

4. Supply and Demand Developments

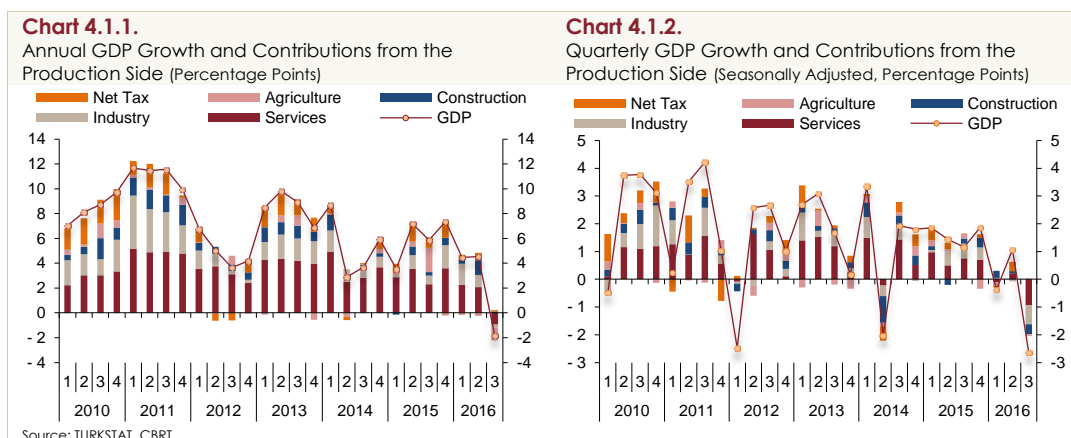
The third-quarter economic activity was weaker than projected in the October Inflation Report. Falling tourism revenues had a more severe impact in this period, which was amplified by the mid-July turmoil and the loss of workdays due to extended religious holidays. Adjusted for both regular and irregular calendar effects, the slowdown in the underlying economic activity is not quite as deep as signaled by the third-quarter GDP data.

Current indicators point to quarterly economic recovery for the fourth quarter, which, however, is moderate apart from the negated workday losses of the third quarter. New measures and incentives have stimulated the demand for houses and durable goods through increased borrowing, but the lackluster job market and weakening consumer confidence seemingly put a lid on private consumption. Meanwhile, no notable recovery was observed on the private investment front. The recently restored relations with Russia had a favorable effect on exports of goods and services, whereas the slowing domestic demand rendered imports relatively weaker, suggesting that net exports will have a smaller negative contribution.

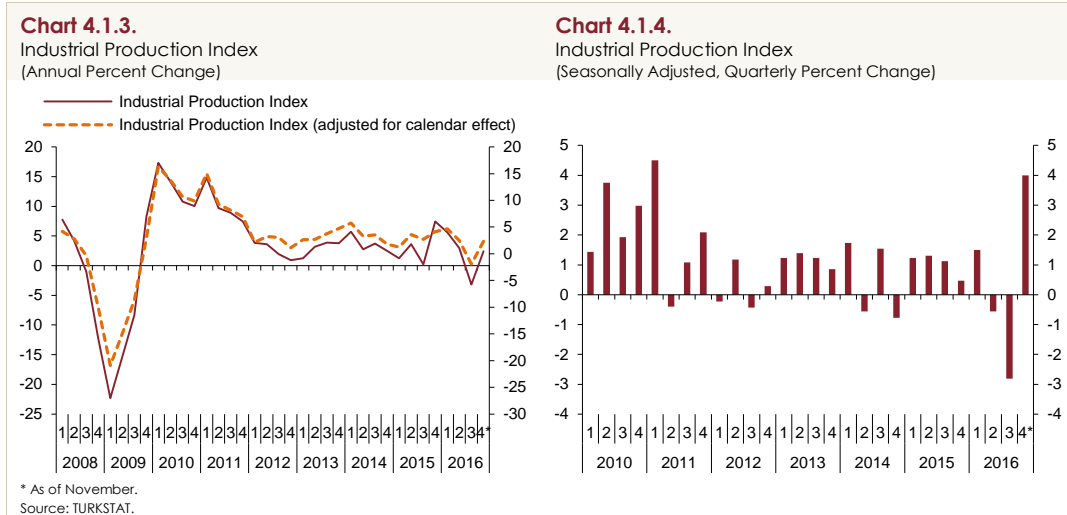
The tourism outlook remains gloomy, but economic activity is expected to see further modest recovery owing to accommodative incentives and measures. Nevertheless, due to recent rise in uncertainty, the growth outlook faces more downside risks. The fragile global growth, the uncertainty over monetary policies in advanced economies, the course of capital flows and geopolitical tensions pose a downside risk to growth for 2017, as in the recent past. Lastly, commodity prices are likely to become gradually less favorable for the current account deficit in the coming months.

