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**An Empirical Study of Contractual Governance and Relational Governance  
and their Impact on Construction Project Performance**

**Peng Mengdi, Fadilah Puteh, Asiyah Kassim\***

\* Corresponding Author

Faculty of Administrative Science & Public Studies (FSPP),  
UiTM Shah Alam, Malaysia

727379217@qq.com, fadilahputeh@uitm.edu.my, asiyah@uitm.edu.my  
Tel: +8615063371336

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**Abstract**

The construction industry holds a pillar position in the national economy, but its efficiency paradox is increasingly prominent. As there are limited studies on the aspect of contract and relational, this study aims to examine the impact of contractual governance and relational governance towards project performance of construction projects in Shanghai using survey to 35 construction project owners. It was found that no contradictory relationship between contract incentives and contract adaptation in construction projects, that is, contract governance in construction projects can achieve both contract incentives and contract adaptation effects, both of which can promote project performance.

**Keywords:** Construction Project, Contractual Governance, Relational Governance, Project Performance

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**1.0 Introduction**

Benefiting from the country's rapid GDP growth and the government's focus on developing transportation infrastructure, China's construction market has grown massively in recent years. The country's rising urbanization planned major infrastructure projects, and other major development programs represent significant market opportunities and profits. China now has a much-improved investment environment, and the construction market has become increasingly accessible since the signing of the WTO in 2001. At present, the existing research on construction project governance in China mainly focuses on the introduction and essential analysis of project governance mechanisms and rarely explores the selection of project governance mechanisms and their influencing factors from the perspective of empirical research (Yan and Zhang, 2020). To date, research on project contract governance and relational governance within the construction industry is still limited. It is crucial to consider the relationship between contract governance and relational governance in the transaction governance process. Existing research has mostly focused on these two governance mechanisms independently. However, different governance mechanisms correspond to different transactions, and choosing the appropriate

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governance mechanism can help minimize post-transaction costs to a great extent. Transaction cost is determined by asset specificity, uncertainty, and transaction frequency. The logic of this transaction cost theory is known as the governance path in transaction cost theory. A construction project is a temporary organization formed by signing a contract and exploring the influencing factors and operational mechanisms of contract governance mechanisms can significantly improve project performance. Hence this study aims to examine the impact of contractual governance and relational governance towards project performance of construction projects in Shanghai.

## 2.0 Literature Review

### 2.1 Contractual Governance for Construction Projects

In the 1960s, Macneil classified contracts into three categories: classical contracts, neoclassical contracts, and relational contracts, based on contract law. He believed that contractual relationships (rather than discrete contracts) were the dominant mode of social exchange behavior. He emphasized that recognizing the embeddedness of all transactions in social relationships was crucial for developing a correct research method for any type of contract. Macneil and Williamson were two economists who noticed the difference between classical contracts and relational contracts. Adler established his transaction analysis framework based on the McNeil contract division method. However, in reality, all contracts have some "relationship" and "agency" characteristics, and pure separate contracts only exist in a theoretical sense. Macneil's relational contract theory emphasizes that contract governance and relational governance coexist in transaction governance. Contract governance emphasizes the use of complete contract theory, incomplete contract theory, and transaction cost theory to develop rigorous contract term design and strict contract performance to achieve the goals of incentives and adaptability. Relationship governance believes that the relational rules formed through long-term cooperation between transaction parties can reduce opportunistic behavior. It is a governance mechanism with lower costs than contract governance.

### 2.2 Relational Governance in Construction Projects

Construction project relationship governance refers to the effective management and resolution of the interests, relationships, and conflicts of all parties involved in a construction project, throughout its lifecycle (Warsen et al., 2019). This includes promoting good communication, cooperation, and coordination among all stakeholders during the different stages of project planning, design, construction, and operation, to achieve mutual benefits and ensure the smooth progress of the project. A construction project involves several stakeholders, such as the government, owners, contractors, designers, supervisors, construction personnel, residents, and others. Each stakeholder has their interests and rights, which can often conflict with each other due to inconsistencies in project progress, quality, cost, environmental impact, and other aspects. If these conflicts are not handled correctly, it can lead to issues such as decreased project quality, cost overruns, schedule delays, and disputes. Therefore, the objective of building project relationship governance is to establish effective communication channels and cooperation mechanisms. It promotes communication and collaboration among all parties, ensures the rationality, feasibility, and fairness of project decisions and actions, and maximizes the satisfaction of the interests and needs of all parties.

Battigalli and Maggi (2020) classify this embeddedness into two categories: relational and structural embeddedness. Relational embeddedness refers to the economic behavior of a single actor embedded in the network of relationships formed by their interaction with others and certain factors in the ongoing interpersonal relationship network. Normative expectations, the desire for mutual agreement, and the principle of reciprocity all have a significant impact on the economic decisions and actions of actors. At the same time, the network where the actors are located is connected to other social networks, forming the network structure of the entire society. Therefore, in a more macro sense, actors and their networks are embedded in the social structure they constitute and are influenced by cultural and value factors from the social structure. The social attribute of relational rules comes from their embeddedness. Anumba believes that embedding relational rules into social relationships and structures is a social norm. Social norms have self-execution, so relational contracts with relational rules as their substantive content and criteria have the characteristic of self-fulfillment. Future value expectations, trust, and reputation mechanisms are the guarantees for the execution of the relationship contract mentioned.

