



Shanghai License Plate Auction Study

By Chang Feng, Caroline Zhao, Yijing Wang

Background

Shanghai Auction Format 1986-2008

- ❖ bidders could only bid once, and winning bidders paid their own bids, and cutoff (lowest accepted bid) was announced after each auction

Shanghai Auction Format After 2008

- ❖ Motivation: To reduce license plate price and maximize efficiency
- ❖ Initial bid phase: bidders could submit an initial bid while observing the lowest accepted bid at that point
- ❖ Bid revision phase: within a 30-minute period, bidders may revise up to two bid changes
 - ❖ restriction: revised bids must fall within a narrow price window (around \$50) of the lowest accepted price

Data Gathered

Average Bid

Minimum Bid

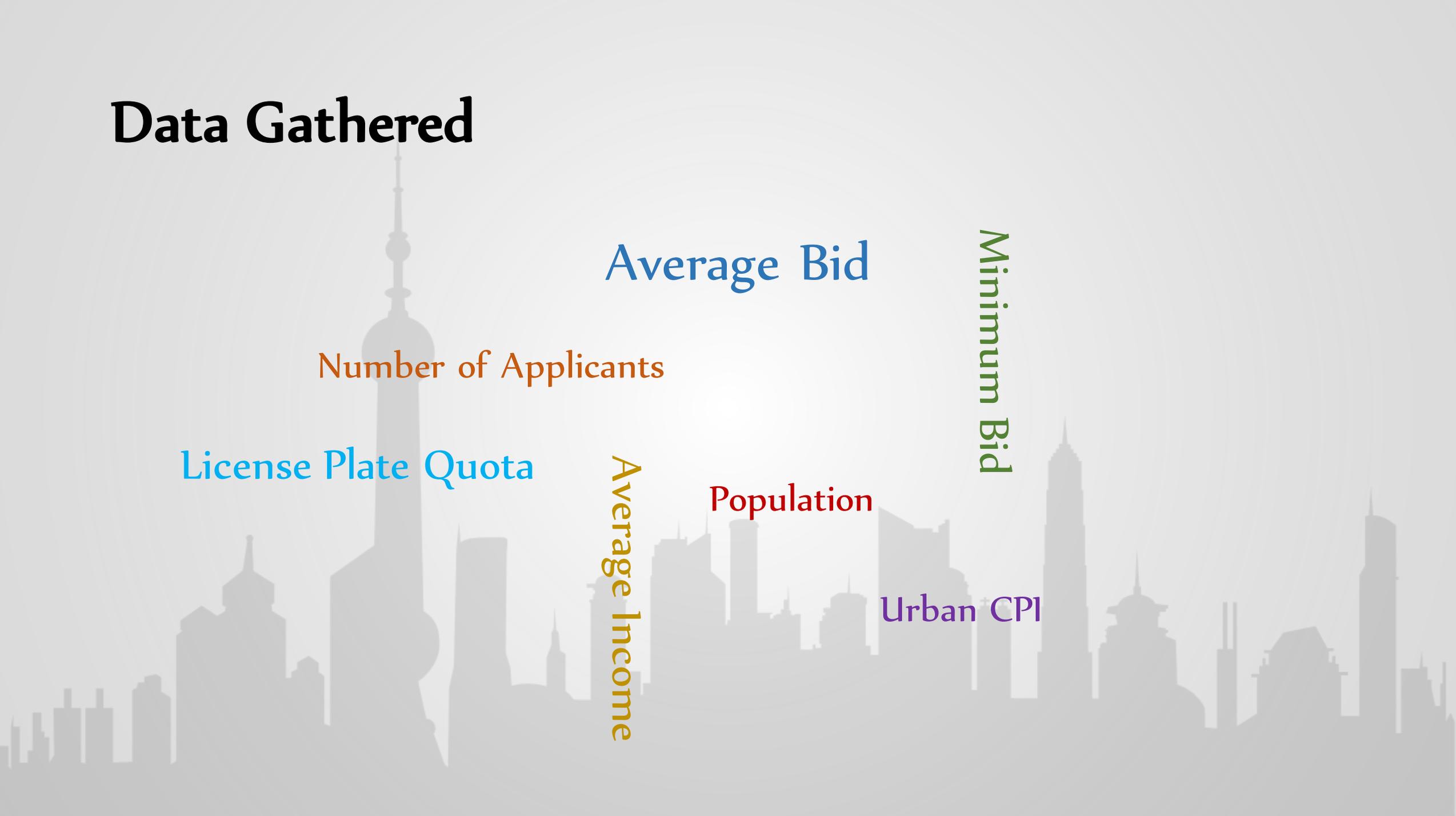
Number of Applicants

License Plate Quota

Average Income

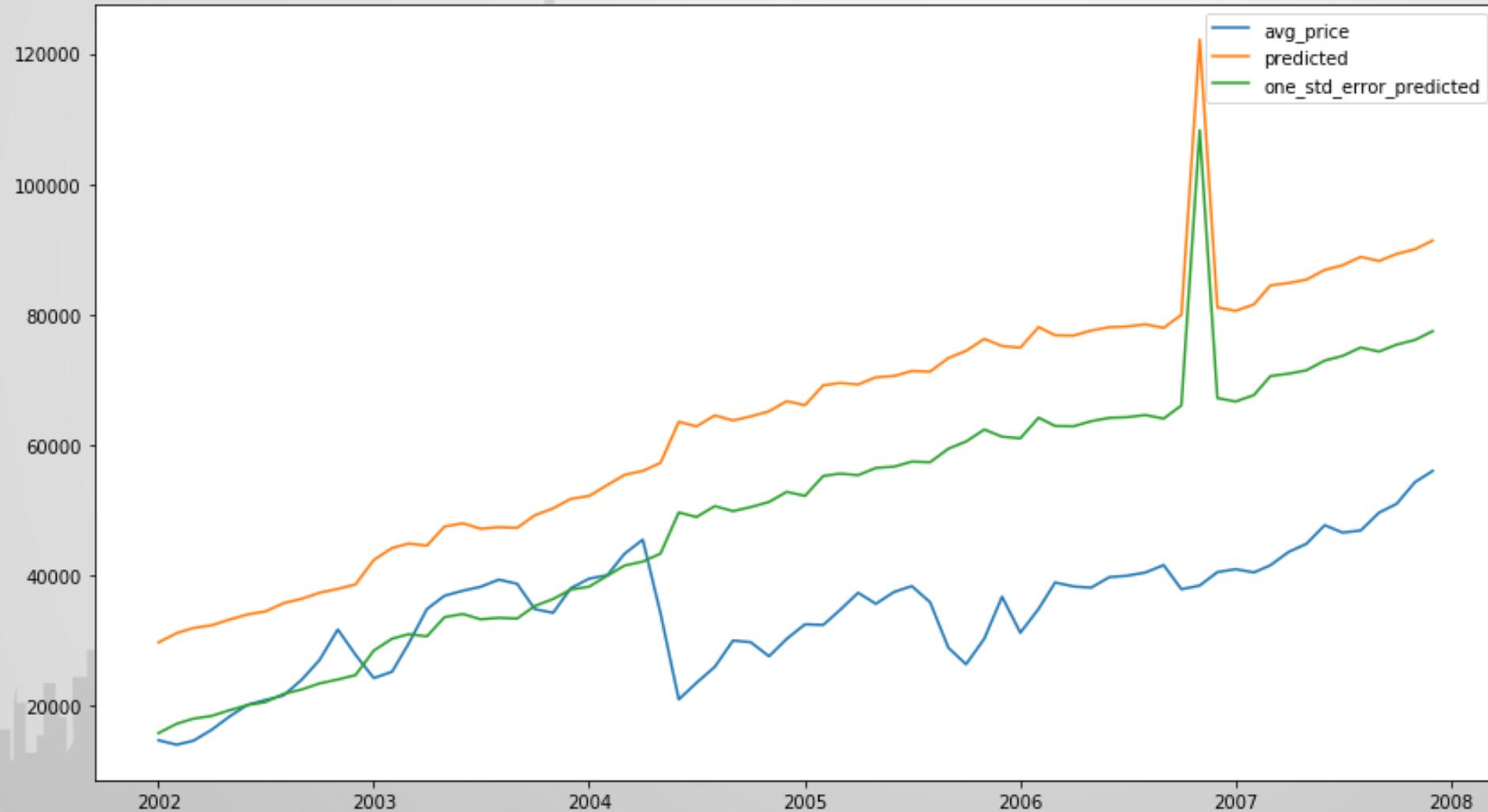
Population

Urban CPI



SVR Model with linear kernel

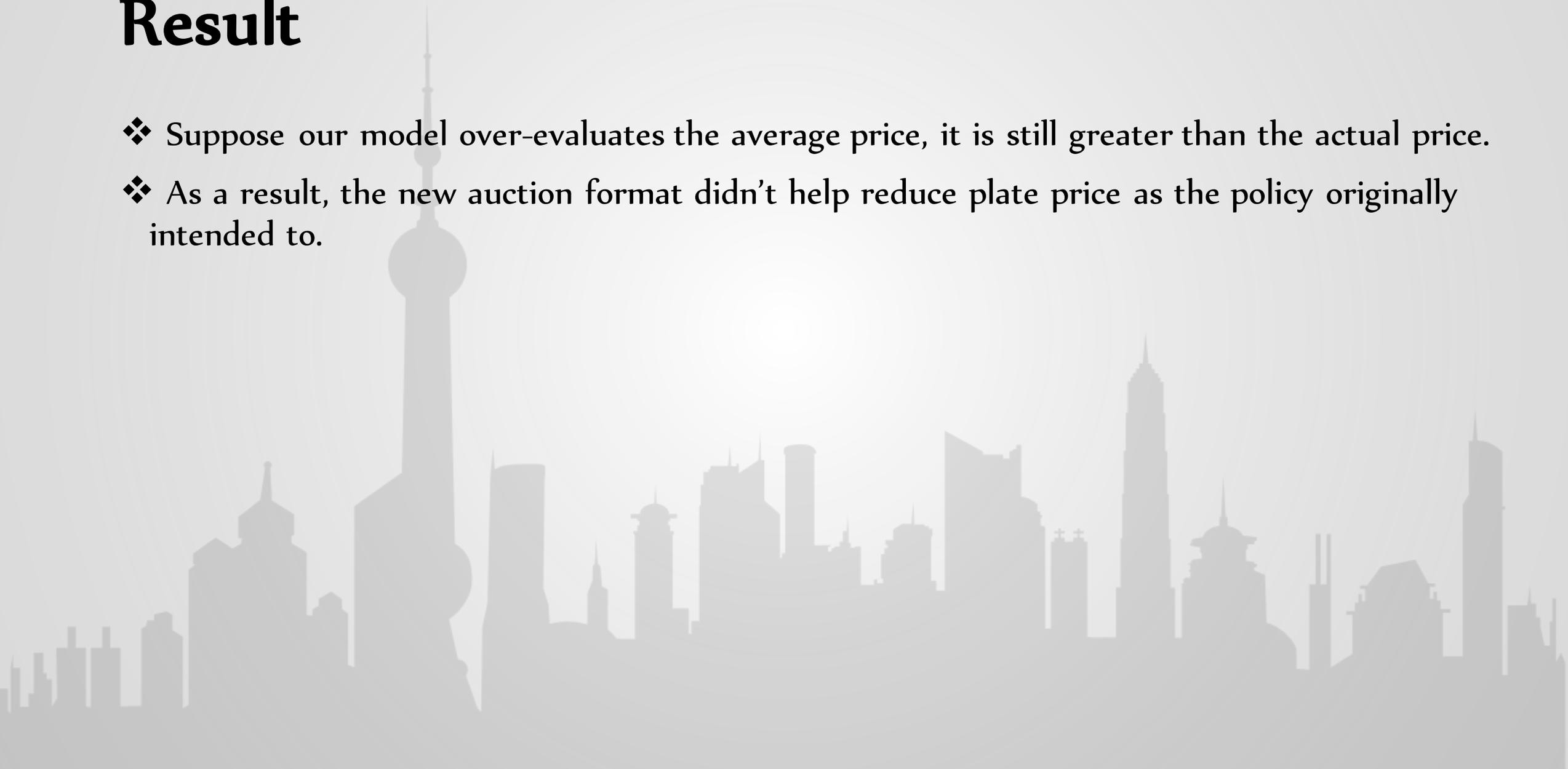
We created a model based on data from 2008 to 2018 to predict average price, and used that model to fit data from 2002 to 2008.