4.1. Supply Developments

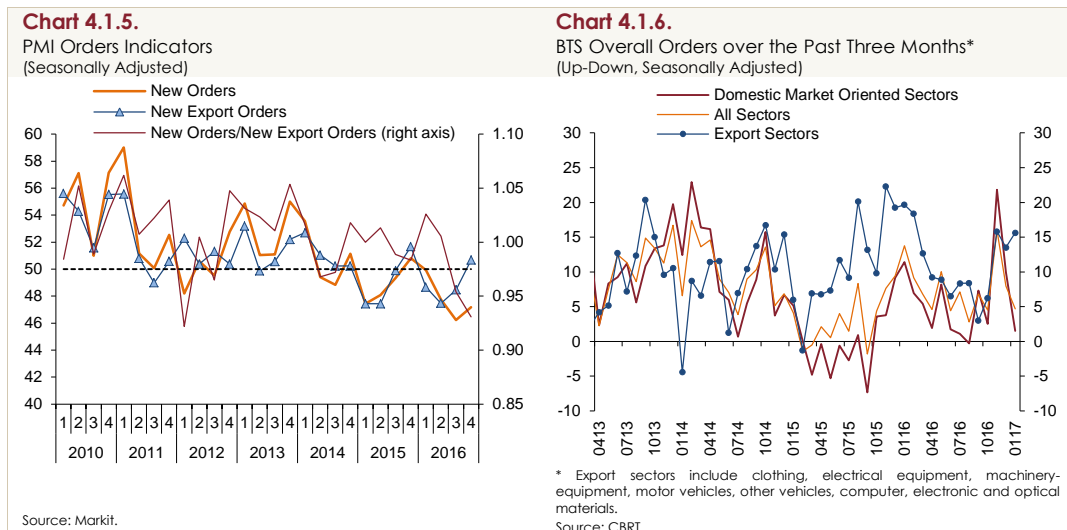
The GDP posted a year-on-year decrease by 1.8 percent in the third quarter of 2016 and posted a quarter-on-quarter contraction of 2.7 percent on a seasonal and calendar-adjusted basis. The yearly and quarterly downturn spread across all sectors (Charts 4.1.1 and 4.1.2). The direct and indirect spillovers of a marked decline in tourism revenues led to a slowdown in services and industrial sectors. Additionally, the mid-July turbulence and the loss of working days due to extended religious holidays dampened all sectors. Adjusted for both regular calendar effects and the working day losses, economic activity is estimated to have registered a small yearly growth and a minor quarterly contraction in the third quarter.



October and November's industrial production shows that the third-quarter descent was short-lived and offset in the fourth quarter (Charts 4.1.3 and 4.1.4). Apart from the technical recovery linked to the compensation of the workday losses of the third quarter, the underlying industrial production posted a mild gain in the fourth quarter, which, however, failed to spread across all sectors. In particular, export-oriented sectors, especially vehicles, provided a boost to industrial production, whereas other sectors pulled industrial production down in this period.



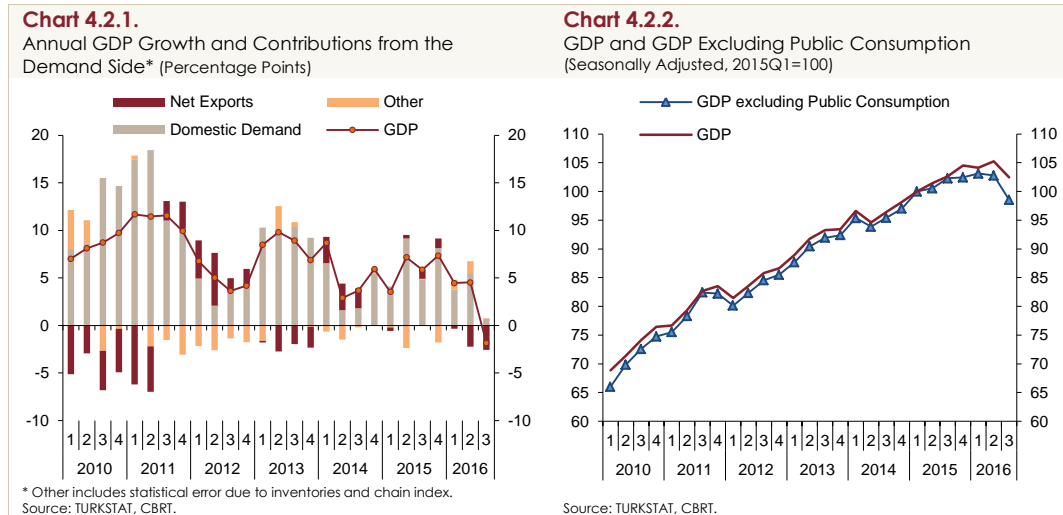
Survey indicators confirm the moderate fourth-quarter rebound and indicate that export sectors are relatively better off (Charts 4.1.5 and 4.1.6). Aggregate demand composition is expected to change further with the depreciation of the Turkish lira. In fact, the January drop in orders across domestic market oriented sectors points to downside risks to domestic demand.



