7. Medium-Term Projections

This chapter summarizes the underlying forecast assumptions and presents the medium-term inflation and output gap forecasts as well as the monetary policy outlook over the next three-year horizon.

7.1 Current State, Short-Term Outlook and Assumptions

Changes in Key Forecast Variables

Inflation and Economic Activity: The initial conditions for inflation and economic activity underlying the medium-term forecasts are presented in Table 7.1.1. Consumer inflation, recording 12.6% in the first quarter of 2020, increased compared to the previous quarter-end, and thus overshot the April Inflation Report forecasts. While aggregate demand conditions contained inflation, the trend of core inflation indicators increased due to the pandemic-related rise in unit costs. In this period, energy prices continued to inhibit consumer inflation despite the recovery in oil prices, whereas food inflation rose driven by seasonal and pandemic-related effects.

The weakening that started in economic activity in the second half of March became more apparent in April. Economic recovery, which started in May following the gradual steps towards normalization, strengthened in June and July also due to the credit impulse. Accordingly, the output gap forecasts for the second and third quarter of 2020 were revised slightly upwards considering supply and demand-side effects. With supply-side capacity constraints fading out, it is expected that the disinflationary effect of demand will become more pronounced.

Table 7.1.1: Changes in Key Forecast Variables*

	2020-I	2020-II
Output Gap (%)	-1.5 (-1.5)	-6.4 (-7.8)
Consumer Inflation (Quarter-end, Annual % Change)	11.9 (11.9)	12.6 (10.4)
B** Index Inflation (Quarter-end, Annual % Change)	11.6 (11.6)	11.9 (10.3)

* Numbers in parentheses denote the values from the April Inflation Report.
** B index is the CPI excluding unprocessed food, alcohol, tobacco, energy and gold.

Monetary Policy and Financial Conditions:

Considering the effects of the weakening demand conditions on the inflation outlook, the CBRT cut the policy rate by a total of 250 basis points to 8.25% during the March-May period following the pandemic. In June and July, the Bank kept the policy rate constant in line with the inflation outlook. Loans accelerated on the back of the rate cut-led improvement in financial conditions and stimulus packages. The monetary and fiscal measures introduced have made significant contribution to the uninterrupted flow of credit to the real sector and the economic recovery process.

Assumptions for External Variables

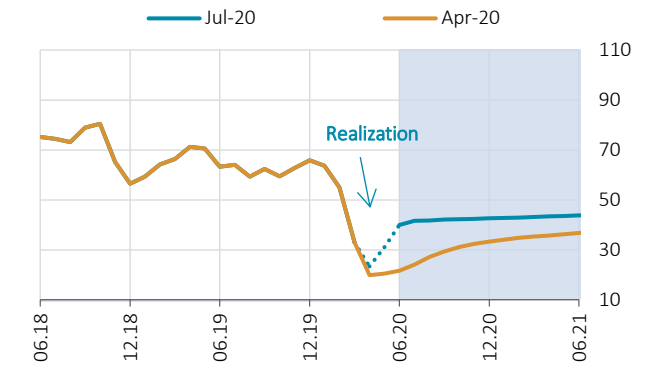
Global Growth and Monetary Policies of Advanced Economies:

Medium-term growth forecasts have been built on a significant downward revision for 2020 and an upward revision for 2021 from the April Inflation Report projections for the growth path implied by the export-weighted global production index, which is used as a measure for external demand. Forecasts have been based on a framework in which global monetary and fiscal actions would continue to support global financial conditions.

Import prices

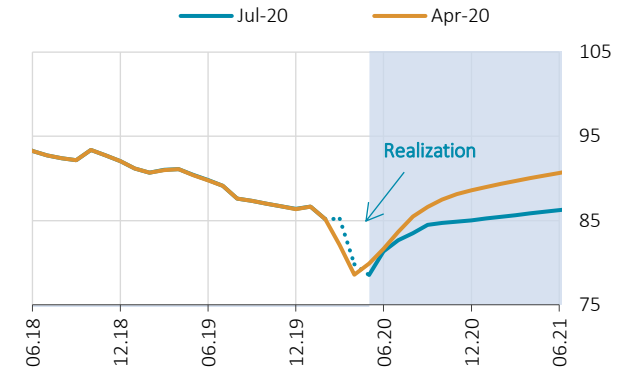
International crude oil prices materialized significantly above the assumptions of the April Inflation Report (Chart 7.1.1). This was mainly driven by the agreement between OPEC+ countries over oil production cuts as well as the expectations that the worst was over on the demand side. Despite the recent recovery in oil prices, forward quotations point to a quite modest increase in the upcoming period. Accordingly, the average crude oil price assumptions presented in the April Inflation Report have been revised upwards to USD 41.6/bbl from USD 32.6/bbl for 2020, and to USD 43.8/bbl from USD 36.8/bbl for 2021 (Table 7.1.2, Chart 7.1.1). The assumption for USD-denominated import prices hovered slightly above the April forecasts (Chart 7.1.2). The assumptions for USD-denominated import prices for 2020 and 2021 were revised downwards compared to those given in the April Inflation Report, considering the recent trends in aluminum and agricultural commodity prices, in addition to the lagged effects of the decline seen in oil prices in the previous quarter (Chart 7.1.2 and Table 7.1.2).

