Spec-Spex

Project 2 / Annelise Holverstott

The problem

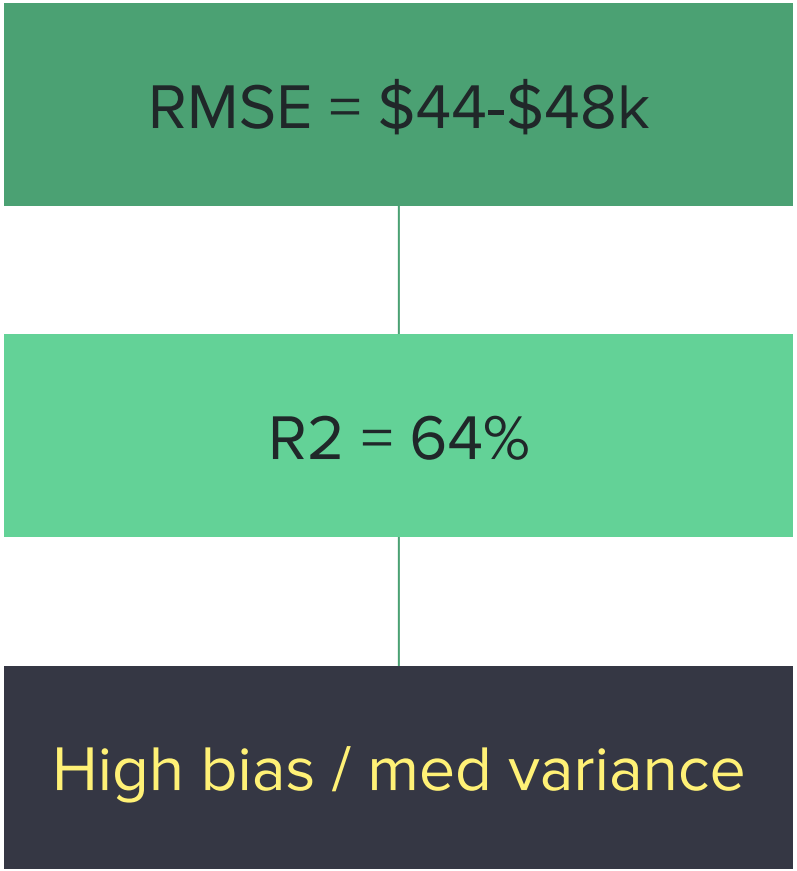
Architects and other building professionals with “spec” house projects are flying blind when it comes to acquiring land and setting the program of the house. The following models help make decisions about what kind of lot characteristics and home features really increase the final sale price of new houses in Ames, IA.

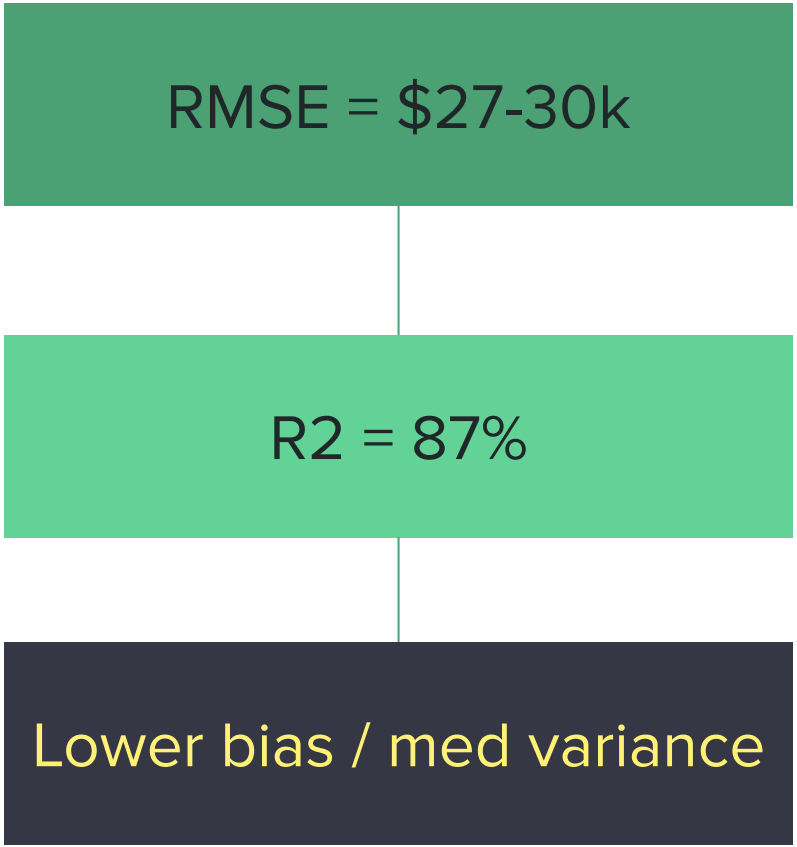
The Spec-Spex Models

- Multiple models depending on your business needs
- Easy-to-understand linear regression models combined with the feature-selection power of LASSO
- RMSE scores within $25k

The Lots Model

- Baseline Model
- Certain neighborhoods are associated with much higher or lower home prices
- Steep lots increase sale price about $40k compared to level lots
- Cul-de-sac lots increase sale price almost $13k over corner lots





The House Model

- Linear Regression Model
- Home characteristics selected using LASSO
- General living area is worth around $40/sf
- Overall Quality of the house increases sale price about $15k per grade (1-10 rating)
- Ridge and LASSO versions of the model get similar results

Building Materials Matter

Roof Materials

A membrane roof or shingles can increase sale price compared to a clay tile roof

Foundation Type

A poured foundation can increase the sale price almost $5000 compared to a brick foundation

Exterior Walls

Masonry veneer increases sale price around $22 per sf of veneer; siding decreases sale price

Extras

A fireplace can increase the sale price by around $14,000. An extra bathroom - $6700.

Conclusions

- Lots-only model has some insights to offer, but house model performs better
- With more data, we can focus on new/newly remodeled houses only
- Overall quality of materials and house square footage are keys