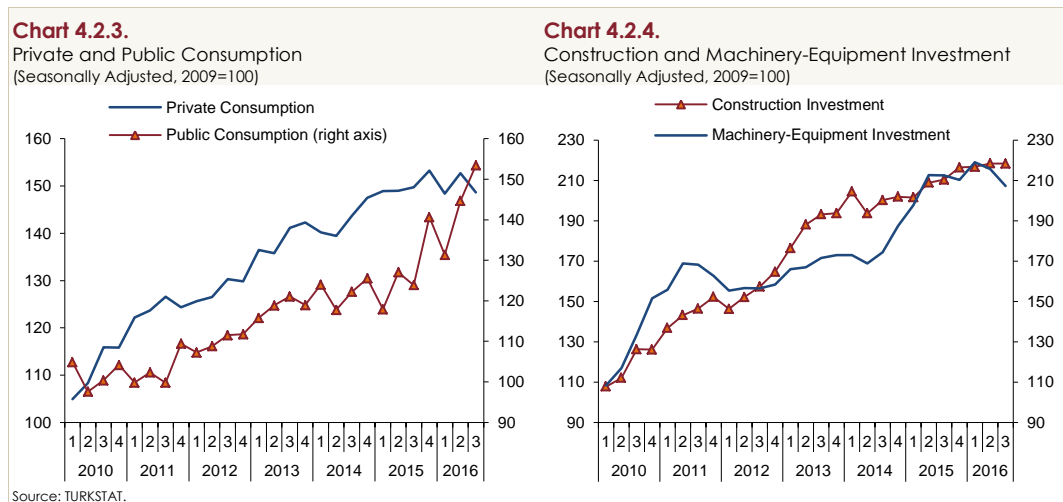
4.2. Demand Developments

The GDP data on the expenditures side indicate that net exports provided an increased negative contribution to growth in the third quarter amid a stronger loss in tourism revenues. Moreover, the uncertainty spurred by the mid-July turmoil caused domestic demand to weaken substantially

(Chart 4.2.1). The upswing in public consumption was the main driver of domestic demand, while rising construction investments restricted a further fall in total investments.

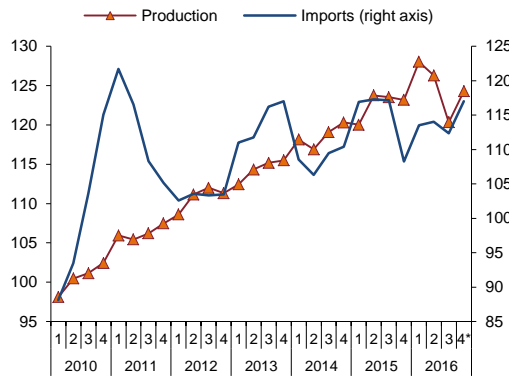


On a seasonally adjusted basis, all items except public consumption posted quarter-on-quarter declines in the third quarter. Therefore, excluding public consumption, the GDP exhibits a deeper contraction (Chart 4.2.2). Private consumption and investment spending were down quarter-on-quarter due to the mounting domestic uncertainty since mid-July, with machinery and equipment investments accounting for most of the drop (Charts 4.2.3 and 4.2.4).



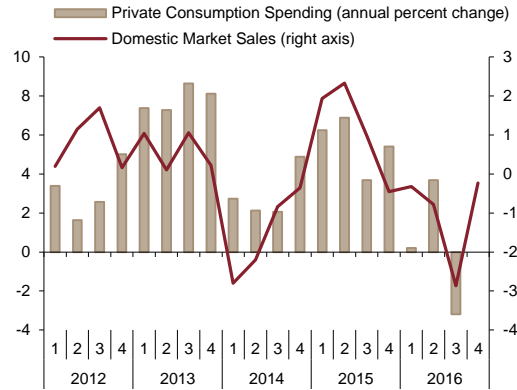
Indicators for the fourth quarter of 2016 imply that the private consumption slump of the third quarter is temporary. Indeed, the production and imports of consumption goods picked up from the third quarter in the October-November period (Chart 4.2.5). Automobile sales soared upon expectations for a possible pass-through from the depreciating Turkish lira and the SCT hikes to prices in coming periods. Likewise, white goods sales increased quarter-on-quarter amid climbing house sales and the demand brought forward due to the Turkish lira plunge. All in all, the fourth-quarter sales data point to a limited recovery in private consumption for the fourth quarter (Chart 4.2.6).

Chart 4.2.5.
Production and Imports of Consumption Goods
(Seasonally Adjusted, 2010=100)



* As of November.
Source: TURKSTAT, CBRT.

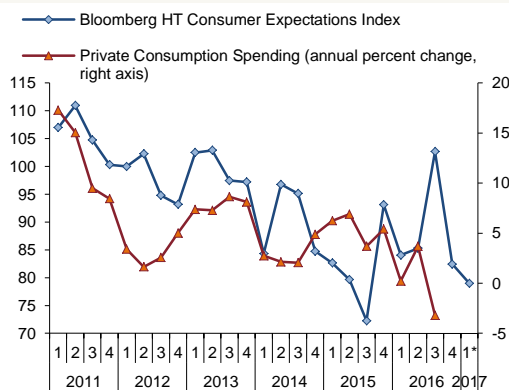
Chart 4.2.6.
Private Consumption Spending and Domestic Market Sales*



* Domestic market sales show the common factor measured by principal component analysis covering automobile sales, white goods sales, retail sales and shopping mall sales indices.
Source: AMA, WGMA, TURKSTAT, CSC, CBRT.