Chart 7.1.1: Revisions to Oil Price Assumptions* (USD/bbl)



Sources: Bloomberg, CBRT.
* Shaded area denotes the forecast period.

Chart 7.1.2: Revisions to Import Price Assumptions* (Index, 2010=100)



Sources: CBRT, TURKSTAT.
* Shaded area denotes the forecast period.

Food Prices

Another exogenous variable underlying the medium-term forecasts is the path of unprocessed food prices, a variable that is considered to be relatively outside the monetary policy domain. Annual inflation in the food and non-alcoholic beverages group increased by 2.88 points to 12.93% in the second quarter. While this increase was mainly driven by the prices of unprocessed food, led by fresh fruits and vegetables, annual inflation in the processed food group declined. The food inflation forecast, which was set at 9.5% for 2020 in the April Inflation Report, was revised upwards to 10.5% in view of the recent trends in unprocessed food prices (Table 7.1.2). The food inflation forecast for 2021 was revised upwards by 1 point to 8%.

Fiscal Policy, Administered Prices and Tax Adjustments

To contain the economic effects of the pandemic, comprehensive fiscal measures have been introduced around the world and in Turkey. Under the current circumstances, it is essential for financial stability to adopt an accommodative fiscal stance; maintain households' consumption habits and their bonds with the labor market; enable firms to sustain their production and employment; and to secure a healthy interaction between the real sector and the financial sector. Ensuring that policy steps taken in this process are designed so as to be targeted and temporary would support policy effectiveness. Medium-term projections rely on an outlook in which the fiscal policy actions along with other monetary and financial measures will support the potential output of the economy and contribute to the recovery in the post-pandemic period. Additionally, it is assumed that adjustments in administered prices and taxes will be set in line with the disinflation path.

Table 7.1.2: Revisions to Assumptions*

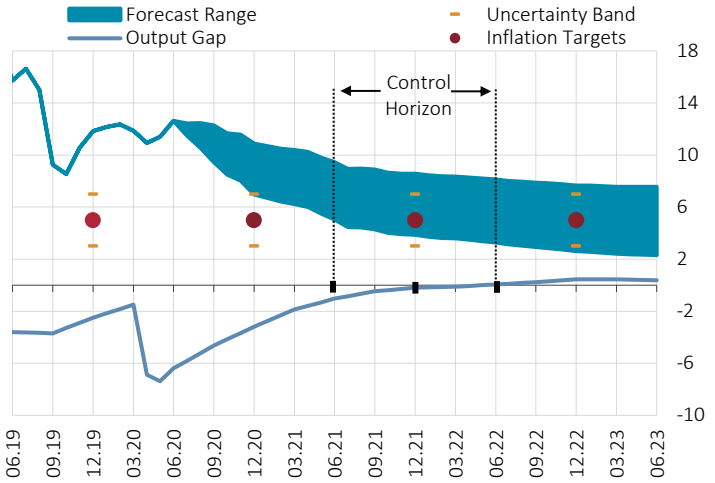
	2020	2021
Export-Weighted Global Production Index (Annual Average % Change)	-7.56 (-4.75)	5.83 (4.38)
Oil Prices (Average, USD)	41.6 (32.6)	43.8 (36.8)
Import Prices (USD, Annual Average % Change)	-6.2 (-5.1)	3.3 (7.3)
Food Price Inflation (Year-end % Change)	10.5 (9.5)	8.0 (7.0)

* Numbers in parentheses denote the values from the April Inflation Report

7.2 Medium-Term Projections

Under the current monetary policy stance and the strong policy coordination, inflation is projected to converge gradually to the targets. Accordingly, inflation is projected to be 8.9% at the end of 2020 and fall to 6.2% at the end of 2021, before stabilizing around 5% over the medium term. With a 70% probability, inflation is expected to be between 6.9% and 10.9% (with a mid-point of 8.9%) at end-2020 and between 3.9% and 8.5% (with a mid-point of 6.2%) at end-2021 (Chart 7.2.1).

