

Road Construction

Road construction contracts in the state of Florida are awarded on the basis of competitive, sealed bids. The contractor who submits the lowest bid price wins the contract. During the 1980s, the Office of the Florida Attorney General (FLAG) suspected numerous contractors of practicing bid collusion (i.e., setting the winning bid price above the fair or competitive price in order to increase the profit margin). By comparing the bid prices (and other important bid variables) of the fixed (or rigged) contracts to the competitively bid contracts, FLAG was able to establish invaluable benchmarks for detecting future bid-rigging. FLAG collected data for 279 road construction contracts. For each contract, the following variables are measured:

- **Price:** price of contract bid (\$) by lowest bidder
- **Fair:** Department of Transportation (DOT) engineer's estimate of fair contract price (\$)
- **Ratio:** Ratio of low (winning) bid price to DOT engineer's estimate of fair price
- **Status:** Status of contract (1 for fixed, 0 for competitive)
- **Dist:** District (1, 2, 3, 4, or 5) in which construction project is located
- **Bid:** Number of bidders on contract
- **Day:** Estimated number of days to complete work
- **Len:** Length of road project (miles)
- **Pla:** Percentage of costs allocated to liquid asphalt
- **Pb:** Percentage of costs allocated to base material
- **Pe:** Percentage of costs allocated to excavation
- **Pm:** Percentage of costs allocated to mobilization
- **Ps:** Percentage of costs allocated to structures
- **Ptc:** Percentage of costs allocated to traffic control
- **Sub:** Subcontractor utilization (1 for Yes, 0 for No)

The goal of the analysis is to build a model for the low-bid price (y) as a function of the most important features among the independent variables listed above.