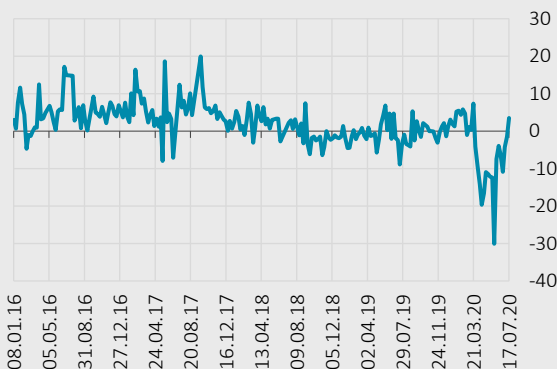


Box 4.1

Weekly Economic Conditions Index (WECI)

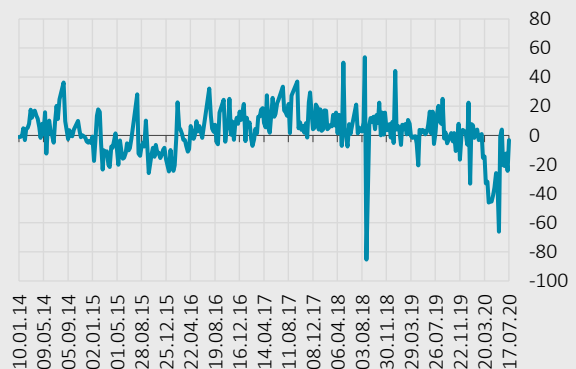
Since main indicators (national income, industrial production, etc.) that provide information on economic activity are released with a delay, high frequency indicators are needed to obtain timely information about the course of economic activity. In this context, in addition to using surveys and financial indicators, early signals about the pace of economic activity can be obtained through certain high frequency data such as electricity consumption and foreign trade statistics, which can be monitored on a daily basis (Charts 1 and 2). In fact, the high frequency data monitored by the CBRT indicate that the effects of the pandemic became evident in mid-April and that the recovery started in May. Meanwhile, industrial production and turnover indices, which are announced with a delay in mid-July, confirmed these signals received in May.

Chart 1: Electricity Consumption (Weekly, Annual % Change)



Source: Turkish Electricity Transmission Corporation.

Chart 2: Exports (Nominal, Weekly, Annual % Change)



Source: Ministry of Trade.

Obtaining reliable early signals by aggregating information from different indicators in the most appropriate way became even more important during the pandemic. Accordingly, many central banks have started to construct weekly indicators and share them with the public (Lewis et al. (2020) for the US economy and Eraslan and Götz (2020) for the German economy). In this box, a Weekly Economic Conditions Index (WECI) is introduced aiming at tracking developments in the Turkish economic activity in a timely manner (Çelgin and Günay, 2020).

Data and Methodology

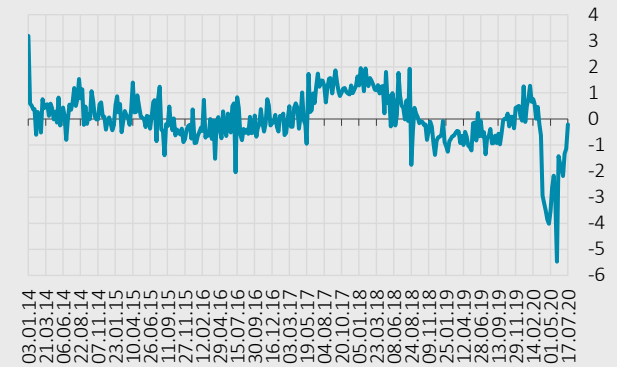
The WECI uses high frequency real and financial data with the potential to provide information on the course of economic activity. In this context, total credit growth and total expenditures by domestic and foreign cards are tracked on a weekly basis; while total job postings on the Kariyer.net website, electricity consumption, exports and imports are tracked on a daily frequency. After converting daily flow variables into weekly frequency by aggregating the daily values of the relevant week, the weekly annual percentage changes of all variables are calculated. Additionally, in the periods that correspond to religious and national holidays, annual changes are smoothed by the trends of the weeks before and after the relevant week so that the calendar effects would not disturb the main trend. This procedure does not affect recent values of the index much, but facilitates the interpretation of the index by correcting the high volatilities observed in the past. The WECI is calculated from 2014 due to data constraints.

