ECON 5821 Final Project Report

1. Data Processing

Calculate the inflation rate through PCE. And convert the data set into time series format.

2. One Month Ahead Performance

2.1 LASSO

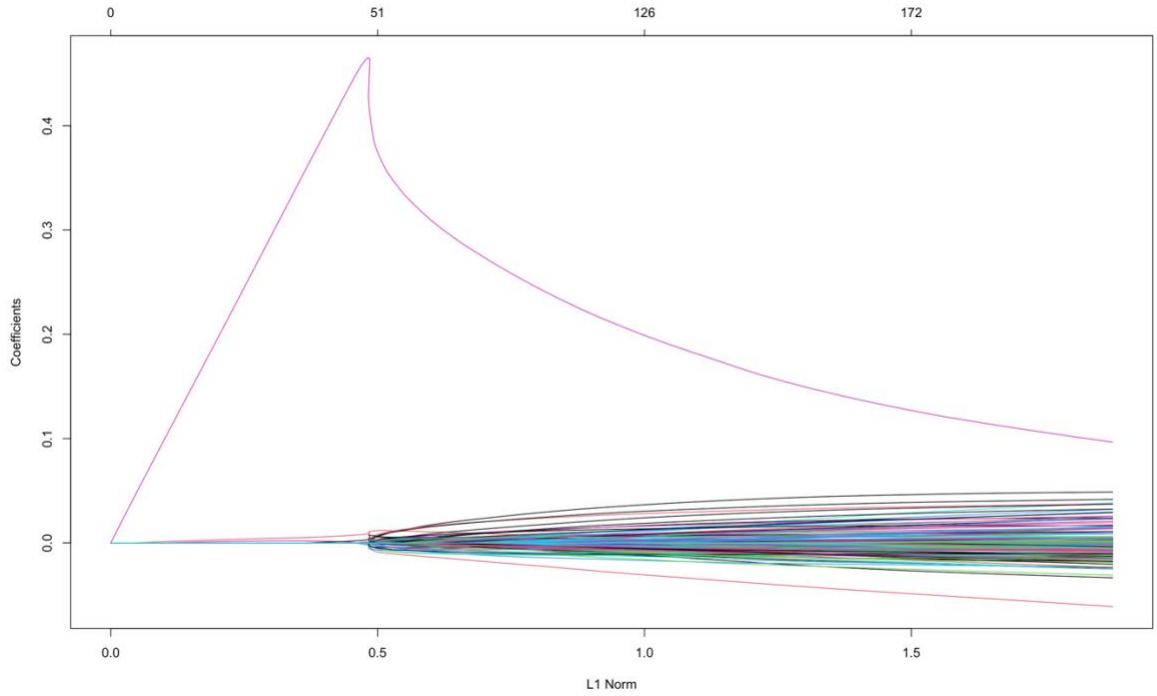
RMSE: 0.10910237

MSE: 0.01190333

R-Squared: 0.30352112

MAE: 0.08967138

Plot



2.2 Gradient Boosting

