

The Winner's Curse as a Driver of Cost Overruns in Public Construction Projects

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Abstract

In this study we collect data from 148 public tenders of medium and large construction projects. In these projects, the tender issuing body is a public agency that also estimates the true cost of the project before the bidding process begins. Bids are publicly open to contractors that meet certain criteria, and the lowest bid wins the contract. Construction is supervised by project managers employed by the public agency. For each project, we computed the average bid as the average of all the valid bids. The mean of the average bids was almost identical to the mean estimated cost. This result is known as the wisdom of the crowds. Since the winning bid is the lowest valid bid, by corollary of the wisdom of the crowds it also implies the winner's curse. On average, the winning bid was 8% lower than the estimate cost. However, the actual payments to the contractor were, on average 16% greater than the estimated cost. These cost overruns imply a pendulum swing, i.e., that the winning contractor is able to pendulate their loss into a gain. Indeed, that fact that construction projects are beleaguered with cost overruns is well known. Researchers and practitioners have tried numerous ways to explain the causes for cost overruns and explore ways to prevent them. For the particular case of a public agency that employs project managers who interact with the winning contractor, we argue that the motivation for cost overruns can be explained using a game theory model that describes the interaction between the project managers and the winning contractor. The current workplace culture as well as the tender method results with an outcome that leads to cost overruns to the detriment of the public. By expanding the game to include the public agency as a first mover player, we show how the combination of changing both the workplace culture and the tender method can result in a second period game between the project managers and the contractors with an equilibrium outcome that is more beneficial to the public.