Chart 7.2.1: Inflation and Output Gap Forecasts*



Sources: CBRT, TURKSTAT.
* Shaded area denotes the 70% confidence interval for the forecast.

In the inter-reporting period, inflation rose and materialized above the forecast range on the back of the increase in unit costs driven by the pandemic despite weak aggregate demand conditions. Turkish lira import prices were slightly higher than expected mostly due to recovering oil prices, while food inflation surged due to seasonal and pandemic-related effects. Compared to the projections in the April Inflation Report, it is assessed that the impact of supply-side factors on inflation has slightly gained strength. This was mainly due to supply chain disruptions as well as capacity constraints imposed in certain sectors under gradual normalization. Besides, the stronger credit impulse caused the disinflationary effect of aggregate demand conditions, particularly on core goods groups that are sensitive to financing conditions, to remain relatively limited compared to the projections in the April Inflation Report. Thus, supply and demand-side factors led to an upward revision in output gap forecasts from the second quarter of 2020 onwards. Supply-side factors, which prevailed due to pandemic-related restrictions in the short run, are expected to phase out as normalization continues, and demand-driven disinflationary effects may become more prevalent in the second half of the year, as suggested by negative output gap

forecasts. Nevertheless, in light of the recent inflation figures and all factors affecting the inflation outlook, inflation forecasts for end-2020 and end-2021 have been revised upward (Table 7.2.1).

Table 7.2.1: Revisions to End-2020 and End-2021 Inflation Forecasts and Sources of Revisions

	2020	2021
2020-II (April 2020) Forecast	7.4	5.4
2020-III (July 2020) Forecast	8.9	6.2
Forecast Revision as Compared to the 2020-II Period	+1.5	+0.8
Reasons for Forecast Revisions		
Turkish Lira-Denominated Import Prices (Including the Exchange Rate, Oil and Import Prices)	+0.5	+0.1
Food	+0.2	+0.2
Output Gap	+0.3	+0.2
Unit Labor Cost	+0.2	-
Deviation in the Inflation Forecast/Underlying Inflation	+0.3	+0.3

Source: CBRT.

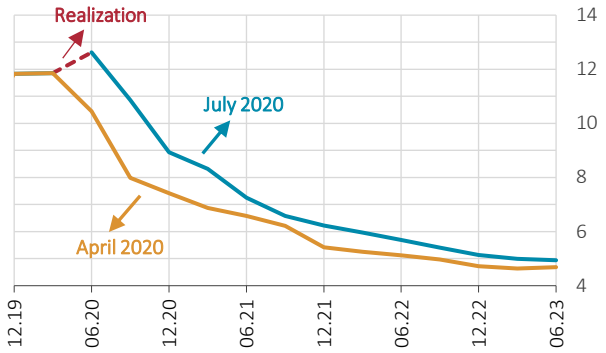
The inflation forecast for end-2020 has been revised upwards by 1.5 points to 8.9% from 7.4% (Chart 7.2.2). Upward revisions to the assumption of oil prices for the rest of the year due to rising international oil prices brought the consumer inflation forecast up by 0.5 points compared to the previous Report; and the increase in the food inflation forecast for end-2020 pushed the inflation forecast up by 0.2 points. The upward revision in the output gap brought the inflation forecast up by 0.3 points.[1] Meanwhile, supply-side factors, which prevailed due to pandemic-related restrictions in the short run, caused unit costs to rise, driving the year-end inflation forecast 0.2 points higher.[2] Moreover, the forecast error for the second quarter and the rise in underlying inflation are judged to add 0.3 points to the year-end inflation forecast.

The inflation forecast for end-2021, on the other hand, was changed from 5.4% to 6.2% (Chart 7.2.2). Of this upward revision of 0.8 points from the April Inflation Report, the oil price-driven rise in the assumption for Turkish lira import prices accounted for 0.1 points and the rise in the food inflation assumption from 7% to 8% accounted for 0.2 points. Meanwhile, the upward output gap revision as a result of the stronger-than-envisaged recovery in aggregate demand conditions increased the year-end forecast by 0.2 points (Chart 7.2.3). Lastly, the most recent realizations in inflation drove the forecast for underlying inflation up by 0.3 points.

