

# PS9 *Gillingham*

Andrew Gillingham

April 2019

## 1 Introduction

The optimal  $\lambda$  I got was 0.00751 and the RMSE.test was 0.19957

For the ridge regression the optimal  $\lambda$  was 0.0157, the in-sample RMSE was 0.19258 and the out-of-sample RMSE was 0.19258.

Finally for the elastic net model the optimal  $\lambda$  is 0.0056 and the RMSE in-sample is 0.1936 and the out of sample RMSE is 0.1926.

A simple linear regression model would not work for the housing.train data frame because it uses multiple types of variables that need to be categorized. Based on the RMSE of the different models I would say that the model is on the low variance, high bias side because of how low all of the values are. There isn't a lot of variance so it isn't going to differ from the training data.