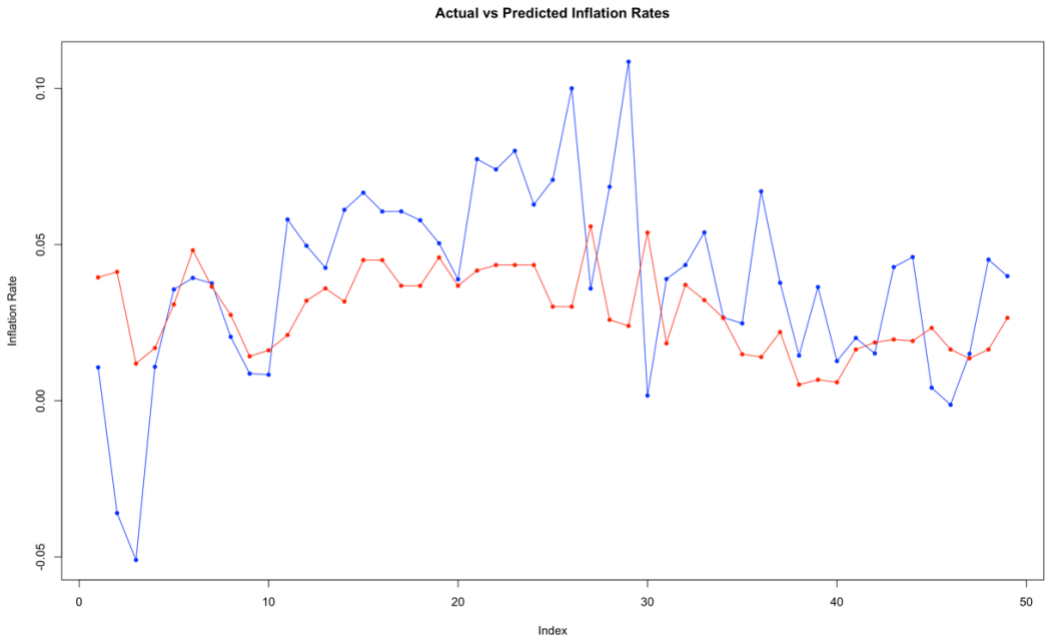
RMSE: 0.0306310799131638

MSE: 0.0009382631

R-Squared: 0.0962825654736979

MAE: 0.0230996860837446

Plot



2.3 Random Forest

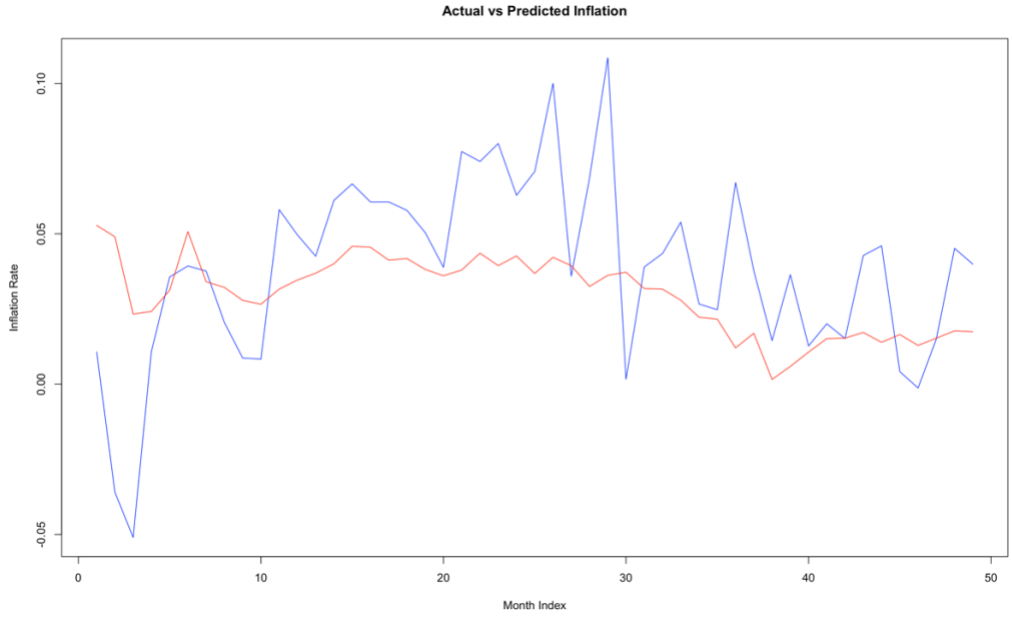
RMSE: 0.03002091

MSE: 0.000901255

R-Squared: 0.10542571

MAE: 0.02287436

Plot



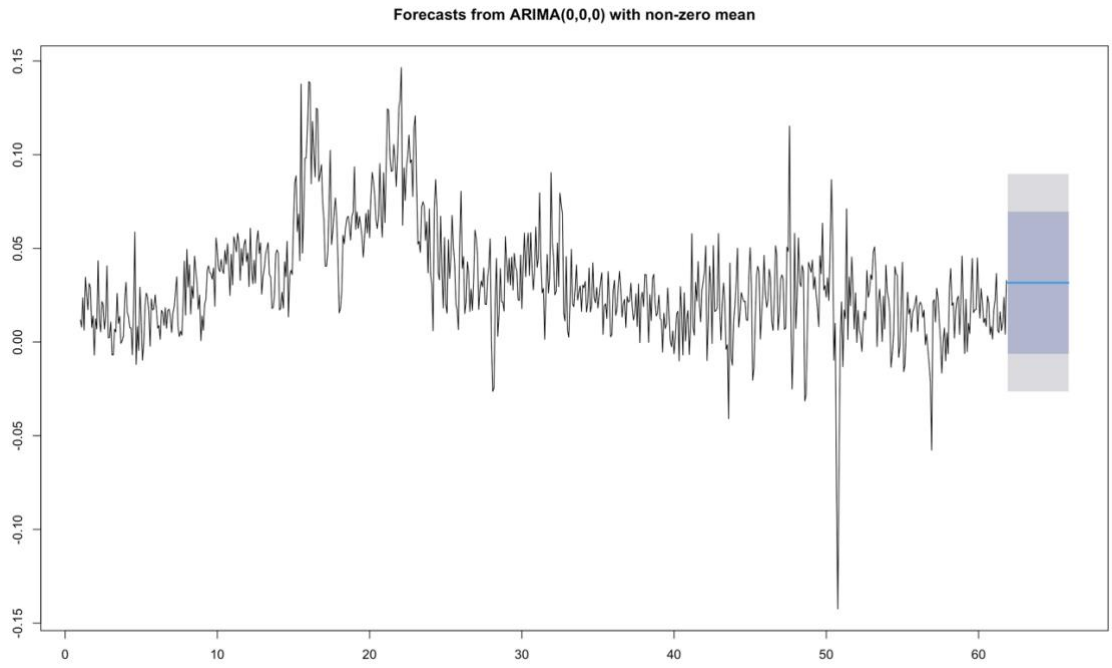
2.4 AR (1)