Through a review of relevant literature, the differences and definitions of contract governance and relationship governance can be clarified (Guo et al., 2024, Yan et al. 2020, Kujala et al., 2021). Contract governance primarily focuses on regulating cooperative relationships through clear contracts and legal provisions, with an emphasis on the clarity and enforceability of rights and obligations. Relationship governance, on the other hand, aims to address information asymmetry and reduce transaction costs by establishing trust, cooperation, and communication relationships. The interaction and relationship between contract governance and relationship governance are intertwined and influenced by each other. Contracts can play a normative and protective role in relationship governance, while relationship governance can supplement and compensate for the shortcomings of contract governance. To achieve optimal project performance, effective coordination and balance between contract governance and relationship governance are necessary. Contract governance can improve the execution efficiency and degree of cooperation in construction projects, and minimize disputes and conflicts between partners. Relationship governance, on the other hand, can enhance trust and willingness to cooperate among project partners, promote information sharing, and achieve common goals.

## 3.0 Methodology

Transaction cost economics heuristic model requires different data compared to mainstream economics. Instead of price and quantity, it needs data on organizational form and transaction characteristics, which are usually obtained through questionnaires and interviews. In this study, data related to contract governance and relationship governance of construction projects were collected through survey questionnaires from 35 construction project owners based in Shanghai. Using purposive sampling techniques, the respondents are selected based on their current construction project implementation. However, the challenge is that the data collected is only useful when it matches the transaction characteristics of the construction project. This makes identifying data sources and designing measurement methods the biggest challenges in questionnaire design and data collection. The data were analyzed using Stata for linear regression to test the impact of both contractual and relational governance towards project performance.

#### 4.0 Findings and Discussion

The uncertainty of construction projects has a moderating effect on the relationship between asset specificity and contract incentives, that is, an increase in project uncertainty will exacerbate the opportunistic risks brought about by asset specificity, thereby increasing the demand for contract incentives. The impact of construction project uncertainty on joint planning and problem-solving depends on the level of trust between both parties. When the level of trust between both parties is high, there is a positive relationship between project uncertainty and joint planning; When the level of trust between both parties is low, there is a reverse relationship between project uncertainty and joint planning. However, there is a negative correlation between project uncertainty and joint problem-solving only when the level of trust is low; When the level of trust is high, the positive relationship is not significant. There is a secondary effect between the complexity of construction projects and contract incentives. When the complexity of the project is high or low, the incentive effect of the contract is not strong, but when the complexity is between the two, the incentive effect of the contract is very significant. There is no secondary effect between project complexity and contract adaptation. The regression results between the complexity of construction projects and joint planning and problem-solving indicate that the more complex the project, the less likely it is to adopt joint planning and problem-solving. The improvement of contract governance and relationship governance in construction projects has a positive impact on project performance. Specifically, there is no opposing relationship between contract incentives and contract adaptation, that is, both contract incentives and contract adaptation effects can be achieved in construction project contract governance, and both will promote project performance. Both joint planning and joint problem-solving are positively correlated with project performance, and the correlation coefficient is large enough, indicating that the role of relationship governance in project governance cannot be ignored. In addition, there is a positive interaction effect between contract governance and relationship governance in construction projects, and their combined effect improves project performance.

The results presented in Table 1 indicate that the coefficient of contract incentives in Model 1 is positive and significant, validating the hypothesis (H0-1a) that the incentive effect of contracts is positively correlated with project performance. When considering the possibility of opportunism between both parties during the project process, increasing the completeness of the contract can significantly improve project performance. The coefficient between contract adaptation and project performance is also positive, albeit small, but significant. This means that improving the contract adaptability can have a positive effect on project performance, which validates the hypothesis (H0-1b). In this study, contract adaptability is defined as a contingency plan developed by the contract to respond to potential changes that may occur during project implementation, which increases the flexibility of the contract and enhances the project organization's ability to respond to changes in the project environment. The commonly held belief that there is an opposition between contract incentives and contract adaptation has not been confirmed in this study, suggesting that good contract governance can balance the incentive and adaptive effects of contracts. Williamson's theory states that agency theory emphasizes the incentive effect of contracts, while transaction cost theory emphasizes the adaptive effect of contracts, and the two are not contradictory. Based on Table 1 the values listed in the independent variable row in the table are standardized  $\beta$  The coefficient in parentheses represents the value of  $t$   $P < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