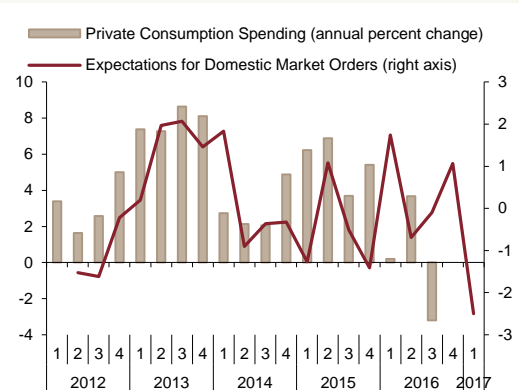
Private consumption is expected to weaken over the upcoming period. This is due to the fact that the demand for exchange-rate-sensitive goods was brought forward, which is estimated to curb private demand in the first quarter of 2017. Furthermore, the decline in the Bloomberg HT Consumer Expectations Index, which measures consumers' sentiment about their economic situation and the Turkish economy for the next 12 months, hints at weaker consumption spending in the coming months (Chart 4.2.7). In fact, leading indicators also signal a weakening in private consumption demand for the first quarter of 2017 (Chart 4.2.8). Nevertheless, house sales are expected to remain on the rise in the first quarter. With the decline in mortgage rates continuing since end-December and incentives for house purchases continuing into the first quarter, the demand for the housing sector might remain brisk. Moreover, data from the Bank Lending Survey point to an easing in mortgage lending standards for the first quarter of 2017, which may also help prop up housing demand. A continued robust demand for houses might stimulate the demand for furniture and white goods, and hinder the expected weak course of private consumption.

Chart 4.2.7.
Private Consumption Spending and Consumer Expectations Index



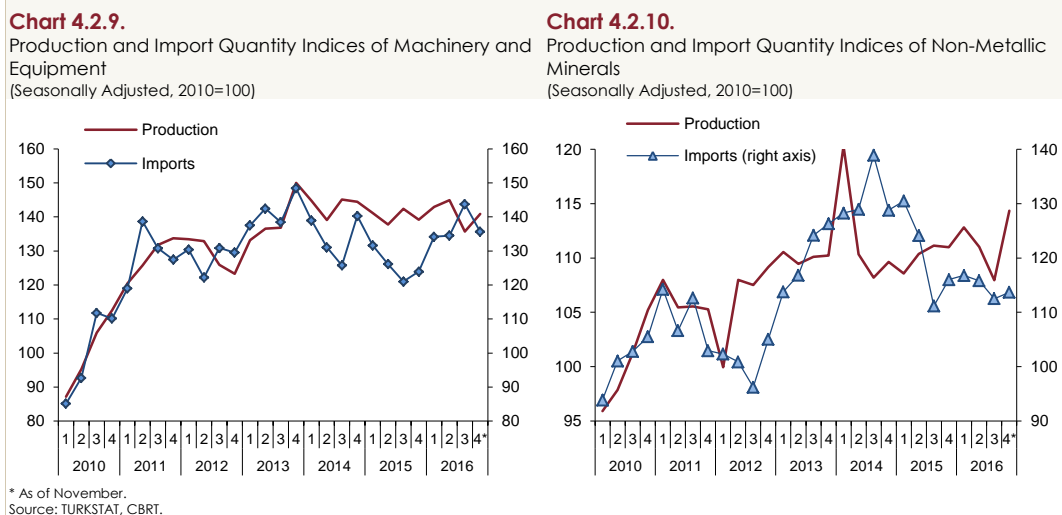
* As of January.
Source: Bloomberg HT, TURKSTAT.

Chart 4.2.8.
Private Consumption Spending and Expectation for Domestic Market Orders

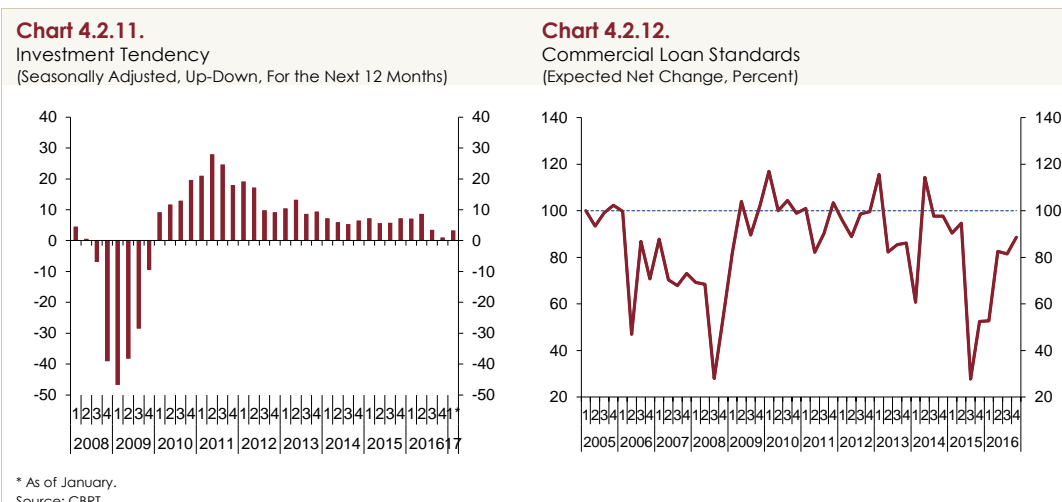


* Expectations for domestic market orders denote the common factor measured by the principal component analysis covering retail trade supplier orders and BTS domestic market orders for the next three months. Expectations for domestic market orders are backdated with one quarter as they lead private consumption spending.
Source: TURKSTAT, TEPAV, CBRT.