RMSE: 0.02959792

MSE: 0.0008760369

MAE: 0.02181009

Plot



3. Three Months Ahead Performance

3.1 LASSO

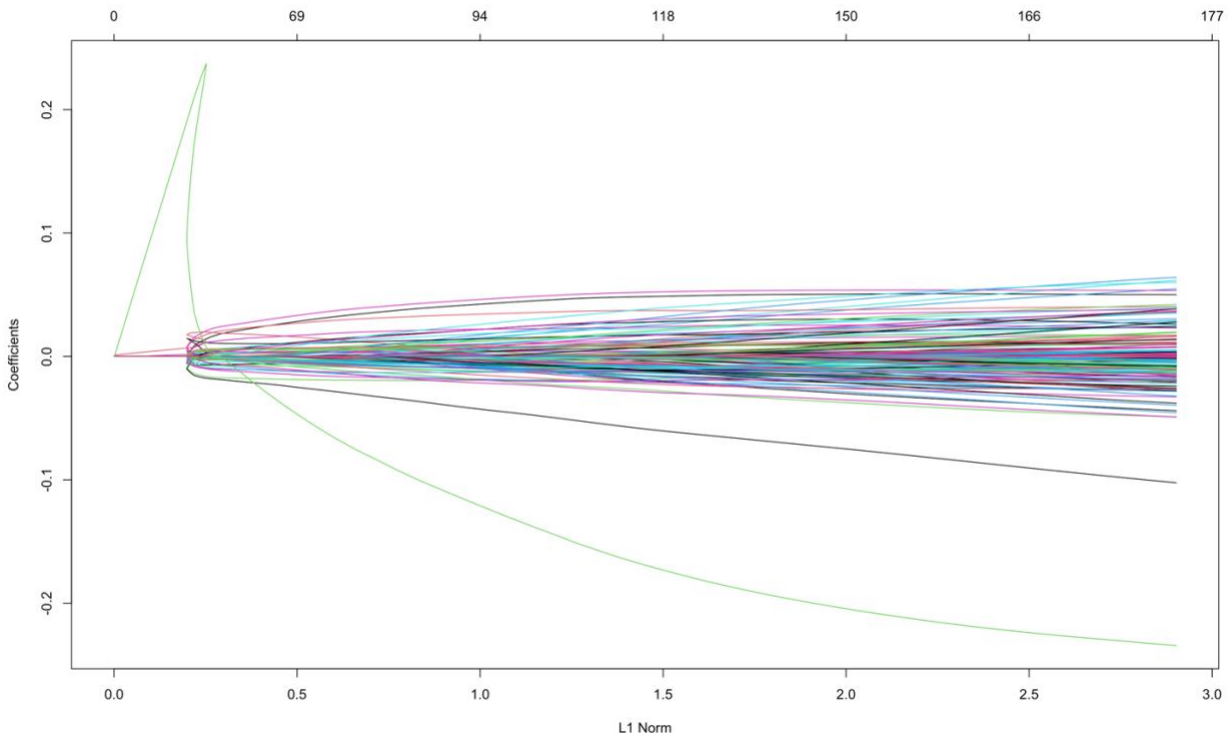
RMSE: 0.1400659

MSE: 0.01961846

R-Squared: 0.3009275

