

Fall 2021 Forecasting Seminars

By Jean Lih, Stekler Fellow

9/23 Prakash Loungani

“Herd Immunity? A First Shot at Analyzing Forecast Performance During the COVID-19 Pandemic.”

Loungani presented two important findings from his joint work with An, Collodel, and McCarthy. The first point was that economic forecasts around the world “overshot” the outcome of the pandemic’s impact on GDP and then later backtracked to correct predictions. This overshooting behavior was unique to the pandemic crisis, since pre-pandemic forecasts were normally adjusted smoothly over the course of a crisis year. While the reasons explaining the over-pessimistic expectations of the pandemic’s impact on the economy are unknown, Loungani mentioned that economists’ unfamiliarity with the coronavirus in contrast to the 2008 housing crisis could be one factor. The second key finding was that the forecasts between private and public forecasts were not displaying the usual “herding” behavior (or collinearity). Loungani found that Consensus forecasts and IMF’s World Economic Outlook (WEO) forecasts displayed “some departure from herding with increased dispersion within Consensus.”

10/7 Claudia Sahm

“Forecasting Future Recessions: Shift to Real-Time Tracking and Automatic Stabilizers”

Sahm's presentation focused on the need for updated approaches to forecasting future recessions. Given how much our economy has changed, Sahm explained why old tools such as the yield curve inversions and historical relationships have become insufficient in helping us prepare for and react to recessions. So, Sahm’s suggestion was to add real-time tracking and automatic stabilizers to complement and enhance the traditional forecasting methods. First, real-time tracking methods, such as the Sahm Rule, allow for reliable signals of a recession’s start. The Sahm Rule, for example, uses the three-month moving average of national unemployment rate as an indicator for the beginning of a recession. This illustrates how real-time tracking can be much more dependable than the uncertainty that clouds forecasting. Real-time tracking also gives economists a better chance of identifying the source of the recession and path of recovery. The second new tool Sahm recommended is putting in automatic stabilizers, such as stimulus checks and other policies that are used often in recessions. Establishing these basic stabilizers in place before a recession is a practical measure of preparing before a future recession. These automatic stabilizers will not only help stabilize sentiments but also ensure basic relief to the public with less politics.

10/21 Andrew Martinez

“Smooth Robust Multi-Horizon Forecasts”

Martinez presented on the efficacy of a smooth random walk in improving forecasts. Traditional forecast methods include a history of past data, which impacts the performance of forecasts since biases from the past can remain in the long run mean. Long run means can also shift when there are unexpected events. Either way, when the long run mean shifts or changes, this can mean trouble for forecasting methods like the autoregressive model. However, a random walk is robust to shifts in the trend/mean because it only uses the previous data set, which corrects the intercept, and helps reduce the amount of bias. Thus, Martinez demonstrated how naive forecast methods are good local estimates of the long-run. However, this introduces the tradeoff between the reduced bias from a naive random walk versus reduced variance from autoregressive models. Martinez’s clever idea to this dilemma was to smooth random walks by taking the average. By averaging, you add to the bias, but at the same time, as ‘n’ gets larger, you’re shrinking the residual error variance. So, smoothing estimators over observations changes this bias-variance tradeoff and shows how smooth random walks do better on longer horizons. To summarize, Martinez concluded that embedding smooth naive methods within economic models can improve forecasts while retaining structure.

10/28 Andrew Chang

“Raiders of the Lost High-Frequency Forecasts: New Data and Evidence on the Efficiency of the Fed’s Forecasting”

The staff members of the Board of Governors of the Federal Reserve System produce around eight Green/Tealbook forecasts, each within two weeks of Federal Open Market Committee (FOMC) meetings. Andrew Chang’s project introduced a new dataset that had roughly weekly forecasts, capturing real gross domestic product (GDP) and core personal consumption expenditures (PCE) inflation forecasts from the gap periods between the eight Tealbook forecasts. Using this new high-frequency dataset, the aim of Chang’s research was to examine whether the Federal Reserve’s staff forecasts efficiently, utilizing a model to forecast the forecast errors. The results found some evidence for inefficient inflation forecasts, and “time-varying inefficiencies” for the staff’s GDP forecasts between FOMC meetings. Examining the predicted average forecast errors, current-quarter GDP growth forecasts under-revise, while inflation backcasts over-revise. The implications of these findings encourage staff members to not hesitate in making bigger revisions for GDP growth forecasts; but for inflation, revisions should average 45% smaller. Regarding the time-varying inefficiencies, Chang’s paper found that the staff suboptimally revises real GDP growth forecasts when it is more than two weeks from a regularly scheduled FOMC meeting, but revisions improve when done within two weeks from

