90th East Jour Fixe

Can we win the battle against uncertainty? New approaches to macroeconomic forecasting in CESEE

Compiled by Katharina Allinger and Thomas Scheiber

Over the last 15 years, professional forecasters have been confronted with several crises, each of them distinct in terms of underlying causes, international propagation, policy responses and economic impact. Each crisis has also brought about advances in modeling and data. The 90th East Jour Fixe[1] organized by the Oesterreichische Nationalbank (OeNB) on October 4, 2022, brought together professional forecasters from international institutions, central banks and academia to share lessons learned from past crises, explore latest trends in forecasting and discuss challenges associated with data availability.

In her welcome remarks, *Birgit Niessner* (Director of the Economic Analysis and Research Department, OeNB) highlighted the *OeNB's long track record in forecasting GDP for selected economies in Central, Eastern and Southeastern Europe (CESEE)* and the current challenges associated with producing timely and accurate forecasts. This was followed by a lecture by *Robert C. M. Beyer*, economist at the IMF, on *satellite imagery as a proxy for economic data in uncertain times*. Beyer highlighted that satellite data in general have four main advantages: usually, they (1) contain information that is difficult to obtain with other data, (2) are available at high spatial resolution, (3) have high geographic coverage and (4) have low financial costs. He proceeded to talk about nighttime light data as one form of satellite data that has been frequently used by economists. The provision of annual DMSP-OLS data was discontinued in 2013. According to Beyer, research based on monthly VIIRS data, available from 2012, is still lacking. He highlighted that any nighttime light data have shortcomings, e.g. noisiness, but showed examples of interesting questions that can be answered with these data. For instance, Beyer talked about studies estimating the economic impact of COVID-19 containment measures and natural disasters. Regarding the use of nighttime light data for forecasting, Beyer noted that first efforts have been made. So far, it seems that the benefits of using these data are particularly high when there is little other data available. He also highlighted that a lot of work still needs to go into the meaningful aggregation of nighttime light data.

Session 1 was chaired by *Julia Wörz* (Head of the Central, Eastern and Southeastern Europe Section, OeNB). *Alexander Plekhanov* (Director for Transition Impact and Global Economics, European Bank for Reconstruction and Development) elaborated on his experience in gauging economic activity during the COVID-19 pandemic with high-frequency mobility data. Mobility turned out to have high predictive power for tracking the COVID-19 downturn and recovery in most countries, but some measurement issues challenged the use of mobility indices for nowcasting, particularly noise in the data and country-specific mobility patterns. Estimates yield that a 10% drop in mobility translated into an approximately 2% drop in GDP growth. Over the course of the pandemic, some of the cyclical differences in mobility have become structural, which implies that the link between

---

[1] *The presentations and the workshop program are available at 90th East Jour Fixe of the Oesterreichische Nationalbank - Oesterreichische Nationalbank (OeNB).*

mobility and economic activity has changed. Still, stronger economic activity later in the pandemic can be attributed to recovering mobility – but mobility itself did not recover fully in all places. In general, mobility-based nowcasts performed better than random walk and other naïve forecasts, except for Ireland, Greece and Russia, where the nowcasts performed poorly for different reasons. Plekhanov concluded that, as with nighttime light as a proxy for economic activity, forecasters have to be aware of what they are trying to estimate and what information their input signals transfer.

Olga Pindyuk (Senior Economist, Vienna Institute for International Economic Studies) discussed the literature on the role of expert judgment in short-term economic forecasting. Macroeconomic forecasts should be treated with caution, especially in times of crisis. Forecasting models are far from accurately capturing complex, dynamic modern economic and commercial systems in which humans play a decisive role. Forecasters make systematic errors when economies are subject to major perturbations. They tend to overestimate growth in downturns, miss the onset of recessions and underestimate recoveries and booms. Still, forecasts are crucial for policymaking. Like medical doctors, they cannot predict illness but help us understand why one got sick. Forecasts provide information on the main interaction forces in the economy and assess the balance of risks and uncertainties regarding the economic outlook and policy responses. Pindyuk stressed that expert judgment improves forecasts' precision, particularly in shorter-term forecasting. It is especially useful if important variables are missing from the causal model, data are poor, relationships are mis-specified or may have changed, or the environment has changed. To exploit the benefits, it is necessary to address the caveats too. Cognitive factors and motivational biases can lead to the inefficient use of information by experts. Therefore, the wiiw implemented several support systems to support the accuracy of expert judgment and as a result of the forecasts.