MAE: 0.1176360

Plot



3.2 Gradient Boosting

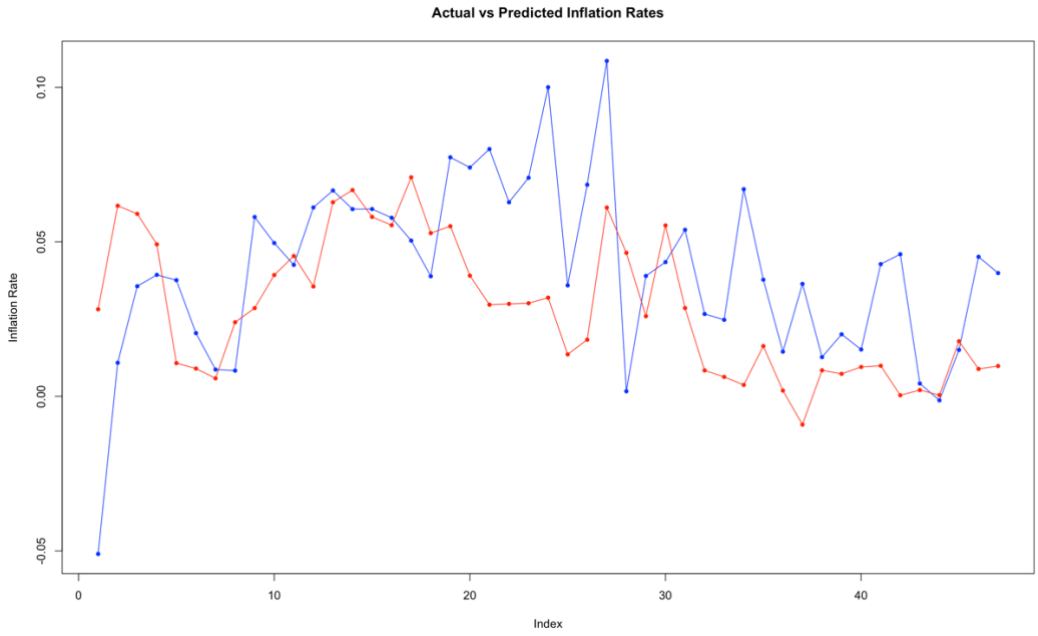
RMSE: 0.0312049459420331

MSE: 0.0009737487

R-Squared: 0.143273637783854

MAE: 0.0245928665403484

Plot