[1] The impact of pandemic-led capacity constraints on potential output and output gap estimations is examined in Box 7.1.

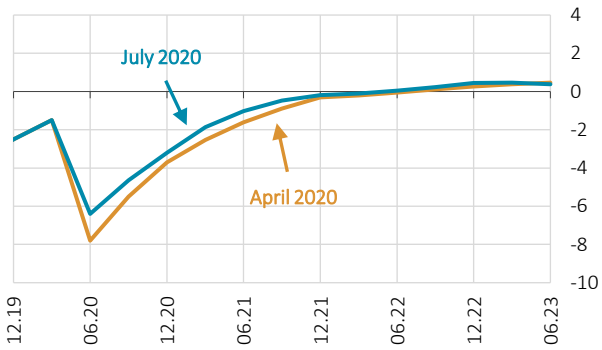
[2] Effects of unit-cost related developments on inflation are discussed in Box 3.1.

Chart 7.2.2: Inflation Forecast



Sources: CBRT, TURKSTAT.

Chart 7.2.3: Output Gap Forecast



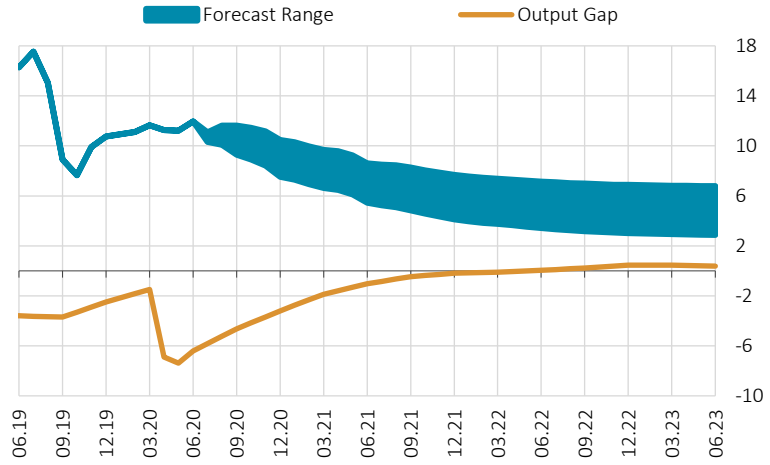
Source: CBRT.

The above projections are based on the assumption that there will be no second wave of the pandemic that will require another round of restrictions on mobility and that the global economy will continue to recover in the second half of the year. Despite expansionary monetary and fiscal measures in advanced and emerging economies, the country risk premium is assumed to improve gradually due to the ongoing uncertainty over the effectiveness of such measures and the recovery. Global uncertainties regarding the course of the pandemic and its economic impact significantly elevate the uncertainty associated with the assumptions and forecasts.

Economic activity strengthens as normalization extends to a broader scale. Assuming that there will be no need for new measures due to the pandemic and that the normalization will remain in place, the economy will likely continue to recover in the second half of 2020. However, the pace of recovery will depend on the course of normalization both in Turkey and abroad. Within a framework in which the monetary stance will be determined based on indicators for the underlying trend and in a way to ensure that the ongoing disinflation is consistent with the medium-term inflation target, it is expected that supply-side factors, which prevailed due to pandemic-related restrictions in the short run, will phase out as normalization continues and the declining trend in inflation will resume starting from July.

Unpredictable price fluctuations in items beyond the monetary policy domain, such as unprocessed food, energy and tobacco products, constitute a major factor causing deviation in inflation forecasts. Core inflation indicators obtained by excluding these items are relatively less volatile and contain more information as to the underlying trend of inflation. Therefore, forecasts for inflation excluding unprocessed food, energy, alcoholic beverages, tobacco products and gold (the B index) are also shared with the public (Chart 7.2.4). In this context, annual inflation in the B index, despite having shown a rise in the recent period, is projected to assume a downtrend as of July and gradually converge to the 5% target in the medium term.

Chart 7.2.4: Annual Inflation Forecast for the B Index*



Sources: CBRT, TURKSTAT.
* Shaded area denotes the 70% confidence interval for the forecast.

