Bahçeşehir Üniversitesi
Ekonomik ve Toplumsal Araştırmalar Merkezi
Betam

Economic Growth and Forecasts:
April 2023

BAHÇEŞEHİR ÜNİVERSİTESİ

11 May 2023

Impact of Earthquake on GDP Growth in the First Quarter

Ozan Bakış,[1] *Hamza Mutluay*[2]

[1] Betam, ozan.bakis@eas.bau.edu.tr
[2] Betam, hamza.mutluay@eas.bau.edu.tr

Executive Summary

In light of the fully-released January, February, and partly-released March leading indicators, we expect GDP to increase by 1.1 percent year-on-year in the first quarter of 2023. According to seasonal and calendar-adjusted data, we forecast quarter-on-quarter GDP growth to be 0.9 percent.

In the previous month, our GDP forecast did not account for the impact of the earthquakes in the southern region of Turkey on February 6th, 2023. Although we had access to some leading indicators from January and February, we had yet to fully receive all the necessary information to adjust our forecast. As a result, we predicted a YoY and QoQ GDP increase of 5 percent and 1.4 percent, respectively. However, we now have the fully-released data from January, February, and partly-released March leading indicators, demonstrating the earthquake's effects. We are observing a decline in production-related indicators, such as the industrial production index, electricity consumption, and capacity utilization rate.

GDP growth forecasts	2023Q1
Quarter-on-quarter	0.9
Year-on-year	1.1

Table 1: Periodical and annual real GDP growth forecasts. Source: Betam. **NOTE:** "Quarter-on-quarter" growth rate refers to seasonally and calendar-day adjusted real GDP growth forecast; "Year-on-year" growth rate refers forecasted real GDP growth compared to the same quarter of the previous year.

Decrease in industrial production, Increase in imports of consumption goods

In the first quarter of 2023, We expect a substantial increase in imports of consumption goods(18.8 percent) and in public consumption (27.2) while Mortgage loans decrease by approximately 7 percent (Table2).

Compared to the same quarter of the previous year, we observe a soar in imports of consumption goods and a sharp decrease in Mortgage loans. We calculate durable and non-durable consumption goods to decrease by nearly 4 percent (Table 3). We calculate special consumption tax revenue and public consumption to rise by 31.0 and 41.1 percent, respectively.

	2022Q4	2023Q1
Imports-cons. goods	1.9	18.8
Mortgage loans	-5.6	-6.9
Consumer loans + CC	4.3	5.6
IPI-nondurable goods	0.3	0.3
IPI-durable goods	6.4	-1.2
Special cons. tax	12.4	0.9
Public cons.	-6.8	27.2

Table 2: Consumption expenditures compared to the previous quarter. **IPI:** Industrial production index; **Cons.:** Consumption tax; **CC:** Credit Cards.

	2022Q4	2023Q1
Imports-cons. goods	29.6	56.8
Mortgage loans	-30.8	-21.4
Consumer loans + CC	-17.0	6.2
IPI-nondurable goods	2.4	-3.7
IPI-durable goods	4.5	-3.9
Special cons. tax	45.7	31.0
Public cons.	7.1	41.1

Table 3: Consumption expenditures compared to the same quarter of the previous year.

Increase in imports of investment goods, Decrease in intermediate goods production

According to seasonally and calendar-adjusted investment data, the 10.0 percent increase in imports of investment goods draws attention in the first quarter of 2023. The retail sector stock level grows by 0.2 percent while public investment expenditures decline by 28.4 percent (Table 4).

Compared to the same quarter of the previous year, production expectations for the last three months decreased by 3.2 percent, and the intermediate goods production index decreased by 10.7 percent. While imports of investment goods rise by 16.1 percent, public investment expenditures increase by 68.8 percent (Table 5).

	2022Q4	2023Q1
IPI-inter. goods	-0.4	0.6
CUR-invest. goods	1.9	0.7
Imports-invest. goods	-0.6	10.0
Commercial loans + CC	0.6	1.6
Prod.-last 3 months	-2.0	6.0
RT vol. of stock	-2.4	0.2
Public invest.	50.1	-28.4

Table 4: Investment expenditures compared to the previous quarter. **CUR:** Capacity Utilization Rate. CUR is reported as percentage points changes unlike other indices; **RT vol. of stock:** Current volume of stock of retail trade sector; **Invest.:** Investment.

	2022Q4	2023Q1
IPI-inter. goods	-6.6	-10.7
CUR-invest. goods	2.7	3.4
Imports-invest. goods	14.1	16.1
Commercial loans + CC	-17.5	-3.6
Prod.-last 3 months	-16.9	-3.2
RT vol. of stock	5.3	-2.5
Public invest.	29.9	68.8

Table 5: Investment expenditures compared to the same quarter of the previous year.

Decrease in exports excluding gold maintains

When we look at the seasonal and calendar-adjusted gold-excluded foreign trade figures in the first quarter of 2023, we expect a 1.2 percent decrease in exports and a 6.5 percent increase in imports (Table 6).

Compared to the same quarter of the previous year, gold-excluded exports declined by 4.1 percent, and total exports decreased by 9.0 percent. While gold-excluded imports increase by 4.8 percent, total imports increase by 16.6 percent (Table 7).

	2022Q4	2023Q1
Exports	-0.4	-5.8
Imports	4.4	10.0
Exports excluding gold	-1.2	-1.2
Imports excluding gold	-0.7	6.5

Table 6: Foreign trade compared to the previous quarter.