3.3 Random Forest

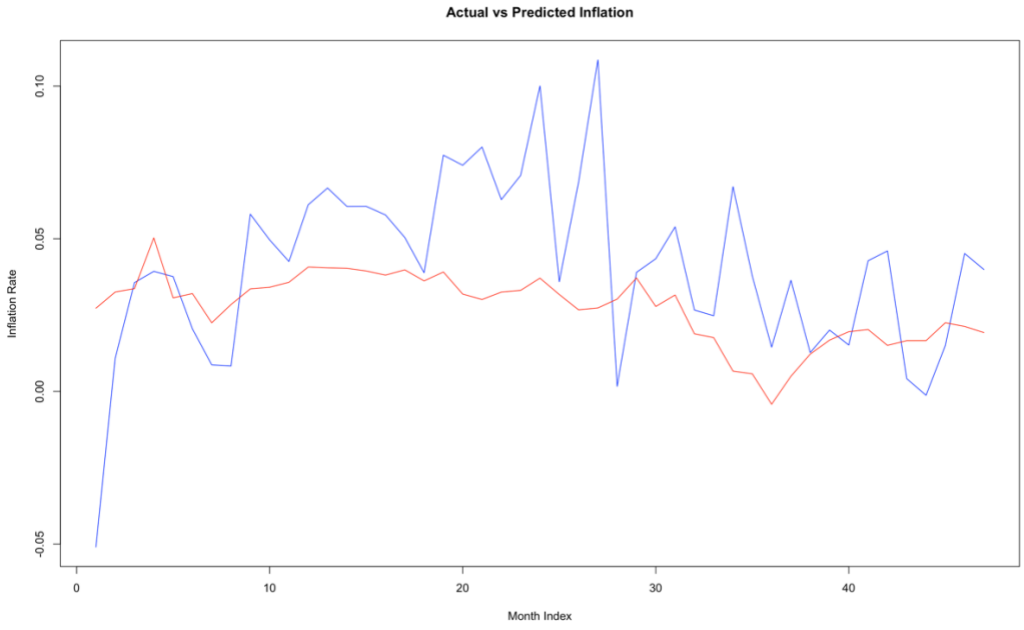
RMSE: 0.02987408

MSE: 0.0008924607

R-Squared: 0.12535583

MAE: 0.02322065

Plot



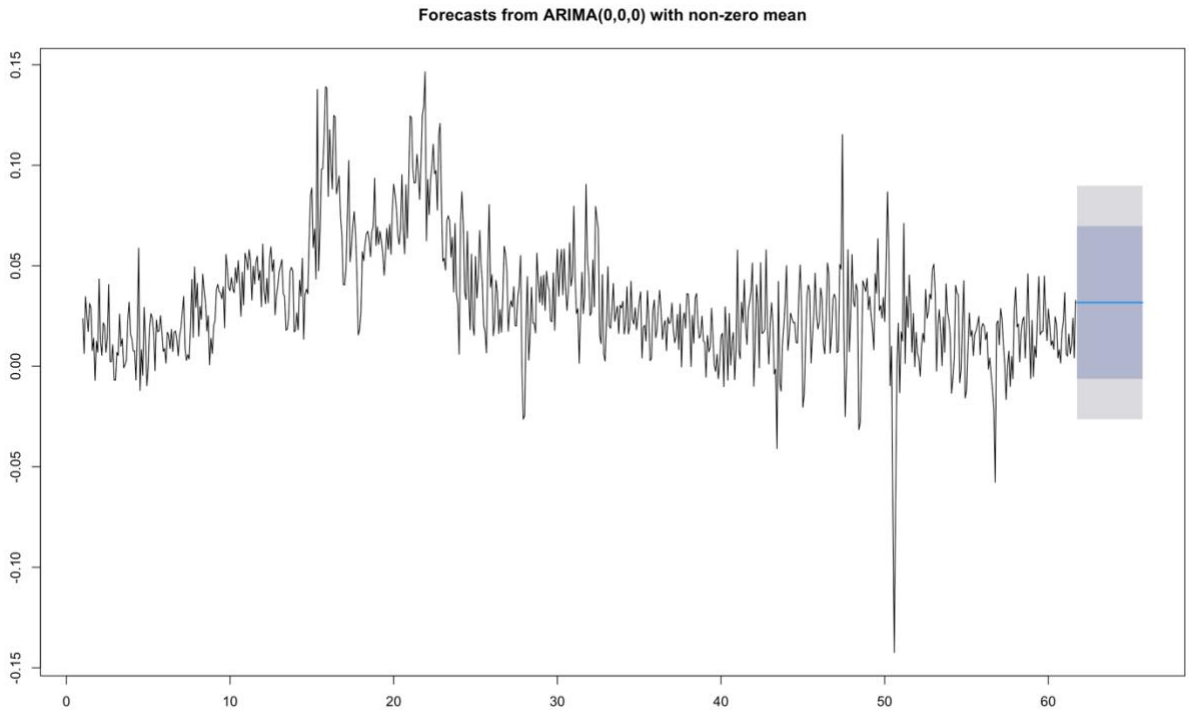
3.4 AR (1)

