



Finindex: Forecasting and Validating Cryptocurrency Price Using Blockchain Statistics

SDS 358: Final Project

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Background

Methods

- Open-source data for 9-month window
- Predictor variables
 - Block Count
 - Transaction Count
 - Address Count
 - Fear and Greed
 - Google Trends
- Response variable: price in USD

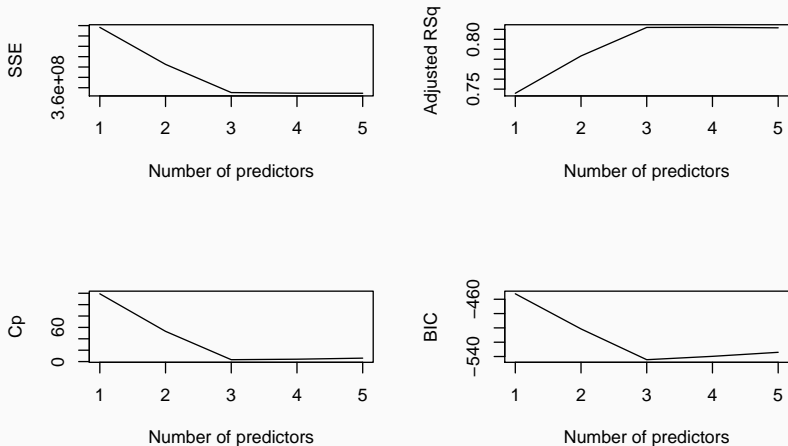
- Best Subsets Technique: minimize C_p , BIC, SSE; maximize adjusted R^2
- Study theoretical effects between predictors to consider adding interaction terms
- Center predictors based on VIF values to reduce multicollinearity

- Training-Test Paradigm
 1. Divide data into 70-30 ratio of training and test data
 2. Train model on first 70% (6 months)
 3. Predict remaining 3 months, compare to test data and calculate MSE
- Compare correlation of “classic” *finndex* (normalized weighted average) with price and “modified” *finndex* (normalized output of MLR model) with price

Results

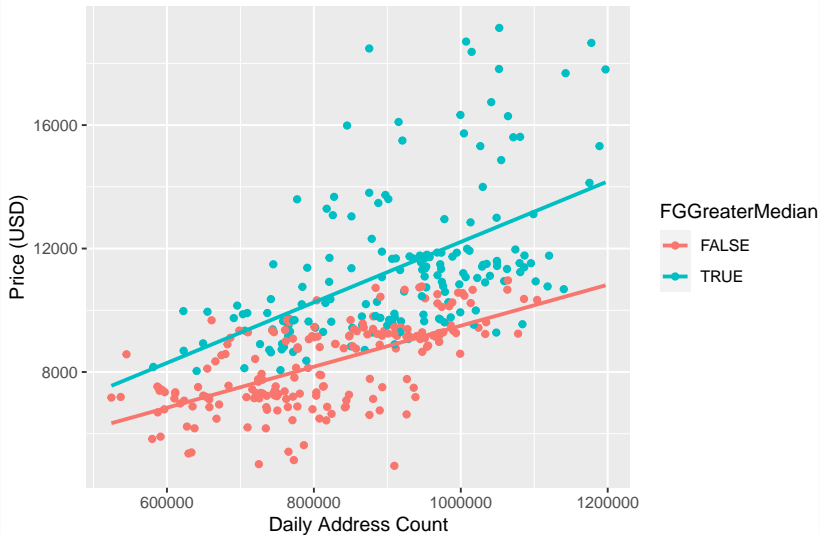
Best Subsets Model

Best Subsets Parameters Based on Number of Predictors

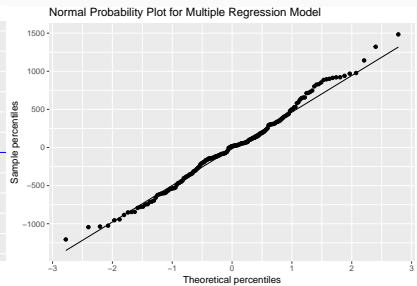
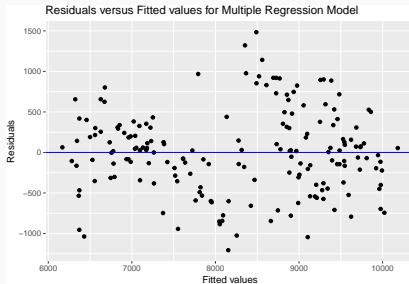


Interaction Check

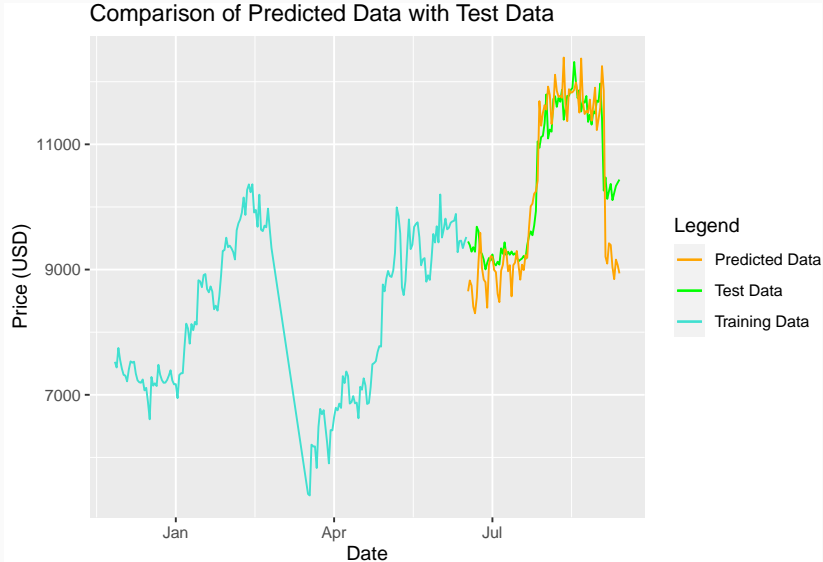
Bitcoin Price v.s. Address Count, filtered by Fear and Greed



Hypothesis Testing



Model Validation



- Classic *finindex* correlation with price: 0.516
- Modified *finindex* correlation with price: 0.935

Discussion & Conclusions

Discussion & Conclusions

- Hypothesis that MLR can be applied to cryptocurrency predictions validated by MSE, graphical comparison, hypothesis testing
- Model not date-centric: can be used to forecast wide array of future conditions
- Serving as leading indicator of price, MLR *finndex* can be valuable tool for investors or currency traders
- Numerical means of getting pulse on cryptocurrency sentiment can allow easy comparison of *altcoins*: next step