Current indicators signal that investment demand recovers at a slower pace than consumer demand thus investments may not record a strong rebound in the fourth quarter. In the October-November period, machinery-equipment saw production growing yet imports falling (Chart 4.2.9). As for construction indicators, the rise in the production and imports of non-metallic minerals implies an increase in construction investments for the fourth quarter (Chart 4.2.10).

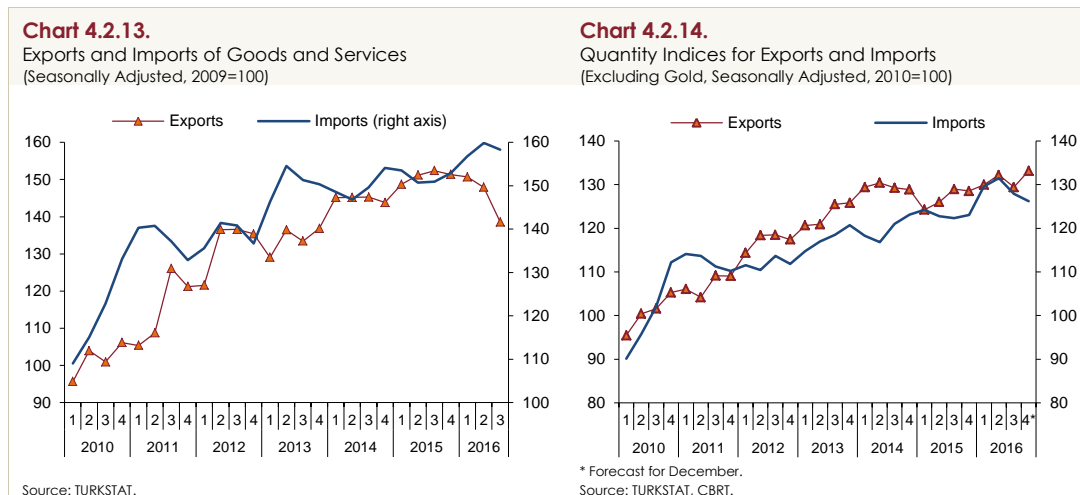


The fixed capital investment tendency of manufacturing companies for the next 12 months remain low, largely due to weak domestic demand and financing constraints (Chart 4.2.11). According to the Bank Lending Survey, firms' demand for loans increased in the first quarter of 2017, while commercial loan standards are expected to remain tight (Chart 4.2.12). Another factor dampening the future investment outlook is aggravating uncertainty due to the recent volatility in financial markets. Uncertainty indicators developed for various economic agents such as consumers, firms and the financial sector suggest that investment growth faces more downside risks (Box 4.1).



Exports of goods and services slumped in the third quarter of 2016 amid stronger loss in tourism revenues and the decline in exports, while the imports of goods and services fell at a more modest pace (Chart 4.2.13). Thus, net exports provided a larger negative contribution to quarterly growth in the

third quarter. Recent data signal some rebound for exports in the fourth quarter (Chart 4.2.14). The moderate global economic recovery, restored relations with Russia and Turkey's high flexibility in market diversification bolster the exports of goods. Moreover, the slowing decline in tourism revenues in the fourth quarter buoys up the exports of goods and services. Data for the final quarter point to a minor drop in imports driven by weak domestic demand (Chart 4.2.14). The more promising outlook for exports than imports suggests that net exports are likely to make a less negative contribution to growth in the fourth quarter.



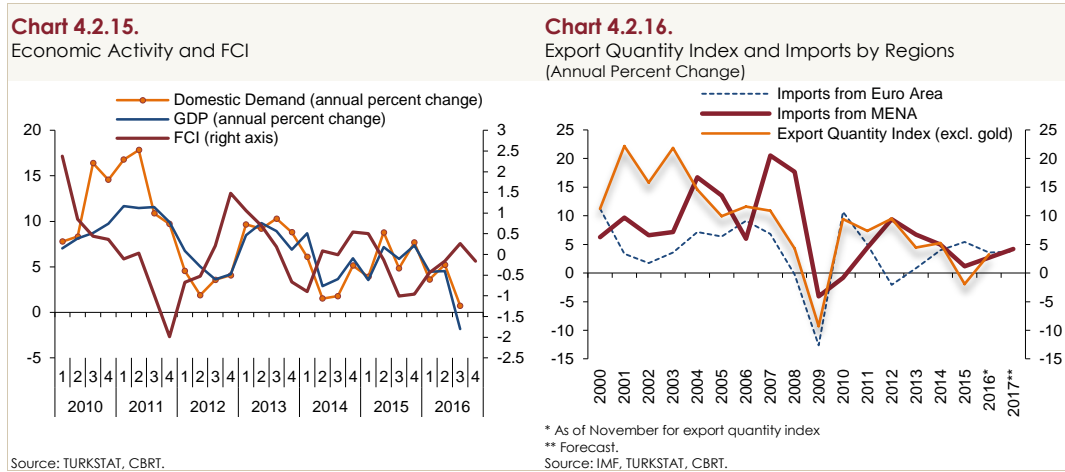
In short, economic activity slackened in the third quarter of 2016 due to both domestic demand and net exports. Indicators for the fourth quarter hint at some recovery for private consumption. Yet, the fact that the rebound in domestic demand has been restricted to some sectors as well as the weakening consumer confidence and the troubled labor market pose downside risks to private consumption demand. Investment demand remained virtually unchanged in the final quarter. Meanwhile, the aggravating economic uncertainty, the deteriorating financing conditions and the weakening domestic demand stood as the key downside risks to investments. On the other hand, net exports are expected to make a less negative contribution to growth, while the public sector is expected to spur growth through investments in the fourth quarter.