Svetlana Makarova (Associate Professor, University College London, Vistula University, Poland) presented insights from her research on economic uncertainty and natural language processing for the case of Russia. Makarova and her coauthors were able to construct a text-based country-specific (economic policy) uncertainty index based on media publication in Russian – capturing linguistic undertones, sentiments and reporting styles more accurately than English translations. More-over, the lexicon-based approach outperformed machine learning because of the complex conjugation that is typical for Slavic languages. The derived uncertainty index for Russia tracks the underlying series of predefined uncertainty-generating events with an accuracy of 92%. Based on Bloom et al. (2018)[2], Makarova showed that the uncertainty shocks as signaled by the uncertainty index have predictive power for negative real effects in Russia.

Session 2 was chaired by *Gerhard Fenz* (Head of the Business Cycle Analysis Section, OeNB) and featured three presentations. *Nikodem Szumilo* (Associate Professor, University College London) discussed a recently produced *Warcast Index*, which tracks economic activity during the war in Ukraine. The index was designed specifically for use by the Ukrainian authorities, who were interested in timely estimates for regional economic developments. The model was designed to be

---

[2] *Bloom, N., M. Floetotto, N. Jaimovich, I. Saporta-Eksten and S. J. Terry. 2018. Really uncertain business cycles. In: Econometrica 86(3). 1031−1065.*

simple (linear OLS model) and uses publicly available data only. Specifically, Szumilo and his coauthors were able to calibrate a model that very closely tracks Ukrainian pre-war GDP by using nighttime light data, Twitter data and Google Trends data. Szumilo highlighted that the model was a black box and recapped points made in session 1 about the difficulties associated with deciding and understanding what kind of activity a model actually measures or should measure. The presentation contained a visualization of the results until May 2022 for a number of regions, which showed that the war led to a dramatic decrease in economic activity in all regions, but in safe areas the economy quickly rebounded. Economic activity in Western regions rose to above pre-war levels, while occupied regions recovered slowly, even though liberating a region accelerated its economic recovery.

Klaus Vondra (Principal Economist, Business Cycle Analysis Section, OeNB) presented *forecast efforts of the OeNB during the pandemic*. He showed the weekly GDP indicator that was based on novel, partially confidential daily and weekly data. He showed that the indicator worked very well in forecasting realized GDP during the COVID-19 pandemic but noted that it required a lot of time and effort and data mining. These challenges are part of the reason why the indicator was discontinued during the summer of 2022. However, the OeNB still uses credit card payments data to *forecast tourist overnight stays for the purpose of nowcasting*. This approach produces very accurate results and improves the nowcast, given the high importance of tourism for the Austrian economy. The OeNB's Business Cycle Analysis Section has been continuously working on improving its models and forecasting methodology.

Finally, *Thomas Warmedinger* (Deputy Head of Division, Business Cycle Analysis, European Central Bank) talked about the *learning experiences of the ECB regarding forecasting during the COVID-19 pandemic and since the start of the war in Ukraine*. He highlighted four main lessons learned: First, narratives are vital in communicating forecasts, as they provide a consistent story that includes underlying assumptions. Second, developing and utilizing new tools and indicators is important, particularly during crises. For instance, the ECB expanded its use of high-frequency indicators and nonlinear modeling and put more emphasis not only on shocks to growth but also on the trajectory of GDP levels. Third, forecasters need good approaches to deal with uncertainties. These could be projection ranges or scenarios, for instance. In all cases, transparency regarding assumptions is crucial. Finally, the ECB adapted standard models and procedures. For instance, it allowed more flexibility in certain procedures to accommodate exceptional, last-minute updates of data or information. In the Q and A session, Warmedinger and Fenz also briefly discussed difficulties and ongoing efforts to improve high-frequency inflation forecasts.