	2022Q4	2023Q1
Exports	-3.6	-9.0
Imports	8.0	16.6
Exports excluding gold	1.7	-4.1
Imports excluding gold	0.9	4.8

Table 7: Foreign trade compared to the same quarter of the previous year.

General Evaluation

Considering the other seasonal and calendar-adjusted leading indicators we use in GDP forecasting, we observe decreases of 0.2 and 0.3 percent in the manufacturing sector production index and demand for the service sector, respectively (Table 8).

Compared to the previous year, electricity usage falls by 8.6 percent, and price expectations in the retail sector decrease by 1.7 percent. The investment expectation (next 12 months) falls by 5.7 percent (Table 9).

In light of the fully-released January, February, and partly-released March leading indicators, we expect GDP to increase by 1.1 percent year-on-year in the first quarter of 2023. According to seasonal and calendar-adjusted data, we forecast quarter-on-quarter GDP growth to be 0.9 percent.

	2022Q4	2023Q1
IPI-manufacturing	2.4	-0.2
RT price exp.	0.6	-2.5
CUR	-1.0	-0.6
Ser. demand turnover	0.8	-0.3
Expected invest.-12m	-1.5	-2.0
Electricity cons.	-2.4	-0.4

Table 8: Some of leading indicators compared to the previous quarter. **RT price exp.:** Expected price for the retail sector (next 3 months); **Ser. demand turnover:** Demand for services (last 3 months), **Expected invest.-12m:** Investment expectations (next 12 months) ;**Expected invest.-12m:**: Investment expectations (next 12 months)

	2022Q4	2023Q1
IPI-manufacturing	1.3	-5.3
RT price exp.	4.8	-1.7
CUR	-1.8	-1.9
Ser. demand turnover	-3.8	-1.2
Expected invest.-12m	-3.9	-5.7
Electricity cons.	-5.6	-8.6

Table 9: Some of the leading indicators compared to the same quarter of the previous year.

BOX: EXPLANATIONS

Explanation on seasonal and calendar day adjustment:
While forecasting the quarter-on-quarter GDP growth rate, we adjust all series for seasonal and calendar day effects. If institutions release an adjusted series, we use this released adjusted series, and if not, BETAM performs seasonal and calendar day adjustments. The status of variables used in this brief can be summarized as follows:

- Central Bank of the Republic of Turkey (TCMB): Capacity utilization rate of the manufacturing industry (CUR), Real sector confidence index.
- Turkstat (TUIK): Industrial production index (IPI) and its sub-components; export, import, and import sub-components concerning goods categories (intermediate goods, investment goods, and consumption goods); sectoral confidence indices and its components (retail trade, services, and construction sectors)
- Betam: The rest of the leading indicators.

Explanation on leading indicators: Betam shares three forecasts for each quarter. For some indicators of the quarter, of which the growth rate is forecasted, the last two months' observations and for others' last month's observations are missing when we run the forecasting model. While estimating growth rates of leading indicators, we use forecasts based on previous observations of each series for missing months. Since there are no missing monthly observations in series while running the third forecast, there is no need for this forecast.

Explanation on forecasting model:
For the direct forecast of GDP, we use 16 leading indicators. While forecasting the components of GDP (consumption, investment, export, and import), we use 26 leading indicators. We prefer to represent remarkable variables within the current period and success in the forecast instead of representing all of them in the research brief and tables.

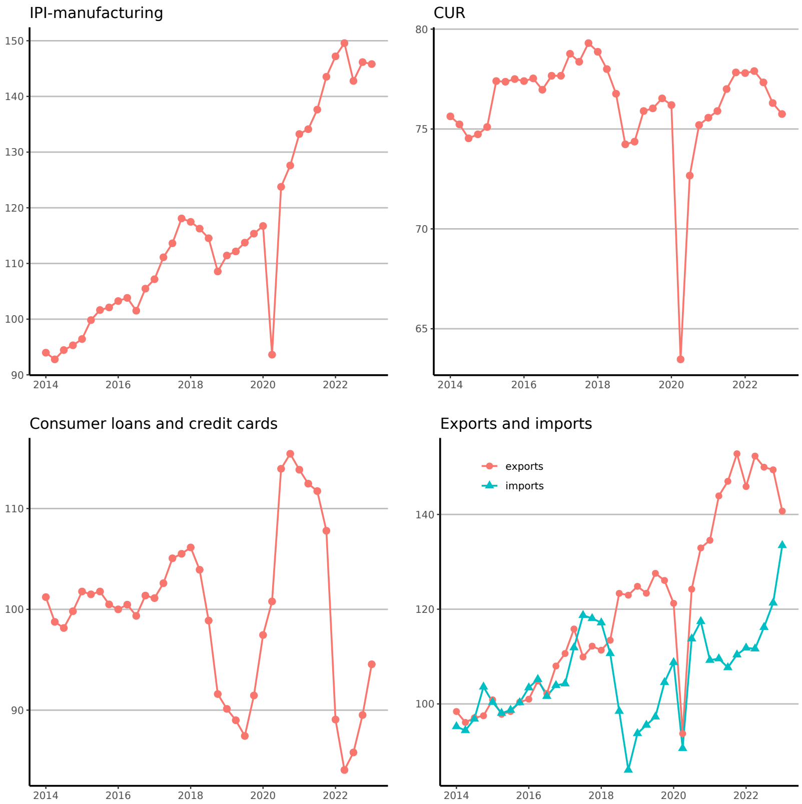

Figure 1: Seasonally and calendar day adjusted quarterly leading indicators. Consumer credits and individual credit cards in the first quarter of 2016 are indexed at 100.