

The Effect of Small Business Set-aside Program in Construction Procurement Auctions

Jun NAKABAYASHI*

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Abstract

This paper provides the first systematic analysis of small business set-aside programs in the public procurement auctions. The redistribution arising from such programs might be seen as introducing some unacceptable costs to the government. To measure how much the program increases procurement costs, structural estimation is conducted in the paper using data on Japanese public construction projects, in which approximately half of the procurement budget is reserved for small and medium enterprises (SMEs) under the set-aside program.

There are two novel features in the structural estimation in this paper. First, the bidders' costs are recovered from observed bids by nonparametric estimation of asymmetric first-price auctions with affiliated private values. It allows us to examine the profitability difference between large firms and SMEs without any *ex ante* restriction on the bidders' cost distribution. Second, a model of entry game is constructed to do a counterfactual simulation, illustrating how many SMEs would stay out of the auctions were the set-asides to be eliminated.

I found that there is a small but statistically significant difference in production costs between large firms and SMEs. This productivity difference yields a non-trivial difference in profitability between the two groups of bidders; the expected payoffs of SMEs would be approximately 30 percent lower than those of large firms if both competed on level playing field. The simulation study suggests that, were the set-asides to be removed, approximately 30 percent of SMEs could be discouraged to participate in the auctions due to the disadvantage in profitability. The resulting lack of competitions may drive up the procurement costs. The conclusion also provides an economic rationale on why some countries opt out of SMEs from the Government Procurement Agreement of the World Trade Organization.

Keywords: procurement auctions, small business set-asides, nonparametric estimation

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*Ph.D Candidate, Department of Economics, The Ohio State University, 375A Arps Hall, 1945 North High Street, Columbus, OH 43210. Tel.: (614)247-8718, e-mail: nakabayashi.1@osu.edu.