While constructing the index, the Weekly Economic Index (WEI) method developed by the Fed to monitor the effects of the pandemic on the US economy is adopted (Lewis et al., 2020). The WEI is constructed by taking the principal component of the weekly annual percentage change of ten variables. These variables are informative about consumption, production and the labor market. Similar to Lewis et al., the WEI is constructed using the first principal component of the annual percentage change of the weekly indicators. After calculating the WEI, it is associated with GDP growth by taking the quarterly average.

Estimation Results

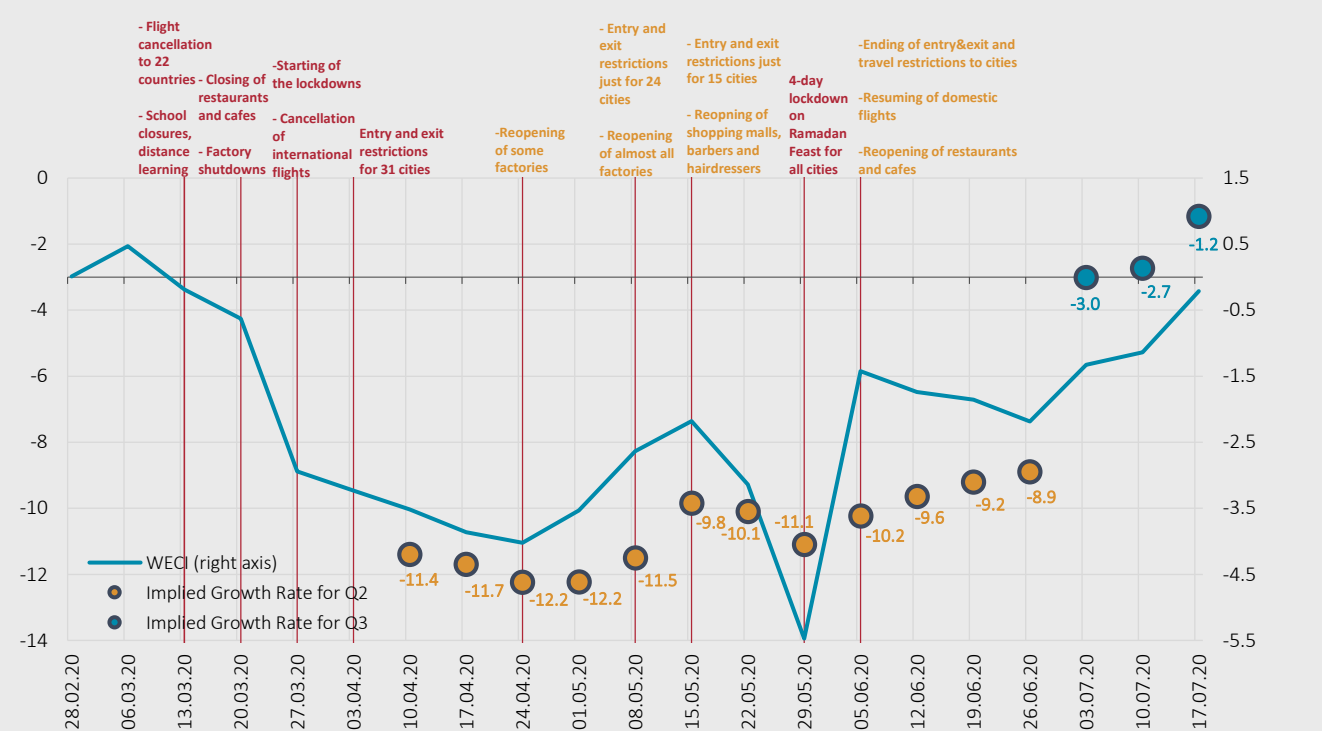
Calculated values of the WEI are presented in Chart 3. The index is standardized so that its mean is zero and standard deviation is one. Thus, the values of the index indicate how many standard deviations away the index is from its average in the sample. The final value of the index indicates that economic conditions are 0.2 standard deviations lower than the average. Having dropped below zero since mid-March after the report of the first coronavirus case and enforcement of subsequent preventive measures, the index records its lowest level at the week ending on the 29th of May due to the effect of the 4-day lockdown enforced across the country during the Ramadan Feast. The second lowest level is observed at the week ending on the 24th of April, and after this week, the index improves, indicating that economy starts to recover from the consequences of the pandemic.