Comparison of the CBRT's Forecasts with Inflation Expectations

Improved pricing behavior and inflation expectations are critical for a sustained disinflation process. Currently, 12 and 24-month ahead expectations of the respondents of the Survey of Expectations hover above the CBRT's forecasts (Table 7.2.2). With medium-term expectations lying outside the uncertainty band around the inflation target, all macroeconomic policies should be well-coordinated with the monetary policy to bring inflation down. To better manage expectations, it is necessary that monetary policy remain prudent and government-controlled prices and taxes be set in line with inflation targets to reduce backward indexation.

Table 7.2.2: CBRT Inflation Forecasts and Expectations

	CBRT Forecast	CBRT Survey of Expectations*	Inflation Target
End-2020	8.9	10.2	5.0
12-Month Ahead	6.7	9.3	5.0
24-Month Ahead	5.6	8.4	5.0

Source: CBRT.
* Data from the July Survey of Expectations.

Key Risks to Inflation Forecasts and Possible Impact Channels

The macroeconomic risks that may lead to a change the outlook underlying the inflation forecasts and the associated monetary policy stance are detailed in Chapter 1.2. Evaluations of the channels through which these risks may change inflation forecasts and the direction of this change are summarized in Table 7.2.3.

Table 7.2.3: Key Risks to Inflation Forecasts and Possible Impact Channels*

Risk	Assessment of Risks as against the Baseline Scenario and Possible Impact on Inflation (↑ | ↔ | ↓)	Indicators Monitored
Uncertainties regarding the course of the pandemic and normalization steps	**Uncertainties Regarding the Course of the Pandemic:** • The course of the normalization phase that started with the gradual easing of measures to contain the spread of the pandemic will determine the pace and durability of the recovery. ↔ • In line with the ongoing global and domestic spread of the pandemic and the probability of a second wave, uncertainties regarding the recovery remain high. ↔	• Global and domestic course of the pandemic • Pandemic curves • News flows regarding the measures to contain the pandemic and normalization steps
Uncertainties over the global growth outlook and capital flows towards emerging markets	**External Demand and Global Financial Conditions:** • Ongoing uncertainties regarding the course of the pandemic and its economic implications affect the global growth outlook negatively and keep the downside risks to domestic activity alive through both the foreign trade and capital flows channels. ↓ **Global Risk Appetite:** • Uncertainties regarding the global economic activity outlook and the effectiveness of policy measures reduce the global risk appetite, and the increased demand for safe haven assets poses a downside risk to capital flows towards emerging markets. ↑ • Depending on the course of the pandemic, expansionary monetary and fiscal measures taken by advanced economies may increase the risk appetite and support portfolio flows to emerging markets. ↓	• Course of the spread of the pandemic on a global scale • Global inflation and growth indicators and related forecasts • Export-weighted global production index • Indicators of activity in manufacturing and services sectors • Global economic and trade policies • Global risk appetite indicators • Trend and composition of global capital flows,Turkey's share
Uncertainties over demand and growth outlook	**Demand Channel:** • If the normalization takes longer, the recovery in economic activity may be slower in certain sectors due to supply-side factors (domestic and international supply chains, such as capacity constraints, and social distancing measures applied during the normalization). ↓ • Uncertainties regarding the possible effects of the pandemic and health measures on consumption habits and general spending behavior persist. The income and confidence channel will determine the pace of recovery in expenditures. ↔ • In addition to demand-side factors, the effect of the pandemic on the supply conditions may be different at the sectoral level which may also increase sectoral heterogeneity in pricing behavior. ↔	• Course of demand and growth components • Aggregate demand and credit composition • Tendency surveys • Confidence indices • Unemployment gap, credit gap and output gap indicators • Various demand and inflation indicators by sectors and subsectors