RMSE: 0.02961631

MSE: 0. 0008771258

MAE: 0.02181864

Plot



4. Twelve Months Ahead Performance

4.1 LASSO

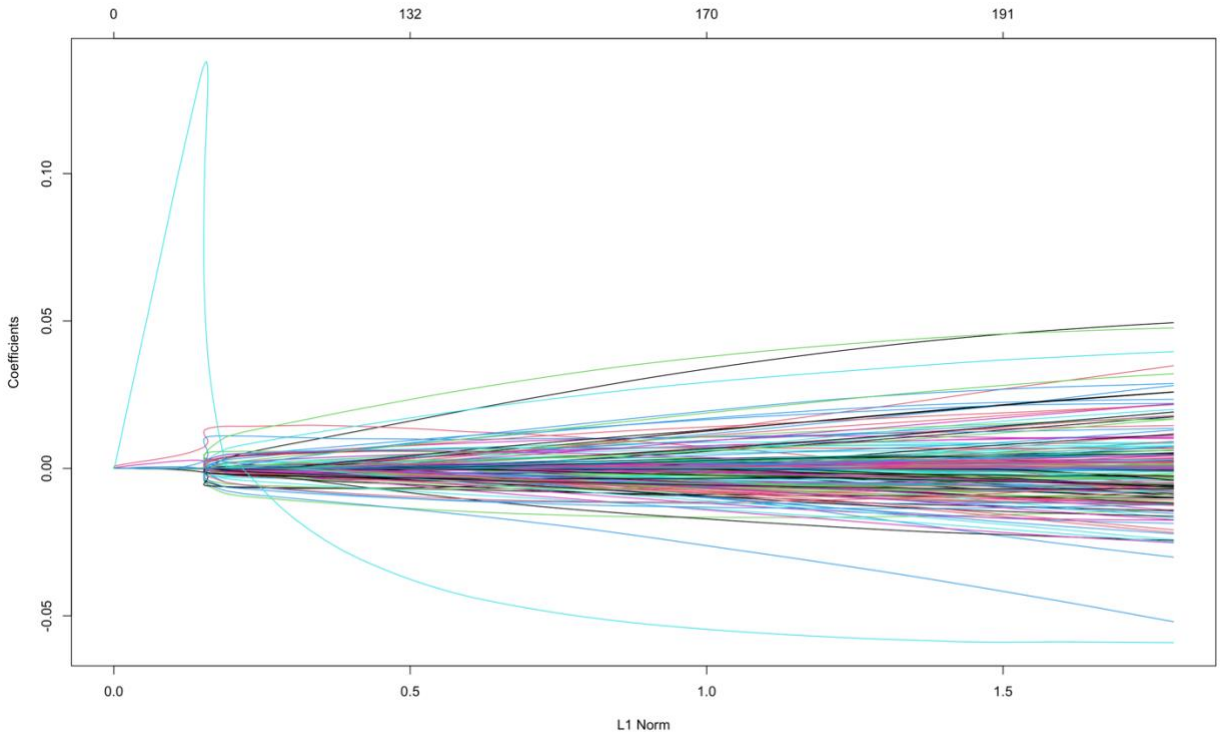
RMSE: 0.10501720

MSE: 0.01102861

R-Squared: 0.45084429

MAE: 0.08772715

Plot



4.2 Gradient Boosting

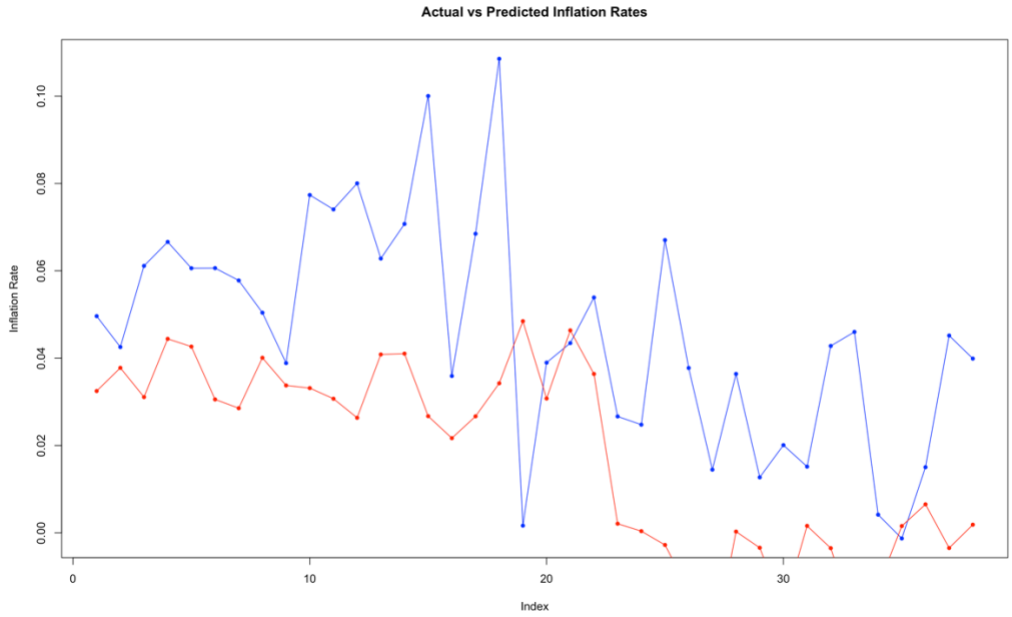