Cross Validation
mean RMSE: 8596
Standard deviation: 5489
About 15% error

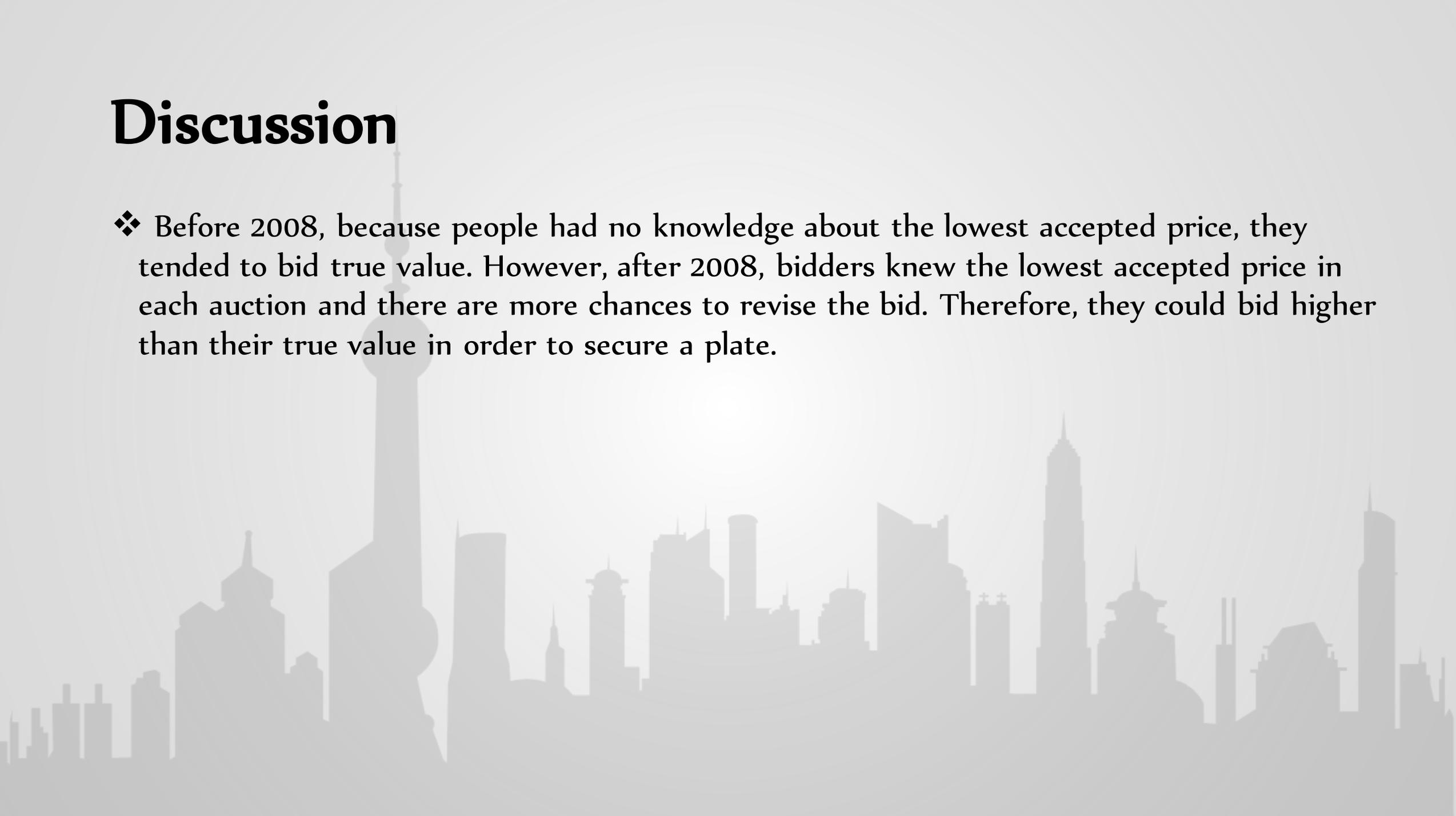
Result

- ❖ Suppose our model over-evaluates the average price, it is still greater than the actual price.
- ❖ As a result, the new auction format didn't help reduce plate price as the policy originally intended to.



Discussion

- ❖ Before 2008, because people had no knowledge about the lowest accepted price, they tended to bid true value. However, after 2008, bidders knew the lowest accepted price in each auction and there are more chances to revise the bid. Therefore, they could bid higher than their true value in order to secure a plate.





THANKS!