Table 7.2.3: Key Risks to Inflation Forecasts and Possible Impact Channels*

Risks regarding credit supply and composition	**Balance Sheet and Bank Lending Channel:** • Recent monetary, financial and fiscal measures as well as the increase in credit supply largely driven by state banks limit the downside risks to the pace of recovery. **Credit Composition and Financial Stability:** • The recent acceleration in consumer loans is closely monitored for its effects on growth, inflation, current account deficit, and risk premium. In this context, the effects of credit growth on internal and external balances, portfolio choices of domestic and international investors and developments in external financing conditions are monitored for their potential impact on financial stability and price stability.	↔ ↑	• Credit use by firms • Loan and deposit rates • Stage 2 loans and NPL breakdown by sectors and loan types, bad cheques and protested bills • Credit conditions (Bank Loans Tendency Survey) • Indicators of credit demand • Financial sector and real sector balance sheets, cash flows • Residential and commercial real estate prices • Roll-over ratios of external debt and borrowing costs of Turkish banks • Firms' roll-over ratios of external debt and developments in external borrowing • Data on the composition of loans by borrowers (retail/commercial), maturities, sectors and firm size • Banks based loans, credit to deposit ratios, liquidity ratios, assets and liabilities • External balance, inflation and risk premium
Risks regarding food prices	**Food Prices:** • Unprocessed food prices may be volatile due to weather conditions and supply-side factors, which may cause risks to inflation forecasts in either direction. • The course of prices of pulses, which have a large import share in total supply, and the secondary effects of current increases pose upside risks. The rise in wheat prices is also closely monitored. • The slowdown in exports and tourism poses downside risks to food prices.	↔ ↑ ↓	• Supply-side developments in agricultural production • Factors which affect supply share to domestic market such as exports and tourism • Agricultural commodity prices • Deviation of unprocessed food prices from historical trend • Food Committee measures and their implications

Table 7.2.3: Key Risks to Inflation Forecasts and Possible Impact Channels*

Elevated levels of medium-term inflation expectations	**Pricing Behavior and Expectations Channel:** • Elevated levels of medium-term inflation expectations indicate that upward risks to pricing behavior remain. ↑ • High sensitivity of inflation expectations to inflation realizations and inflation surprises poses risk in terms of managing expectations. ↑	• Key inflation indicators • Diffusion indices • Indicators pertaining to backward indexation behavior in inflation expectations • Distribution of inflation expectations • Inflation uncertainty indicators • Inflation indicators by sectors and subsectors • Survey and market-based expectations of inflation and exchange rates
Risks to labor market	**Income and Demand Channel:** • Likely loss of household income and increasing unemployment may pull demand domestic conditions down. Impact of economic recovery on the labor market and effectiveness of the measures to maintain employment will have a determinant role. ↓ **Productivity and Cost Channel:** • Though the effect of unit wages on inflation is expected to wane due to easing supply-side contraints in the normalization phase, possible secondary effects are closely monitored. ↓	• Real unit labor costs • Partial labor and total factor productivity • Employment and participation rate developments • Measures to maintain employment
Fluctuations in the country risk premium	**Pricing Behavior and Expectations Channel:** • The country risk premium and the exchange rate volatility that increased due to the pandemic remain relatively high despite some decline in the period after the April Inflation Report. This may pose upside risks to inflation forecasts through the exchange rate volatility and expectations channels. ↑ **Financial Conditions and Demand Channel:** • Upward movements in country risk premium and exchange rate volatility may exert a downward pressure on economic activity through the financial conditions channel. ↓	• Risk premium indicators • Global risk appetite indicators • Expectations of inflation and exchange rates • Exchange rate pass-through estimates • Implied volatility of exchange rates • Domestic macroeconomic indicators • Financial conditions • Credit market indicators • Output gap indicators • Leading indicators of demand and economic activity • Financial and real sector balance sheets • Capital flows • News flows regarding geopolitical developments

Table 7.2.3: Key Risks to Inflation Forecasts and Possible Impact Channels*

Risks to effectiveness of monetary and fiscal policy coordination	**Administered Price and Tax Adjustments:** • The disinflation process may be delayed, should the path of administered prices and tax adjustments significantly exceed the path envisaged in this Report due to the increase in public financing needs in relation to measures to contain the effects of the pandemic. ↑ **Risk Premium:** • Medium-term course of the budget balance and debt stock may affect the country risk premium. ↑	• Administered price and tax adjustments • Developments in tax revenues and public expenditures • Fiscal policy measures • Government budget and public debt stock indicators • Estimates of the structural budget balance
Fluctuations in crude oil and import prices	**Import Prices:** • Despite the recent recovery in oil prices, uncertainties over global economic activity keep the downside risks to crude oil prices alive. ↓ • The unpredictable course and consequences of the pandemic, volatilities in global financial markets, and the ongoing economic and geopolitical uncertainties on a global scale pose upside risks to precious metal prices. ↑	• Course of the global spread of the pandemic • Crude oil and other commodity prices and supply-demand balance • Global trade policies • OPEC+ decisions • Adjustments in domestic fuel oil prices • Imports and current account balance

* Each risk row of the table presents evaluations on the channel through which inflation forecasts may change, along with the direction of that change, if the respective risk materializes. The signs ↑, ↓ indicate the direction in which the risks influence the inflation forecast (upside and downside, respectively). The sign ↔ denotes circumstances where the net effect on the inflation forecast is not clear. Indicators used in monitoring the risks are listed in the right column.

