

EXTENDED ABSTRACT

Transaction Cost Economics Model For Selecting the Governance Structure of Construction Projects

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1. Introduction

Transaction costs constitute an essential part of the costs of a construction project (Rajeh et al., 2015). One of the critical factors influencing the choice of project delivery method is the transaction cost (Whittington, 2008). Transaction cost economics has meaningful solutions to reduce transaction costs. So far, it seems that no research has examined how to choose a project delivery method based on transaction cost economics criteria. Transaction cost economics examines the governance structure of institutions based on the three dimensions of specificity, uncertainty, and frequency of transactions (Williamson, 1985). This paper examines how to select the delivery method in construction projects, using the transaction cost economics approach to determine the governance structure. Three methods of traditional (design-bid-build), design-build and construction management are investigated.

2. Methodology

2.1. Delphi study

This paper evaluates transaction cost economics variables in a Delphi survey. The Delphi survey uses a group of experts to address a specific issue that has previously remained obscure. In this paper, the opinions of 15 experts are used in the Delphi process. Essential criteria in measuring the variables of transaction cost economics from the perspective of construction industry experts are selected and scored in three rounds.

2.2. Validity of the hypotheses

To test the validity of the research hypotheses, a questionnaire is designed based on the results of the Delphi process. Eighty-four construction industry activists are interviewed and asked to answer questions about the latest projects they have participated in. In this questionnaire, the project specifications and the participants' opinions about the appropriate method of delivering their projects are asked. The proposed model for selecting the project delivery method is validated using data analysis in multinomial logistic regression.

3. Results and discussion

3.1. Criteria for selecting the delivery method in transaction cost economics

The results of the Delphi process showed that project time constraints, project investment, construction technology, project location, and human resources skills are the criteria for project specificity. Criteria for

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project uncertainty include financial, technological, volume, and behavioral uncertainty. In transaction frequency, the repetition of project activities is a measure of frequency.

3.2. Delivery method selection

Based on the results of logistic regression, it was found that the more specific the project is compared to conventional projects, the better to use construction management or design-build methods to reduce transaction costs. Also, in terms of uncertainty, the results show that by increasing uncertainty, the design-build method has better performance than the traditional method, and the traditional method is superior to the construction management method. On the other hand, with the increase in the frequency of transactions and project activities, the design-build method is preferred to traditional, and the traditional is superior to the construction management method. However, by examining the simultaneous effect of transaction dimensions in choosing the delivery method, it was found that the impact of project specificity is more than other project features, so that despite the effect of each feature independently on the choice of delivery method, uncertainty and frequency, compared to the specificity of the project, do not have a significant impact on the selection. Also, by examining the relationship between project features, it was found that there is a positive and significant correlation between project specificity, uncertainty, and frequency.

4. Conclusions

Using transaction cost economics, this paper proposed a model for choosing a project delivery method. The purpose of this model is to reduce transaction costs in construction projects. Examining the hypotheses of this study, it was found that in general, the more specific project conditions are compared to conventional projects, the more hierarchical structure of the design-build method is preferred to the competitive structure of the traditional method. Therefore, it seems that the model presented in the transaction cost economics for the selection of governance structures is mainly valid in the way of choosing the method of delivering construction projects. This paper deals with the development of transaction cost economics in the management of construction contracts.

5. References

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