Outlook for 2017

Economic activity is expected to remain on a modest growth track in 2017 amid demand-stimulating incentives and the expected recovery across Turkey's trading partners. However, lately, the available data imply an aggravating sentiment of uncertainty about the economy (Box 4.1). In recent months, the exchange rate became highly volatile while financial conditions tightened, which negatively affected the private demand outlook, particularly for investments (Chart 4.2.15). Additionally, the wage hikes scheduled for 2017 are expected to provide less support to private consumption spending than in 2016.

Exports of goods might provide added support to growth in 2017. In addition to the awaited mild growth in the EU, the positive income effect that may be observed in Turkey's oil-exporting trading partners upon rising oil prices and the recent course of the Turkish lira may stimulate exports

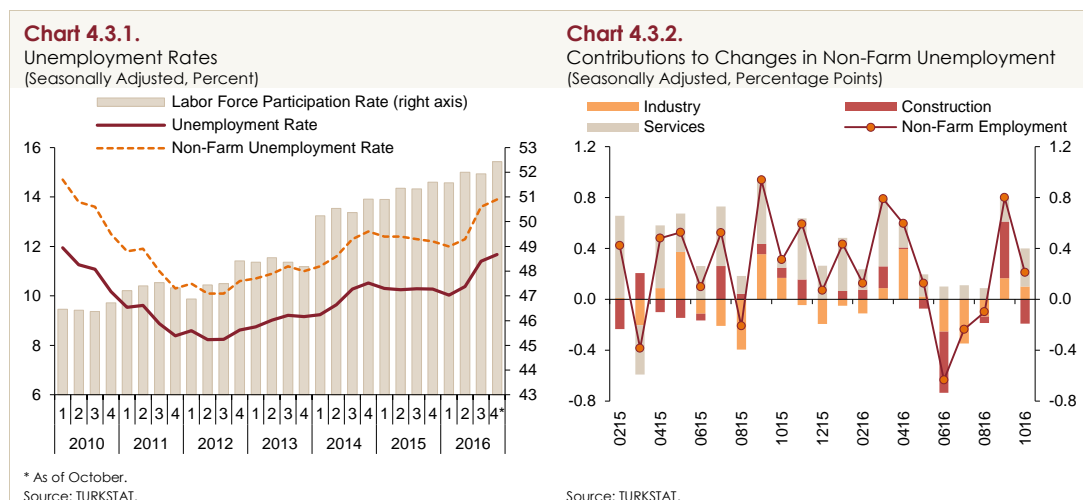
(Chart 4.2.16). Nevertheless, despite restored relations with Russia and prospects for Russia's economic recovery, exports of services may remain subdued due to the barely improving outlook for tourism.



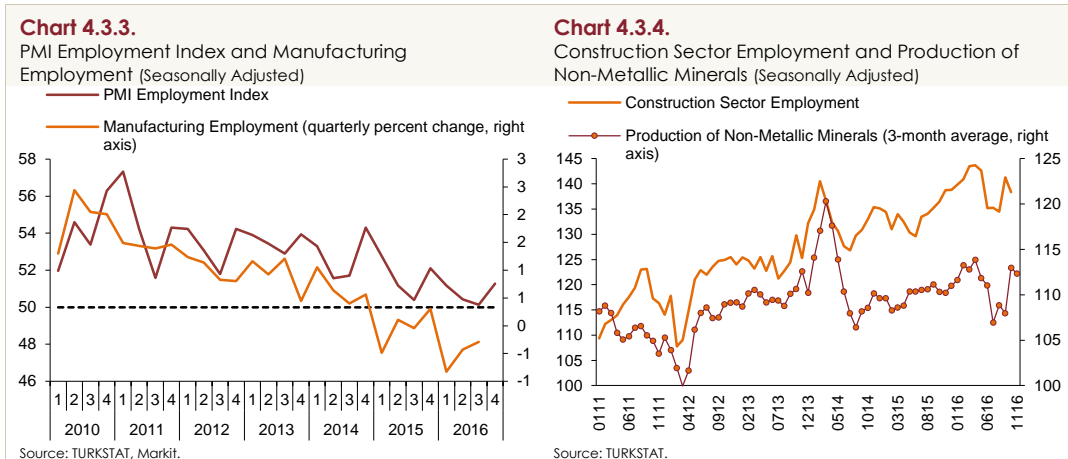
In sum, the modest economic recovery of 2017 is expected to be spurred mainly by the direct and indirect support of the public sector and by the impending rebound in external demand. However, given the recent course of financial conditions and the sentiment of uncertainty, economic activity is estimated to recover gradually and slowly. Along with the tourism outlook, the uncertainty over advanced market monetary policies, the course of capital flows, geopolitical tensions and the fragility in global growth pose downside risks to the pace of economic recovery in the upcoming period. Meanwhile, the possible lagged effects of the recently adopted incentives and measures may act as upside risks.

