Box 2.2

Short-Term Growth Outlook with Nowcast Models and High Frequency Indicators

Data for the third quarter point to a strong V-shape recovery following the sharp contraction in the second quarter. Industrial production, which contracted by 16.7% (19.9%) on an annual (quarterly) basis in the second quarter, increased by 6.8% (28.9%) annually (quarterly) in the July-August period, exceeding the pre-pandemic level in February 2020. Similarly, in September, exports in dollar terms returned to their pre-pandemic level in seasonally and calendar adjusted terms. The recovery is spreading widely across sectors, but it is more evident in construction-related intermediate goods sectors and durable consumer goods sectors due to the strong credit momentum. On the other hand, the weak course in tourism resulted in a relatively limited improvement in the goods and services sectors that are seriously affected by the pandemic, such as clothing and leather manufacturing, accommodation, restaurants, transportation, and entertainment-culture. In this box, the course of economic activity in the second half of the year will be assessed quantitatively within the framework of the short-term forecast models followed by the CBRT.

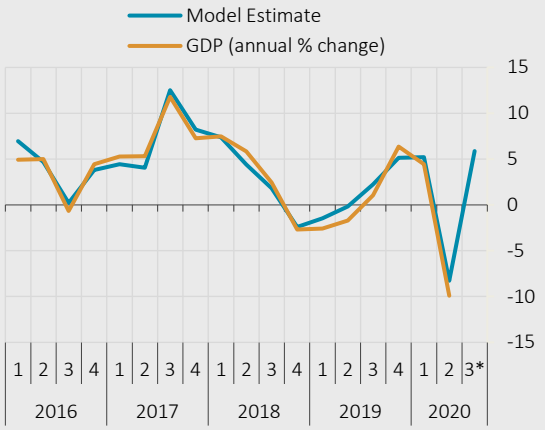
Model Estimates

While generating model-based estimates for national income, the coefficient that determines the strength and direction of the relationship between the indicator used in the model and national income should be determined by econometric methods. For example, taking into account the close relationship between the industrial production index (IPI) and the growth rate of national income, a 16.7% decline in the IPI in the second quarter implies an 8.3% contraction in national income via a nowcasting model estimated using the annual IPI growth rate (Chart 1).[1] The estimation of the same model indicates that national income will increase significantly in the third quarter of 2020.

However, the IPI does not represent the entire economy. There has been a wide divergence across sectors, especially for goods and services, over the periods of recession and recovery during the pandemic, which requires a more detailed analysis compared to periods when national income and the IPI move closely. For example, the significant weakening of tourism activities due to the pandemic in the second quarter of 2020 and the overall disruption to the services sector caused the growth rate to be lower than the value implied by the IPI. In this framework, similar to Günay and Yavuz (2017), a more comprehensive data set that can represent the whole economy is constructed and, by using different combinations of variables, 10 models that include four variables and have the best forecasting performances are selected. This helped to improve the forecasting performance significantly compared to the model obtained using only the industrial production index (Chart 1 and 2). The average of the nowcasting models indicates a significant V-shape recovery in the third quarter (Graph 2). Even the lower-band of the models implies that the possibility of positive annual growth rate in the third quarter is quite high.

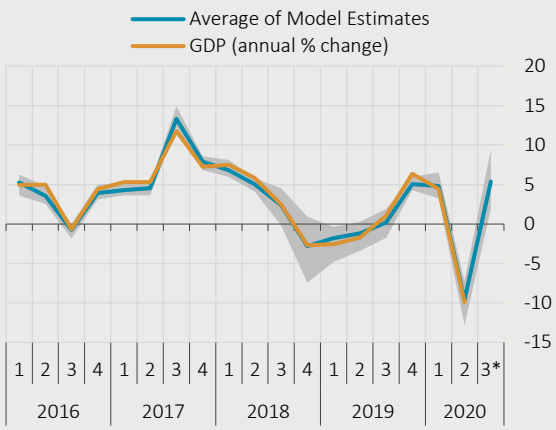
[1] To generate the estimates, the "out-of-sample forecast evaluation" method is used. For example, after determining the coefficient of the IPI from the regression of national income and IPI until the fourth quarter of 2015, an estimate for the growth rate of 2016Q1 is produced by using the first quarter of 2016 data of IPI. This process is repeated consecutively, and for the last observation, the implied growth rate of national income for the third quarter is calculated using the coefficients from the regression of the data up to the second quarter of 2020 and the IPI data in the July-August 2020 period.

Chart 1: GDP (Annual % Change) **and Model Estimate Based on IPI Data** (Annual % Change)



