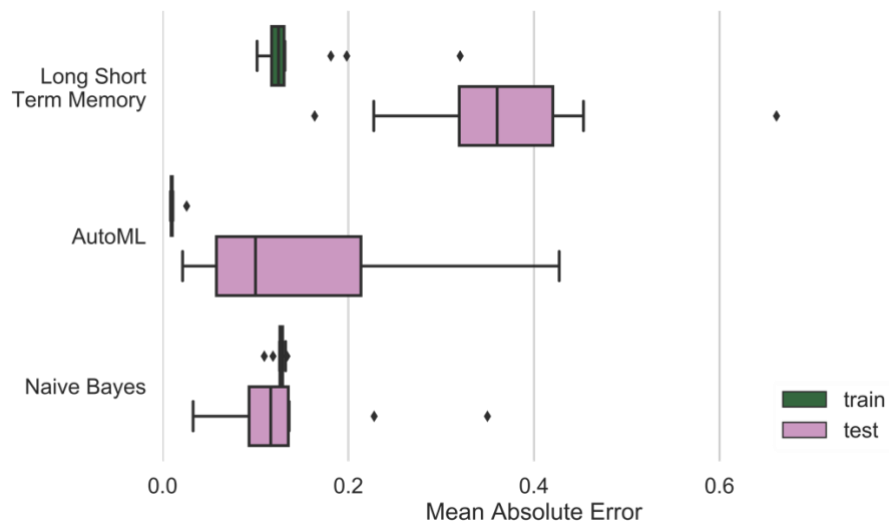# Results

Model Diagnostics

Based on the outputs achieved, models performed very well on training data. Both the LSTM

and AutoML models outperformed the Naïve Bayesian model in fitting the training data.

Training scores saw very little variance in performance year-to-year as seen in the small spread

in training scores in Figure 5. Testing scores showed very high variance, with some testing years

having a high degree of accuracy and many having a low degree of accuracy, as seen in Figure 1.

AutoML models in particular showed a very high variance year-to-year in test performance.


Figure 5. Model training diagnostic results. Individual data points indicate individual training datasets.
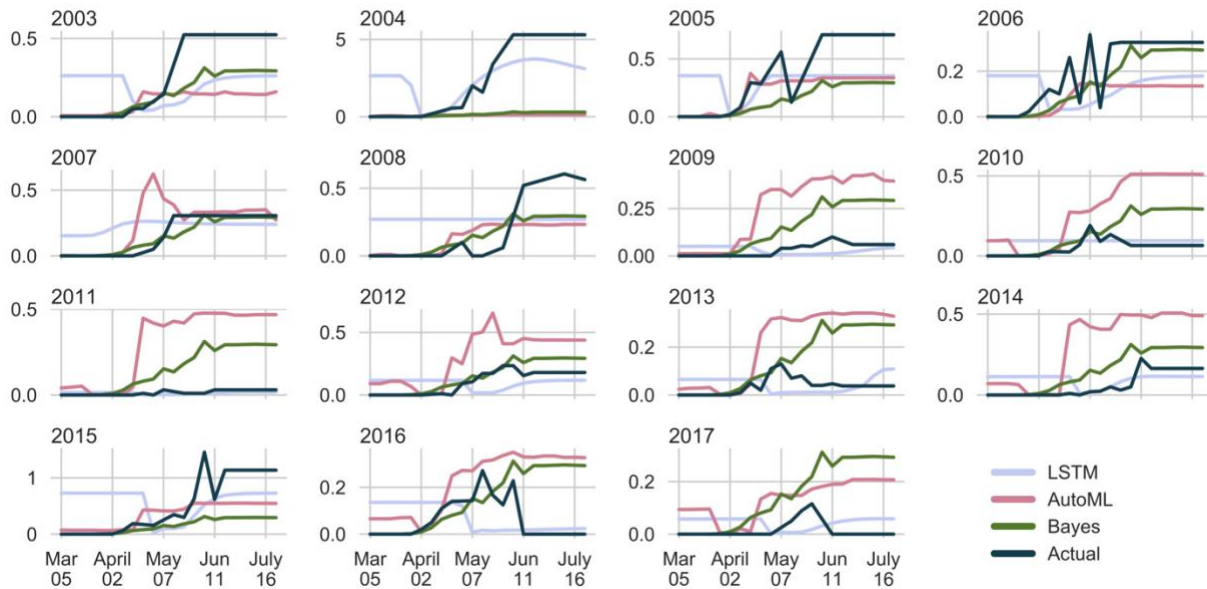
Forecasts

