

You will be working with the same dataset you have used for previous problem sets. The point is to actually “forecast” non-farm employment for Florida for January 2020. I have broken it down into specific steps below for you to follow to provide more structure, but these are not independent questions, just individual steps in one larger process.

1. Drop any observations after December 2019.
2. Refer to homework 3, question 2. Adapt the four models used there so they will be appropriate for making a one period ahead forecast.
3. For each model, calculate the out of sample RMSE for the last year of observations (last 12 observations). To do this, you must not include these observations in the model estimation.
4. For each model, prepare a figure with the actual change in the log of nonfarm employment for the last 24 months, and for the last year the point forecast and the forecast interval, again using the model fit excluding the last 12 months.
5. Select the best model for forecasting purposes based on AIC, BIC, LOOCV, and out of sample RMSE for the final year of data. Justify your choice.
6. For the best model, transform the values appropriately and prepare a figure with the actual level of nonfarm employment (not the log) for the last 24 months, and for the last 12 months the point forecast and the forecast interval for nonfarm employment. For the interval forecast, assume approximate normality, and use the standard error of the forecast.
7. Now prepare another figure, again for the best model, with the actual level of nonfarm employment for the last 24 months, and for the last 12 months the point forecast and the forecast interval for nonfarm employment. This time, use the empirical approach, based on the data used to fit the model, to construct the forecast interval.
8. Run these commands to add January 2020 to the data (for which you will generate a forecast) and fill in the corresponding values for year and month:

```
tsappend, add(1)  
replace month=month(dofm(date)) if month==.
```
9. Run your selected model on the full sample and use it to forecast January 2020. Create point and interval forecasts for the change in the log of non-farm employment. Use the empirical approach.
10. Transform the point and interval forecast of the January 2020 change in the log of non-farm employment to create a point and interval forecast of non-farm employment for January 2020.
11. Generate a figure showing the last 12 months of non-farm employment and the January 2020 point and interval forecasts. (The figure shows actual for January 2019 through December 2019 and then the point and interval forecast for January 2020.)
12. Submit a single electronic file containing the answers to all questions through canvas. As usual, include your do and log files as appendices in the same document.