4.3. Labor Market

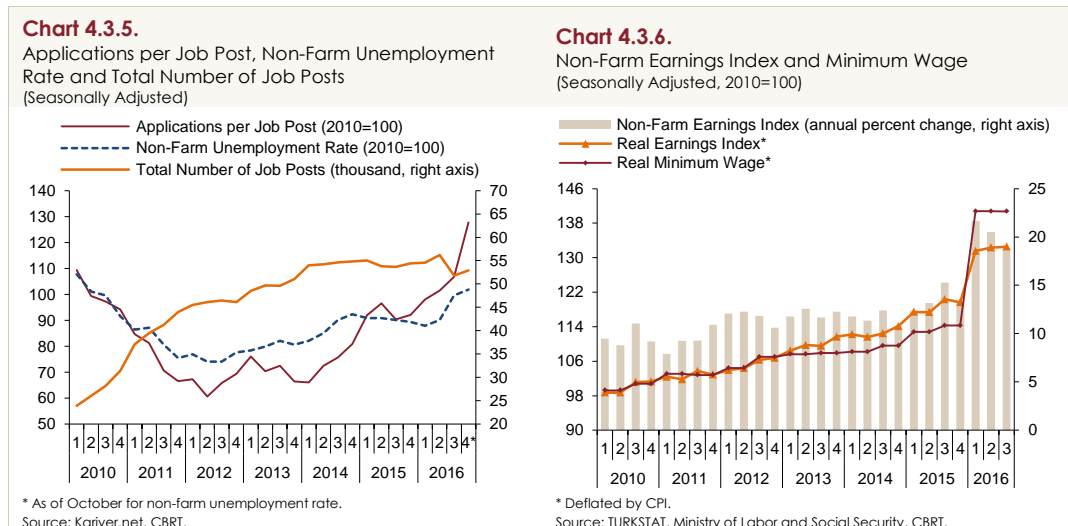
With the marked slowdown in the underlying economic activity, total and non-farm unemployment rates surged in the May-October period (Chart 4.3.1). The increase in the unemployment rate was driven by rising labor participation, along with weakening employment. The weakening non-farm employment of the first ten months of 2016 was attributable to falling industrial employment. In this period, the construction industry provided no support to non-farm employment growth while the services sector made a further contribution (Chart 4.3.2).



The PMI employment index, an indicator of manufacturing employment, posted a quarter-on-quarter uptick in the fourth quarter (Chart 4.3.3). Excluding the base effect driven technical recovery during the October-November period, the industrial production adjusted for seasonal and calendar effects displayed mild gains, signaling a steady industrial employment outlook for the fourth quarter. The production of non-metallic minerals, which is closely associated with construction employment, soared in October but edged down in November, suggesting that construction employment might be flat in the fourth quarter (Chart 4.3.4).

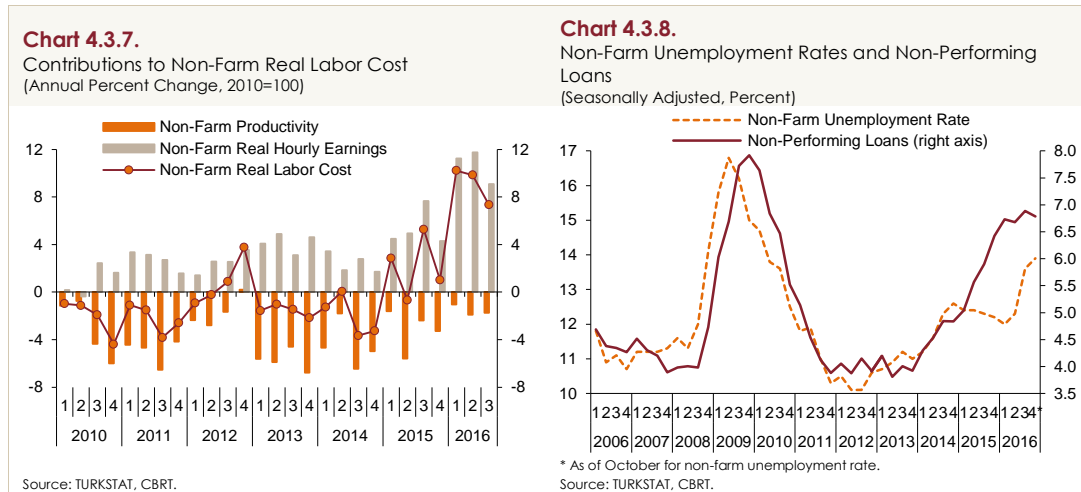


Data from Kariyer.net indicate that total number of job posts hardly improved from the previous quarter in the final quarter of 2016 (Chart 4.3.5). Applications per job post, which are closely associated with unemployment rates, trended upwards. Thus, leading indicators signal a rise in the underlying trend of unemployment rates for the upcoming period.



