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Key attributes underpinning different markup decision between public and private projects: A China study

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Abstract

In the construction industry, contractors have to improve the efficiency of markup decision-making to survive from fierce business competition. The effect of client type on markup decision has been aware in previous studies and contractors are advocated to take account of decision factors properly when they are confronted with different types of projects. Nevertheless, the rationales behind the inclusion of different factors in markup decision-making for different projects are unknown. In this study, fifty-three factors were identified after extensive literature review and interviews with professionals. The identified factors were afterwards grouped under the headings of nine attributes and compiled in a questionnaire for survey in China. Using the Hotelling's T-square test, it is found that three attributes (i.e., project characteristic, client characteristic, and macro condition) can explain the effect of client type on contractors' markup decision. The research findings provide useful insights into the cognition of bid pricing as well as the improvement of bidding efficiency. While the research works were situated in China, contractors in other countries could benefit from the research findings in a similar vein.

Keywords: Bidding; Markup decision; Decision factors; Competitiveness; China

1. Introduction

Previous studies have shown that managerial decision-making usually lasts several minutes and only ten percent of the decision-making activities exceeds one hour's duration (Mintzberg, 1971). The short period of time given to decision-making spells out the prominent role of both intuition and experience in business management. Managerial decision is in nature triggered from individuals' sentiment, psychology and emotion, and it can be made in a dissimilar way subject to personal divergence. Hence, both the extent to which managerial decision adheres to cognition and the discrepancy between cognition and decision-making deserve much attention in the discipline of management science.

This is the case in the construction industry. In this industry, competitive bidding has gained burgeoning popularity of awarding construction contracts (Christodoulou, 2010). The main tenet of construction bid decision is to price contracts competitively to strike the trade-off between competitiveness (i.e., pricing as lowly as possible) and profitability (i.e., pricing as highly as possible) (Chapman et al., 2000; Dawood, 1995). Bid pricing is a complicated and time-consuming process of decision-making, as there are many determinants related to project characteristic and economic situation that cannot be interpreted easily (Chua et al., 2001). The complexity of pricing activities necessitates a proper cognition of bidding business.

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Along this strand of thoughts, a large volume of literature has addressed the subject of construction bidding from the perspectives of contract type (Drew and Skitmore, 1997), industrial experience (Fu et al., 2003), competitiveness (Lu et al., 2008), bid/no bid decision (Bageis and Fortune, 2009; Egemen and Mohamed, 2007), and markup decision (Christodoulou, 2010). Nonetheless, contractors in practice appear to make bid decision subjectively, and intuition that can be derived from a mixture of gut feelings, experience and guesses seems to precede quantitative approaches (Ahmad, 1990; Chua et al., 2001; Lowe and Parvar, 2004). Therefore, whilst the subject of construction bidding has been explored at full length, the discrepancy between cognition and decision-making may be found in the sphere of construction business competition.

Recent years have witnessed academic disputes over the factor of client type in relation to construction bidding. On one hand, it has been emphasized that client type is a typical markup decision factor (Akintoye, 2000; Fayek, 1998; Ling and Liu, 2005; Phillips et al., 2008). This factor, in the view of Flanagan and Norman (1982b), has a major impact on contractors' bidding behaviors. As echoed by Bageis and Fortune (2009), client type (public/private) ranks third in the minds of contractors when they are making decision on markup size. In accordance with these prior studies, different types of clients may have different requirements and expectation, and contractors have to manage construction projects differently (Egemen and Mohamed, 2006). On the other hand, a negligible role of this factor has been reported in some other studies in the same vein. Watt et al. (2009) asserted a slight difference between public and private clients in the categories used to select suppliers. Wong et al. (2000) claimed that clients, whatever public or private, may adopt equivalent approaches to measure the competitiveness of contractors. Furthermore, the prevalence of public–private partnerships (PPP) in construction project procurement reflects that both public and private clients are manageable to achieve common project goals. Behind PPP-based projects are business agreements between a public entity and a private partner to secure the financing, construction, and operation of a public infrastructure (Regan et al., 2011). To summarize, the ongoing disputes over the effect of client type on bid decision signify that the questions whether and why markup decision-making should be handled differently between public and private projects remain inexplicit.

The aim of this study is therefore to investigate the rationales behind contractors' markup decision for different types of clients. Data for analysis were gathered from the Chinese construction industry. The study is expected to assist both clients and contractors in improving the cognition of bidding, thus bid decision can be made in due ways. It is vitally important that clients, whoever public or private, can receive value for money through the smooth running of a competitive tendering mechanism (Drew and Skitmore, 1992). In reverse, business failures might arise when "the identity of client" has not received much attention (Odusote and Fellows, 1992). The remainder of the paper is organized into eight sections. Section 2 and Section 3 present relevant theories on contractors' markup decision. Section 4 introduces competitive bidding practices in China. Research methodology and data analysis are described respectively in Sections 5 and 6. Findings and discussion are addressed in Section 7. The last section concludes the research.

2. Key factors affecting markup decision

The shift of contractor selection philosophy from "lowest-price wins" to "multi-criteria selection" has appealed to contractors to innovate business paradigm in a timely fashion. In the lowest price approach, value for money is difficult to secure (Holt et al., 1995), as the overemphasis on construction cost is unbeneficial to the attainment of combined project goals (e.g., schedule, quality, environment, and social responsibility) (Lo et al., 2007). In the multi-criteria approach, the bottom line of tendering is to determine most competitive contractors to satisfy the multi-dimensional demands of clients. Clients' diverse demands are formed in some specific industrial environments, which according to Newcombe (1990), have two layers of determinants in common. One refers to general environment factors such as politics, law, economics, sociology and technology; and the other is competitive environment factors including finance, plant, labor, management, suppliers, subcontractors, consultants, and clients. There is no doubt that different types of clients may place emphasis on different environmental factors, and contractors' bidding behaviors should be adjusted accordingly.

Pricing bids efficiently favors contractors to outperform competitors and to make a profit (Egemen and Mohamed, 2006; Oo et al., 2008b). In practice, contractors first estimate the possible cost of resource elements including labor, equipment and materials, and then give a marginal rate to formulate a bid price (Shash, 1993). Within a limited timeframe for bidding, contractors are inclined to choose those projects on which they have the strength of pricing (Oo et al., 2008b). The empirical study by Aibinu and Pasco (2008) have demonstrated that the estimates of smaller projects are more subject to bias than those of larger projects, and the pre-tender building costs are more often overestimated than underestimated. Such estimate difference is attributable to the effect of bid pricing factors. As disclosed by Elhag et al. (2005), in addition to the experienced-based nature of pre-tender cost estimation, the key factors determining cost estimation include client characteristic; consultant and design parameters; contractor heterogeneity; project characteristic; contract procedures; procurement methods; and market condition. Nevertheless, the main challenges in bid pricing arise from the determination of markup size (Dawood, 1995). Drew and Skitmore (1992) stated that markup decision should take account of contingency, while subsequent studies (e.g., Christodoulou, 2010; Shash, 1993) have complemented with two factors — office overhead and profit. Through an extensive literature review, a larger amount of markup decision factors are given in Table 1. Given the complexity of markup decision factors as shown in Table 1, a proper understanding of markup is a prerequisite to successful bid pricings.