Sources: Authors' calculations, TURKSTAT.
* Forecast

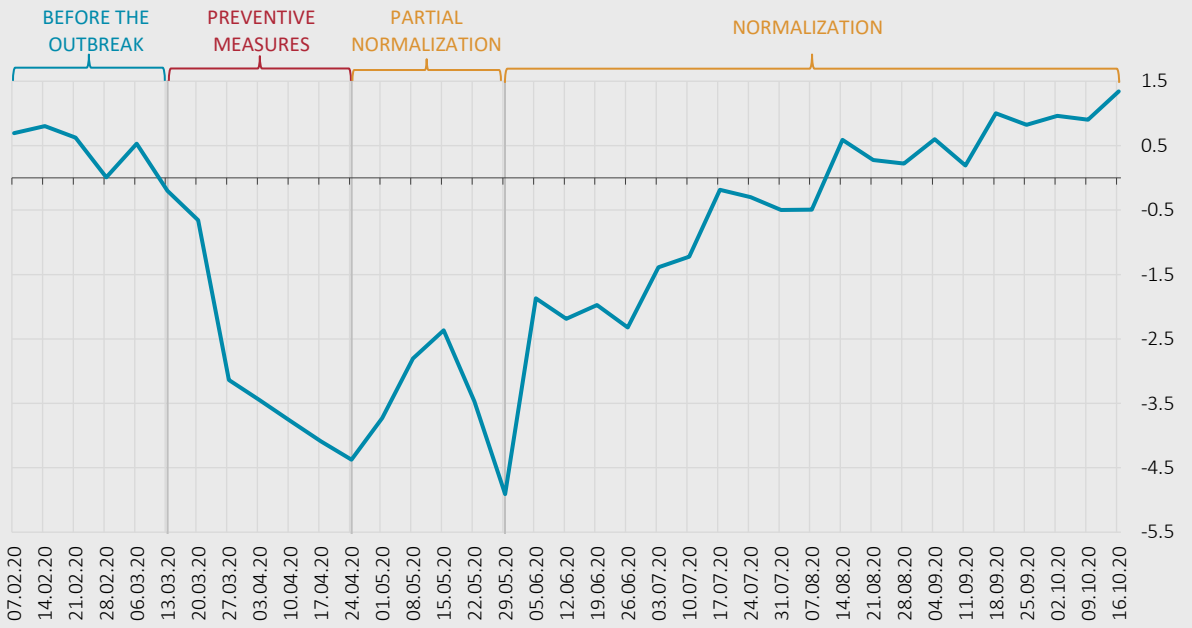
Chart 2: GDP (Annual % Change) **and Nowcasting Model Estimates****



Sources: Authors' calculations, TURKSTAT.
* Forecast.
** Estimates obtained by modeling the annual GDP growth using the bridge equations approach. The last point for 2020Q3 is based on the information set on October 15, 2020.

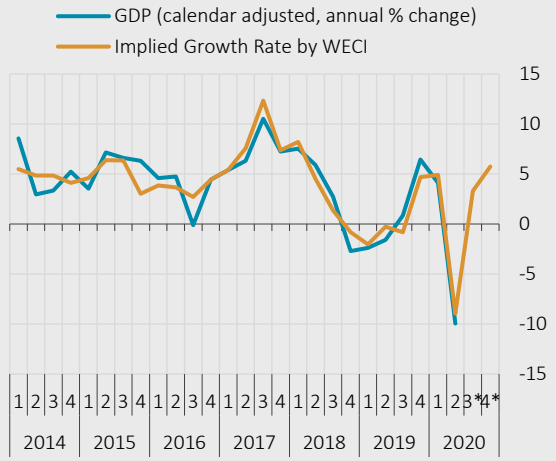
High frequency indicators can be used to evaluate the economic outlook for the fourth quarter. In this context, the weekly development of the Weekly Economic Conditions Index (WECI) in Çelgin and Günay (2020) is examined. It is seen that the index has reached its pre-pandemic levels as of September and signals that the recovery in economic activity continues as of mid-October (Chart 3). Estimates of national income growth using WECI indicate that economic activity continues to grow as of the beginning of the last quarter (Chart 4). It is anticipated that the normalization in policy responses to COVID-19 as of August will stabilize credit growth and economic activity, and the growth estimates implied by the WECI can be updated slightly downward with the data flow for the rest of the fourth quarter.

Chart 3: Weekly Economic Conditions Index* (WECI)



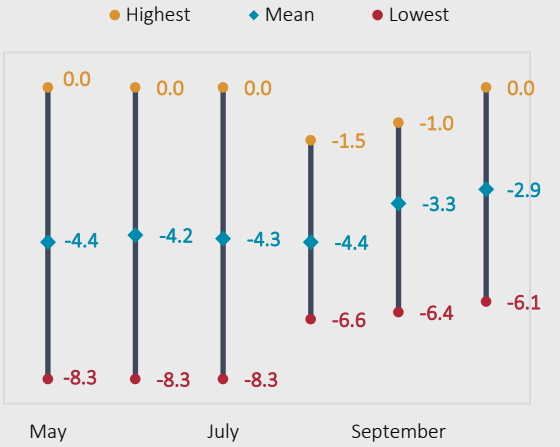
Source: Authors' calculations.
* The index is standardized so that its mean is zero and its standard deviation is one. Thus, the values of the index indicate how many standard deviations away the index is from its average in the sample.

Chart 4: GDP (Adjusted for Calendar Effects, Annual % Change) **and Implied Growth Rate for GDP**



Source: Authors' calculations.
*Forecast.
* The last point is based on the information set on October 16, 2020.

Chart 5: Changes in Consensus Forecast's Turkey Growth Forecasts for 2020



Source: Consensus Forecast.

As a result, it is seen that monetary and financial measures implemented during the pandemic have fostered a rapid recovery in the economy. However, it should be noted that forecast uncertainty remains high for many macro indicators. As a matter of fact, with the onset of the effects of the pandemic, the forecasts for the 2020 growth rate reported by international organizations were updated downward and widely dispersed (Chart 5). After the recent positive data flow, the upper band of the forecasts compiled from the October Consensus Forecast bulletin was updated as national income would remain flat. However, this update, in general, does not reflect the said improvement adequately. Indicators monitored by the CBRT suggest a stronger possibility of a positive, but limited, growth in 2020 without the need for additional policy support.

References

Günay, M. and Yavuz, A. A. (2017). "Revising the Short-Term GDP Forecast Models with New National Income Series (in Turkish)", CBRT Research Notes in Economics No: 17/08.

Çelgin, A. and Günay, M. (2020). "Weekly Economic Conditions Index for Turkey", CBRT, ongoing study.