Chart 3: Weekly Economic Conditions Index (WEI)



Source: Authors' own calculations. Last Observation: July 17, 2020

Chart 4: Weekly Economic Conditions Index and Event Timeline



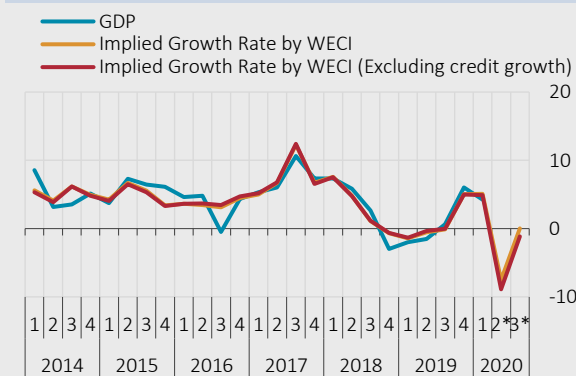
Source: Authors' own calculations. Last Observation: July 17, 2020

In Chart 4, the WECI is plotted with some key weekly events since the beginning of March to examine recent developments. It is observed that with the introduction of restrictions on mobility and travel, interruption of production in factories and temporary suspension of the activities of the workplaces, the index posts a noticeable decline on the second half of March to the end of April. As the measures are eased and the partial normalization steps are implemented with the decline in the number of cases, signals of recovery in economic activity have appeared as of the first week of May. The index, which declines due to the temporary measures in the second half of May, starts to increase with the widening of the scope of normalization steps in June.

For a better interpretation of the signals of the WECI on developments in economic activity, a regression is run between calendar-day-adjusted annual GDP growth and the quarterly average of the WECI. Model estimates imply that there may be a significant annual contraction in the national income data in the second quarter, but there may be a significant recovery in the third quarter (Chart 5). Finally, the index, here presented with data up to the week ending on the 17th of July, may increase further with the data flow in the following period.

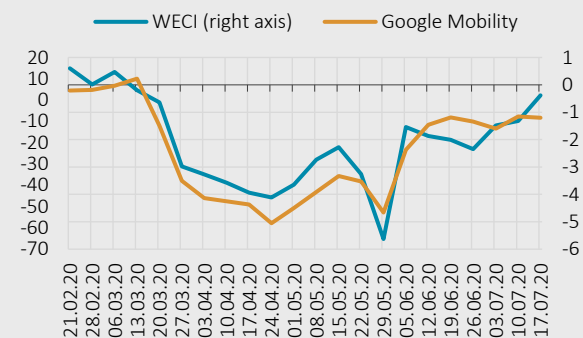
However, it should be noted that indicators included in the index may not fully reflect the developments in the services sector. Also, because of the increased electricity consumption of households especially in the second quarter, electricity consumption of workplaces may be weaker. So, there may be downward risks to these model estimates. Additionally, considering that the credit-growth relationship may differ at the current juncture, mostly in the second quarter, the index is reconstructed excluding credit growth. The WECI, estimated by excluding credit data, implies that the contraction in the second-quarter GDP may have been somewhat deeper, and the above-mentioned downward risks remain for this indicator as well (Chart 5).

Chart 5: GDP (Adjusted for Calendar Effects, Annual % Change) and Implied Growth Rate for GDP



Source: Authors' own calculations, TURKSTAT. * Forecast.

Chart 6: WECI and Google Mobility Index



Source: Authors' own calculations, Google. Last Observation: July 17, 2020

Measures to reduce social mobility and subsequent easing of these measures shape the course of activity. As a matter of fact, a relatively high correlation is seen between the Google mobility index, obtained from mobile devices to monitor the effects of the pandemic disease on a global scale, and the WECI (Chart 6).¹ As of June, the restrictions have been lifted to a large extent and mobility has increased, which points to an improvement in economic conditions. In this respect, it is projected that effects of the steps towards normalization will be more visible in the third quarter and the recovery in economic activity will continue.

¹ Mobility data show percentage changes in six categories, shopping-entertainment, market-pharmacy, workplaces, parks, transportation points and residences, compared to the period of January 3-February 6, 2020. The mobility index is calculated by aggregating data for the first three categories.

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