Detection Model for Unbalanced Pricing in Construction Projects: A Risk-Based Approach

Abstract

Unbalanced pricing of bid line items is considered an undesirable practice by owners and may lead to rejection of the bid on the basis of nonresponsiveness to the bidding regulations. This paper presents the development of a detection model to help owners detect objectionable unbalanced bidding. The proposed model quantifies the risk afforded by deviations of the actual quantities of work from the estimated quantities of the bid line items. The proposed model also considers the impact of multiple uncertainties in line item quantities on the owner’s total project cost based on the unit prices submitted by all the bidders for the project. Historical deviations from the estimated quantities during previous construction projects are used as an indicator of future fluctuations in the estimated quantities. The proposed model allows uncertainty in the quantities of work to be incorporated into the bid evaluation stage to assess each bidder’s likelihood of being the truly lowest bidder (i.e., yielding the lowest cost to the owner). An application example, based on actual bid results submitted to the California Department of Transportation, was used to illustrate the effectiveness of the model in detecting objectionable unbalanced bids. The model is expected to provide much needed support for owners in the bid evaluation stage and to reduce the controversy around unbalanced pricing because it targets material unbalancing rather than the whole practice of unbalanced pricing.