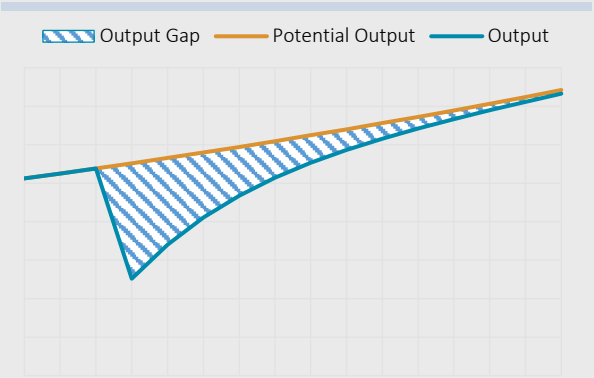
Box 7.1

Pandemic-Driven Supply and Demand Shocks and Their Impact on Potential Output and Output Gap

The coronavirus pandemic poses a great health risk for the entire world, and has strong repercussions for economies. Measures to contain the spread of the coronavirus have changed consumption behavior, affected supply chains and had a significant impact on production and employment. Simultaneous supply and demand shocks, and the interplay between them, imply a great uncertainty in estimating the effect that the deep contraction in the second quarter and the recovery in the following quarter have on the output gap and inflation. This box provides a conceptual perspective on the pandemic-driven supply and demand shocks' impact on potential output and the output gap.

Potential output is defined as the largest amount of output achievable by the factors of production, labor and capital, given the level of technology. The output gap is, therefore, defined as the gap between actual output and potential output (Chart 1). Actual output being lower (larger) than its potential, i.e. the output gap being negative (positive), implies that demand conditions in the economy are disinflationary (inflationary).

Chart 1: Potential Output and Output Gap

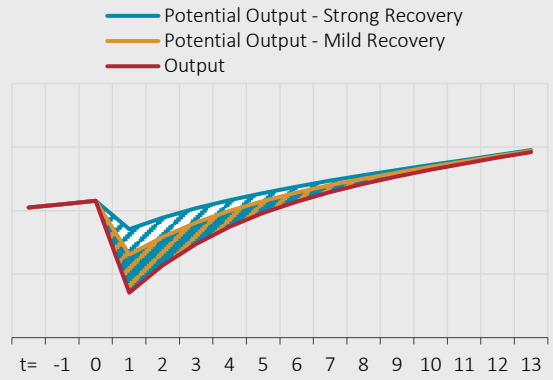


Considering that productivity along with labor and capital do not usually change sharply in the short run, potential output should not be very volatile. However, factors of production might experience severe drops in events such as natural catastrophes and pandemics, and so might potential output. Due to both the direct impact of the coronavirus pandemic and the measures taken against it, part of the population has withdrawn from consumption and production networks. This, acting as a negative supply shock, reduced both labor productivity and labor, leading to a contraction in potential output in the short run. Pandemic-related restrictions disrupted production and supply chains, and at the same time, led to lower mobility and income losses. Moreover, the distortion in international supply chains affected production negatively, and the suspension of export channels reduced aggregate demand. Lower confidence and higher uncertainty tightened domestic demand. Decomposing the decline in output into supply and demand shocks is critical to estimating the output gap reliably and understanding the (dis)inflationary impact of demand conditions.

For the second quarter of 2020, potential output is estimated to be contracting in the short term as a result of supply shocks driven by pandemic-related measures such as social distancing and mobility restrictions, while the magnitude of the contraction is highly uncertain. Given the

sharp fall in GDP, if potential output remained the same, the output gap would rapidly widen, implying strong disinflationary pressures on prices. However, depending on the size of the potential output contraction, output gap estimates differ (Barba Navaretti et al., 2020; World Bank, 2020). To illustrate the supply-side factors, Chart 2 compares the output gap in two scenarios in which potential output contractions differ in magnitude but the fall in GDP is kept fixed. The blue line depicts an economy where there is a mild contraction in potential output, whereas the orange line depicts an economy where there is a stronger contraction in potential output, at time t = 1 when the shock hits the economy. A comparison of output gaps denoted by the patterned areas reveals that the economy with stronger potential output contraction experiences a smaller output gap (Chart 3). In other words, depending on the size of supply shocks, the disinflationary impact of demand conditions may remain weaker.