RMSE: 0.0368901693965298

MSE: 0.001360885

R-Squared: 0.256187203414878

MAE: 0.0310815982109015

Plot



4.3 Random Forest

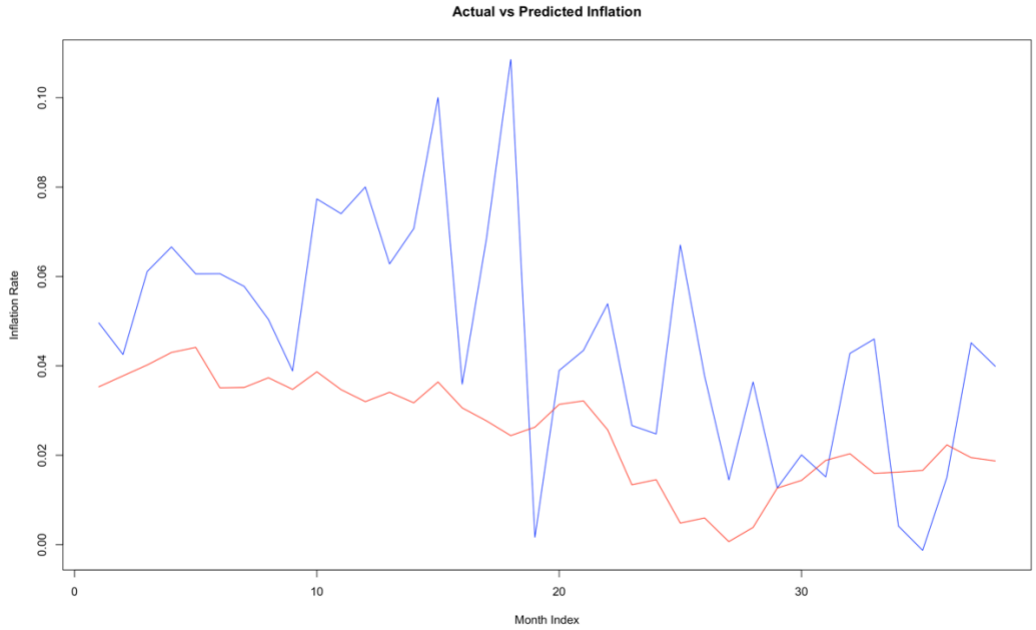
RMSE: 0.03010909

MSE: 0.0009065573

R-Squared: 0.26717356

MAE: 0.02407287

Plot



4.4 AR (1)

RMSE: 0.02975703

MSE: 0.0008854808

MAE: 0.02196736

Plot