Table 1. Regression Results between Governance Mechanism of Construction Projects and Project Performance

		project performance (Model1)	project performance (Model2)	project performance (Model3)
Contract governance	contract incentives	0.249** (2.571)		0.154* (1.861)
	Contract adaptation	0.023* (1.321)		0.024+ (1.408)
relational governance	Joint plan		0.531*** (5.949)	0.431*** (4.939)
	Joint problem-solving topic		0.105* (1.578)	0.082* (1.220)
	$\Delta F$	3.334*	30.577***	16.419***

R2	0.225	0.325	0.344
$\Delta R^2$	0.195	0.314	0.323

**4.1 The impact of contract governance on project performance**

Contract governance is a crucial aspect of ensuring a construction project's success. It's essentially the framework for managing the contracts between various parties involved in the project, from inception to completion. The impact of contractual governance from the findings underscores some key ideas that can help improve project outcomes. It suggested that a strong foundation of trust between project participants positively impacts the effectiveness of contractual governance. Conversely, good contract design that emphasizes clear terms and fair enforcement can also help build trust throughout the project. In addition, contracts with a balance of specific terms and adaptability are more beneficial than overly rigid or flexible ones. Another area of focus is contractual control, coordination, and adaptation. Research suggests that while strong control mechanisms ensure adherence to the contract, they can hinder voluntary cooperation. In contrast, coordination and adaptation mechanisms encourage collaboration and address unforeseen circumstances more effectively. These findings highlight the importance of going beyond just a signed contract. By fostering trust, optimizing contract design, and implementing effective enforcement mechanisms, construction projects can benefit from a more robust contractual governance framework.

**4.2 Relational Governance and Project Performance**

In construction projects, the effectiveness of relationship governance can be measured through factor analysis, which considers two dimensions: joint planning and joint problem-solving. The joint plan of a project is a way to establish a unified goal system for the project and to address any conflicting interests among project participants that may harm project performance. Joint problem-solving, on the other hand, measures how project organizations perceive each other as partners, able to collaborate and negotiate to solve problems and difficulties in the project. By improving problem-solving capabilities, joint planning and problem-solving can significantly improve project performance.

**5.0 Conclusion and Recommendation**

This study extensively researched and used theoretical reasoning to determine the key factors that affect contract and relationship governance in construction projects. The study found that trust, asset specificity, project uncertainty, and project complexity are the most important factors. Trust has a significant positive impact on contract incentives and contract adaptation in construction projects. This means that an increase in the level of trust between both parties in the project helps to create more complete and flexible contracts. Trust also helps establish a unified goal system and strengthens the willingness of both parties to solve project problems together. Project uncertainty has a moderating effect on the relationship between asset specificity and contract incentives. An increase in project uncertainty will exacerbate the opportunistic risks brought about by asset specificity, thereby increasing the demand for contract incentives.

The complexity of construction projects has a secondary effect on contract incentives. When the complexity of the project is between high and low, the incentive effect of the contract is significant. However, there is no secondary effect between project complexity and contract adaptation. Additionally, the regression results indicate that the more complex the project, the less likely it is to adopt joint planning and problem-solving. Improving the contract governance and relationship governance in construction projects has a positive impact on project performance. The study found that both contract incentives and contract adaptation effects can be achieved in construction project contract governance, and both of them will promote project performance. Both joint planning and joint problem-solving are positively correlated with project performance. In addition, there is a positive interaction effect between contract governance and relationship governance in construction projects, and their combined effect improves project performance. This study proposes and verifies the impact of several key factors on contract governance and relationship governance of construction projects. It also examines how project uncertainty affects asset specificity and contract incentives, highlighting the impact of uncertainty on governance choices. The study reveals that project uncertainty plays a significant role in determining governance choices in construction projects.

There are several recommendations that can be offered through this study. The improvement of contract governance level in construction projects will improve project performance. The incentive mechanism established by the completeness of contracts and the adaptability to changes brought about by project uncertainty are two important aspects of the governance level of construction project contracts. Trust, asset specificity, project uncertainty, and project complexity will affect these two aspects. It is particularly important to establish appropriate contract incentive mechanisms and adaptive clauses based on the four characteristics of specific construction projects. In addition, construction project organizations must consider both contract incentives and contract adaptation dimensions when concluding contracts. The obvious long-term nature of construction projects requires the establishment and performance of contracts mainly through incentives, and targeted incentives are implemented for contractors, such as setting up progress awards at key control points of project progress.

Furthermore, the owners and contractors of construction projects should fully realize that the quality of the relationship between the two parties in the governance of construction projects is as important as the Completeness of the contract. Chinese culture emphasizes the importance of "harmony" and places special emphasis on the harmony of relationships. Therefore, relationship governance is particularly important for the success of construction projects in the context of Chinese culture. Contract governance and relationship governance can promote each other, and new requirements have been put forward for project managers and project management

teams of owners and contractors. They not only need to master project management skills, and improve contract governance level, but also improve coordination ability, and better grasp and handle relationships between various parties.

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## Paper Contribution to Related Field of Study

This study offers a significant contribution to the field of Project Management and Infrastructural Policy particularly for the construction industry by providing valuable insights into the impact of key factors on contract governance and relationship governance of construction projects.

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