**0.1595**	**0.0807**	**1.9933**	**Supported**
H_{1c}	PRL→SC	0.0911	0.0541	1.5732	n.s.
H_{2a}	**PLE→OC**	**0.4887**	**0.0559**	**8.7445**	**Supported**
H_{2b}	**PLE→BC**	**0.2166**	**0.0906**	**2.5326**	**Supported**
H_{2c}	**PLE→SC**	**0.4223**	**0.0582**	**7.266**	**Not supported**
H_{3a}	**QPA→OC**	**−0.1709**	**0.0475**	**3.5546**	**Supported**
H_{3b}	QPA→BC	−0.0859	0.1394	0.6342	n.s.
H_{3c}	**QPA→SC**	**−0.1828**	**0.0607**	**2.9809**	**Not supported**

Note:

a: n.s.: non-significant; not supported denotes that the hypothesis is not accepted in the hypothesized sign.

b: critical t-values for a two-tailed test are 1.65 (significance level = 10%), 1.96 (significance level = 5%), and 2.58 (significance level = 1%).

framework could protect their best interests, they would have great confidence to implement participatory decision-making, joint problem solving and information sharing. Compared to inter-organizational relationships, clients in person-to-organizational relationships are less powered to bargain with the contractor within the legal framework. Thus, legal enforceability would reinforce their confidence about social controls.

7.3. Effects of project quality ambiguity on control strategies

Consistent with prior studies (e.g., Argyres and Mayer, 2007), the results reinforced that project quality ambiguity would decrease the use of outcome control ($H3_a$). Outcome control is achieved through specifying desired outcomes (e.g., functional requirements, milestones and cost target) and mechanisms that help measure the controlee's performance with respect to the specific outcome (Choudhury and Sabherwal, 2003). Outcome control would be effective when there is little uncertainty over the ideal outcome (Turner and Makhija, 2006). If the output quality of a project is difficult to verify, outcome-based contract would be problematic. High quality performance ambiguity indicates low testability, low monitorability, and low root-cause assignability (e.g., Gray and Handley, 2015). This would bring about significant difficulties in specifying desired outcomes.

The results showed that quality performance ambiguity is negatively associated with use of social control ($H3_c$). This is because low testability, low monitorability, and low root-cause assignability would increase client's vigilance and watchfulness. Client would distrust contractor's intentions and behaviors. Therefore, they would be less likely to adopt social controls.

The results showed that quality performance ambiguity has no significant impact on behavior controls ($H3_b$). This might be because the performance ambiguity indicates the difficulty of defining product or service performance in contract (Anderson and Dekker, 2005). However, the behavior controls require clients to specify the process to achieve the outcome clearly, and the specific process is featured by less complexity (Turner and Makhija, 2006). These two controls have different focus and conditions.

8. Conclusions

This study examined the conditions under which clients choose various control strategies. Prior studies mainly examined the inter-personal and inter-organizational control strategies. This study extended the findings to the person-to-organization control domain. Dwelling fit-out projects were selected as the empirical setting. Questionnaire-survey of clients who had completed dwelling fit-out project before was carried out.

The theoretical implication of this study is two-fold. First, this study extended the selection of control strategy literature to the person-to-organization domain and verified prior findings on how project quality ambiguity and project-related knowledge influence control strategy adoption. The study both confirmed prior results and offered additional insights. Consistent with prior studies, this study re-affirmed that in person-to-organizational transactions, project-related knowledge would increase the implementation of behavior control; project quality ambiguity decreases the use of outcome control. One important finding is found to contradict with extant studies: project quality ambiguity would decrease client's social control.

Second, this study contributed to the literature of control strategy selection by adding a new antecedent of perceived legal enforceability. The results showed that perceived legal enforceability is positively associated with outcome, behavior and social controls. Those three antecedents together presented greater explanatory power in the project control strategy selection.

The research provided important practical implications for project controls. First, it is found that only project-related knowledge would strength client's confidence on adopting behavior control, whereas project quality ambiguity would deter them from outcome and social controls. Thus, in order to manage the project effectively, having sufficient knowledge about the dwelling fit-out projects might be a solution. Clients could absorb knowledge by their own capability (e.g., study know-hows from other clients who have relevant experience and reading relevant references) or appoint a third-party to make up their weakness. The second practical implication is for the policy and regulation formulation. The results show that perceived legal enforceability plays an important role in nurturing outcome, social and behavior controls. Thus, it is important for the government to reinforce the regulatory structure to protect client's best interests.

The results should be interpreted in the context of study limitations. First, this study focused on dwelling fit-out projects as one specific type of person-to-organization context. Future studies could generalize the findings to other empirical context. Second, this study elicited client's feedbacks on control strategies. Further study can collect the information on dyadic relationships between client and contractors. This would further substantiate the research findings. Last, China is experiencing a transition from a planned economy to a market economy. Thus, the specific regulatory context and client's perception of the legal enforceability would be similar to other emerging economics, but different from the western countries. Thus, it would be interesting to carry out cross-nation comparative studies.

Conflict of interest

There is no conflict of interest.

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