Full test data set

Forecasts produced by both the LSTM and AutoML models did not produce sufficiently accurate forecasts, as evidenced in Figure 6. Although some years such as 2006 and 2007 had good forecast accuracies and low variability in the methods' predictions, most years had a large variation in the forecasts produced. The large spread in any given years' predictions between the three models indicates a high uncertainty in predictions.
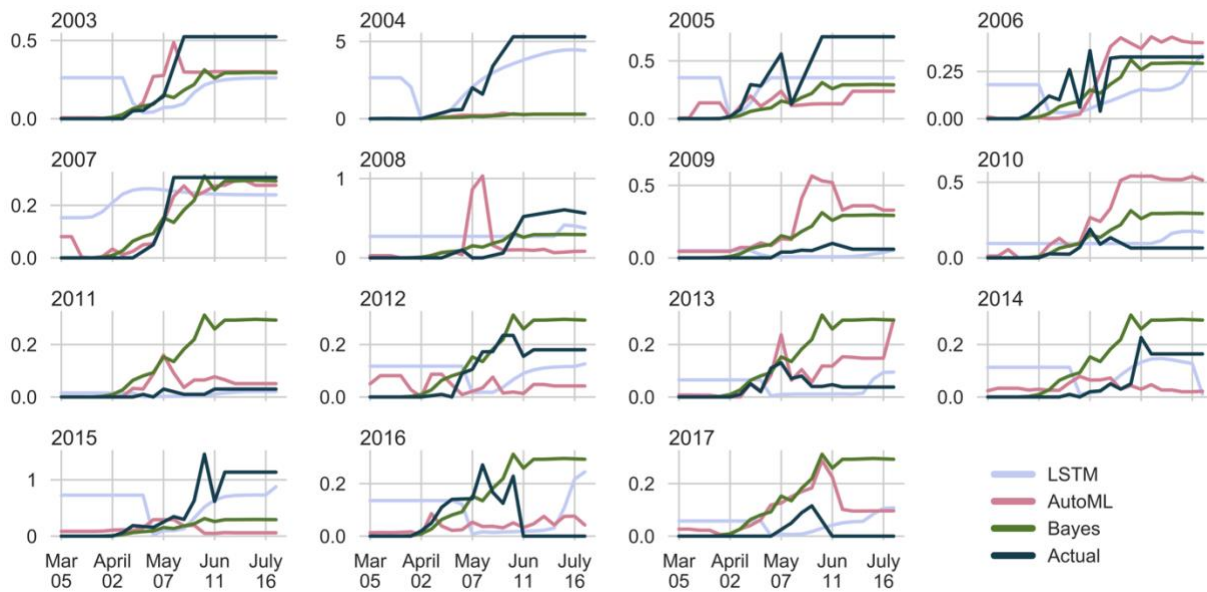
Figure 6. Forecasts from LSTM and AutoML methods when provided with full test data against the actual values and Naïve Bayes model.

Test data set up to and including April

Forecasts produced by both the LSTM and AutoML models did not produce sufficiently accurate forecasts, as evidenced in Figure 7. The models performed more accurately when given this test data compared to the full test data in 2006, 2008, and 2009.

Figure 7: Forecasts from LSTM and AutoML, methods when provided with data from January to April against the actual values and Naïve Bayes model.

Test data set up to and including June

Forecasts produced by both the LSTM and AutoML models did not produce sufficiently accurate

forecasts, as evidenced in Figure 8. Similarly, to the April test data, some years had lower

spreads in predictions compared to the full test data.
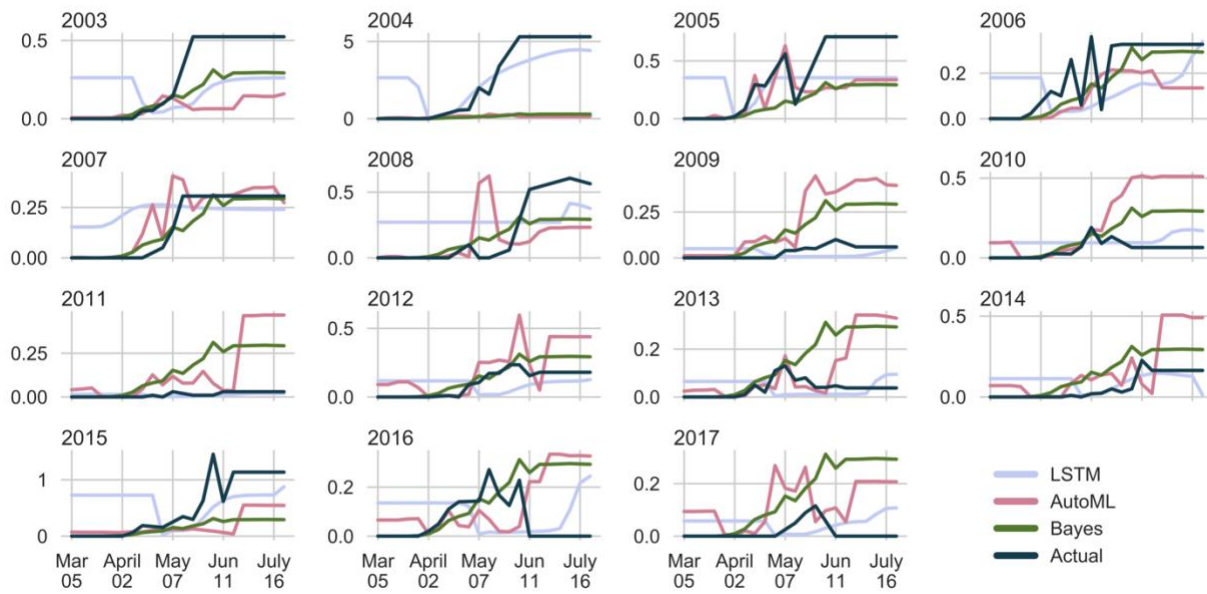
Figure 8: Forecasts from LSTM and AutoML methods when provided with data from January to June

against the actual values and Naïve Bayes model.