the FOMC meeting. While the reason for these time-varying inefficiencies are uncertain, Chang's high frequency dataset provided many useful insights for looking at Federal Reserve staff's forecast efficiencies.

11/4 - Gabriel Mathy and Yongchen Zhao

"Could Diffusion Indexes Have Forecasted the Great Depression?"

In honor of H. O. Stekler's 89th birthday, Gabriel Mathy and Yongchen (Herbert) Zhao presented their joint paper "Could Diffusion Indexes Have Forecasted the Great Depression?". The paper's examination of economic forecasting during the Great Depression era was a project that was influenced by Stekler's legacy and work. Mathy and Yongchen's paper utilized diffusion indexes to test whether diffusion indexes would have been effective in forecasting the Great Depression. Diffusion indexes are an aggregate of multiple indicators and incorporate their upward or downward trend. While diffusion indexes are used to detect economic turning points and have been found to be an effective tool to forecast the business cycle today, they cannot examine underlying level changes since the index ignores the magnitude of the movement and only looks at trend direction. The research project found that diffusion indexes can nowcast turning points fairly well, suggesting that the "initial downturn in 1929 may be forecastable months before the Great Crash." Mathy and Zhao's research undertook the challenge of revisiting one of America's most historic recessions. Although with hindsight and enhanced techniques, the Great Depression may have been forecastable, the study illustrates the art and challenges of forecasting our future in the present.

11/18 - Francesca Loria

"Understanding Growth-at-Risk: A Markov-Switching Approach"

Francesca Loria presented findings from her recent paper, "Understanding Growth-at-Risk: A Markov-Switching Approach." Growth-at-risk is a framework that negatively correlates the conditional mean and volatility of future growth. What Loria's research found was that using a Markov-switching model can replicate growth-at-risk patterns, helping us quantify and understand growth-at-risk. The findings suggest that both financial and macroeconomic conditions matter in explaining the relationship between economic conditions and the time variation in the mean and volatility of expected future growth. Moreover, the paper found that Markov-switching and quantile regression models share similar risk dynamics and view them as complementary tools for risk assessment. Quantile regressions are helpful in understanding growth-at-risk since it is useful for analyzing non-normal relationships between variables outside of the mean of the data.

12/2 - Neil R. Ericsson

“Evaluating the Federal Reserve’s Tealbook Forecasts”

The Federal Reserve’s Tealbooks report the Federal Reserve staff’s forecasts of GDP growth for the United States and foreign countries. These economic forecasts play an important role in creating sound policies for the future. Given the importance of good economic forecasts, Ericsson’s presentation examined opportunities for forecast improvement. First, the presentation evaluated forecasts from the Tealbook and JP Morgan to illustrate that both are valuable sources, and using both (i.e. forecast pooling) can be useful for improvement across forecasts. Secondly, Ericsson suggested using impulse indicator saturation (ISS) techniques for improving bias detection in forecasts. Forecast bias is often systematic, wide-spread, and difficult to detect. While the Mincer-Zarnowitz test can be used to detect bias, it only works when the bias is time-invariant. However, because Tealbook forecast biases are time-varying and depend on the business cycle, the Mincer-Zarnowitz test typically fails in detecting biases. Conversely, impulse indicator saturation creates an indicator dummy variable for each observation in the sample. Ericsson found that these dummy indicators appear to capture cyclical movements and therefore detect time-varying biases better. Using Autometrics, only indicators that are found significant are included in the regression, resulting in a model that has a less biased RMSE. Thus, Ericsson’s presentation proposed that impulse indicator saturation is a better generic procedure for detecting time-varying forecast biases and forecast pooling combined with intercept correction can offer opportunities for improving forecasts.