Chart 2: Different Potential Output Contractions and Resulting Output Gaps



Blue patterned area denotes the output gap that corresponds to a mildly contracting potential output, while the orange patterned area denotes the output gap that corresponds to a strongly contracting potential output.

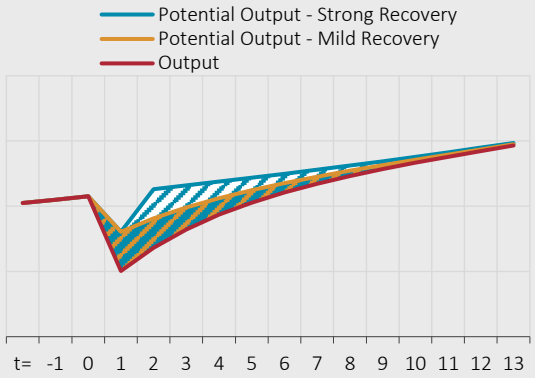
Chart 3: Output Gaps Under Different Potential Output Contractions (Period t = 1)

Blue patterned column denotes the output gap that corresponds to a mildly contracting potential output at time t = 1 (and to the blue patterned area in the Chart 2), while the orange patterned column denotes the output gap that corresponds to a strongly contracting potential output (and to the orange patterned area in the Chart 4).

In the third quarter of 2020, as part of the normalization policy, restrictions taken against the pandemic began to ease gradually. As firms opened up and factors of production recovered, potential output started converging back to pre-pandemic levels. As in the contraction period, the question of how much of the output recovery will be attributed to supply-side factors (return to activity under capacity constraints, social distancing rules applied at workplaces, etc.) is important to evaluating the demand and inflation relationship. To visualize this, Chart 4 compares the levels of the output gap occurring at period t = 2 in two different economies. Both economies roll back the restrictions, but potential output recovers at different speeds.

In period t = 2 when normalization begins, the economy indicated by the blue line experiences a sharp recovery in potential output, driven by the complete reversal of supply-side factors. In the economy depicted by the orange line, however, supply-side factors die out gradually, and potential output thus recovers in a slower manner. When there is a sharp recovery in potential output, the output gap is deeper in the negative territory, implying that demand conditions pose stronger deflationary pressures on prices (Chart 5). In this regard, large output growth figures that may materialize in the third quarter do not necessarily imply a large recovery in demand conditions. Implications of the third quarter's output growth for inflation depend on how strong the reversal of supply-side factors is. Medium-term forecasts are conditioned on output gap forecasts, which are produced under the assumption that the contraction and the expansion in the second and third quarters, respectively, are largely attributed to supply-side factors (i.e. potential output).

Chart 4: Different Potential Output Recoveries and Resulting Output Gaps in the Normalization Period



Blue patterned area denotes the output gap that corresponds to a sharply recovering potential output, while the orange patterned area denotes the output gap that corresponds to a mildly recovering potential output.

Chart 5: Output Gaps Under Different Potential Output Recoveries in the Normalization Period (Period t = 2)

Blue patterned column denotes the output gap that corresponds to a sharply recovering potential output at time t = 2 (and to the blue patterned area in the Chart 4), while the orange patterned column denotes the output gap that corresponds to a mildly recovering potential output (and to the orange patterned area in the Chart 4).

Pandemic-related restrictions work as a supply-side shock on the unit costs channel. If production costs and quantities such as wages, rents and energy were adjusted flexibly, production/sales and inputs would be reduced proportionately to contain unit cost pressures. However, as a result of fixed costs and rigidities, unit costs rise. For instance, pandemic-related social distancing rules brought along capacity constraints in certain services such as restaurants-hotels, retail industry and hairdressing, increasing unit costs significantly in these services. Furthermore, these sectors experienced a shutdown in April, and prices were updated once they opened up during the normalization in June. This justifies taking both supply and demand-side factors into account when evaluating inflationary pressures. As pandemic-related measures are rolled back as part of normalization, supply-side factors that have been dominant in the short term are expected to revert back to pre-pandemic levels. As a result, as potential output recovers, increases in unit costs should be curbed and disinflationary demand-side factors should weigh more on inflation.

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