

論文の内容の要旨

論文題目 **Three Essays on Public Procurement Auctions**
(公共調達における入札制度に関する 3 本の論文)

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In this dissertation, we empirically analyze public procurement auctions in terms of price and quality. For our empirical analysis, we exploit a data set obtained from the record of the Ministry of Land, Infrastructure and Transportation (the MLIT) in Japan. The data set includes not only information at the time of bidding but also information on ex post performance after the completion of work.

In the first chapter, we empirically examine the effects of scoring auctions in which each bidder submits quality besides price. We develop a structural model to quantify the benefits of scoring auctions over price-only auctions and estimate it using a dataset of price-only auctions including information on the quality of work in each contract. We provide two sources of potential benefits of implementing scoring auctions and assess the effects of scoring auctions for two work projects which differ in the complexity and the size of a project. We show that under a scoring auction, the quality of work improves by more than 10% and social welfare increases by 2-7%.

In the second chapter, we quantify the benefits of open auctions over invited auctions to investigate the effects of relaxing entry regulations in terms of price and quality. In public-works procurement, invited auctions lead to repeated participation of particular firms to ensure the quality of work, while open auctions relax entry regulations to enhance competition and reduce price. We exploit a nationwide policy change and data including information on ex post performance such as the quality of construction works reviewed after the completion. The policy change and data enable us to show that under scoring auctions considering quality besides price, open auctions reduce cost overruns and delay in completion by more than 10% without worsening the quality of work.

In public-works procurement, cost overruns frequently arise because initial

specifications and plans are changed during construction. In the third chapter, we develop a structural auction model in which ex-post renegotiation arises after the end of an auction and the cost overrun is an incentive scheme to induce the contractor's effort for improving the quality of work. We quantify the impacts of cost overruns on the quality of construction works and social welfare by using a data set including information on the final payment and the quality of work reviewed after the completion of work. In counterfactual experiments, we find that the welfare loss is 40% when cost overruns are reduced by 50%.