In the first nine months of 2016, wage hikes pushed unit labor costs higher and caused lower profits, thus bringing an additional burden on inflation (Chart 4.3.6). In this period, which is marked by low productivity gains, wage hikes were largely reflected on unit labor costs (Chart 4.3.7). On the other hand, the minimum wage support to employers provided by the government has partly compensated for the adverse effects of wage hikes on both employment and costs. Rising unemployment rates may

put a downward pressure on household spending in the upcoming period and cause delays in loan payments (Chart 4.3.8).



To sum up, employment has declined amid slowing economic activity since May 2016 while unemployment rates have continued to climb. In view of a likely moderate growth in the fourth quarter and leading indicators for employment, unemployment rates are expected to rise and remain elevated throughout 2017. The current pattern of employment and unemployment rates reflects a weakening that can dampen private consumption demand in the coming months.

Box
4.1

An Economic Uncertainty Indicator for Turkey

Uncertainty is any incidence that hampers the ability of economic agents, such as households, firms and policymakers to perceive the current situation and predict future conditions. Uncertainties about growth, demand, financial indicators, job prospects or expected income may count as economic uncertainty. In periods of heightened economic uncertainty, consumers tend to increase their precautionary savings and might delay their spending on durable goods or houses. Likewise, in times of heightened uncertainty about demand and borrowing costs, firms might postpone their investment and hiring decisions. Moreover, volatility surges in these periods, hindering policymakers' forecasting and decision-making abilities.

Uncertainty may be due to various reasons, such as financial, political and economic developments, and also have various implications for economic agents. Therefore, uncertainty measurement should be based on a comprehensive approach that takes into account the uncertainty sentiment of different economic agents. Accordingly, this study estimates an aggregate uncertainty indicator for the Turkish economy by following Haddow et al. (2013) and ECB (2016). In this regard, four individual uncertainty indicators are constructed to capture financial uncertainty, consumer uncertainty, firm uncertainty and forecast uncertainty by using data from various indicators on money and financial markets, various surveys conducted among consumers and firms as well as the CBRT Survey of Expectations. The seasonal adjustment of these series is performed using TRAMO/SEATS and the non-stationary series are transformed by taking their first differences. Then, the volatility of the respective series is estimated using the GARCH (1,1) model, which serves as an uncertainty indicator.^{1,2} In the next stage, the common factor of the uncertainty indicators that are highly correlated with growth, private consumption and investment is estimated using a dynamic factor model, which produces the individual uncertainty indices for the above four categories.³ Table 1 presents these estimated uncertainty indicators.⁴

The uncertainty sentiment may vary across different economic agents, hence alternative indicators should be monitored simultaneously in order to have an accurate picture of the overall economy. So, in the next step, this study computes an aggregate uncertainty index by estimating the common factor of the above uncertainty indicators via dynamic factor model, and thus constructs a single uncertainty indicator for the overall economy by compiling information from multiple sources. This common factor is called the composite economic uncertainty indicator (Chart 1).

¹ In addition to using the GARCH model, volatility is also measured by standard deviation, a qualitative volatility model and a sequential volatility measure. Yet, the GARCH model produces a higher correlation between volatility and macroeconomic variables than other methods.

² VIX, implied USD/TL volatility, EMBI, interest rate volatility and CDS are already volatility indicators; therefore, these series do not need to be estimated by GARCH models.

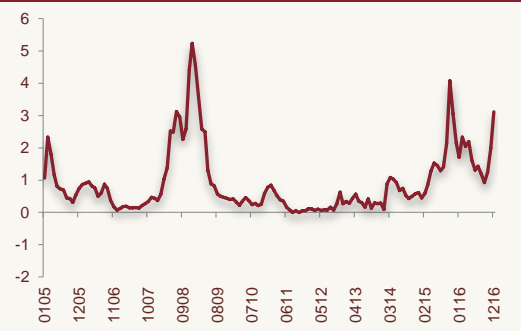
³ Besides dynamic factor model, the uncertainty index may alternatively be measured by taking the simple average or median value of the series or by the use of principal component analysis. However, dynamic factor model is chosen over these alternatives given its better performance in explaining the common variance of the series and reflecting the overall tendency. Moreover, the dynamic factor model is also preferred given the impossibility to measure common factor by the principal component analysis in case of missing observations.

⁴ These series are selected out of a broader dataset that also includes interest rate expectations from the CBRT Survey of Expectations, confidence indices and orders for services and construction sectors as well as some PMI and BTS data. Accordingly, the volatility for each series was estimated and the relationship of these estimated volatility series with GDP, consumption and investment were examined within a cross-correlation analysis. Yet, these series were eliminated given their low correlation with economic activity indicators.

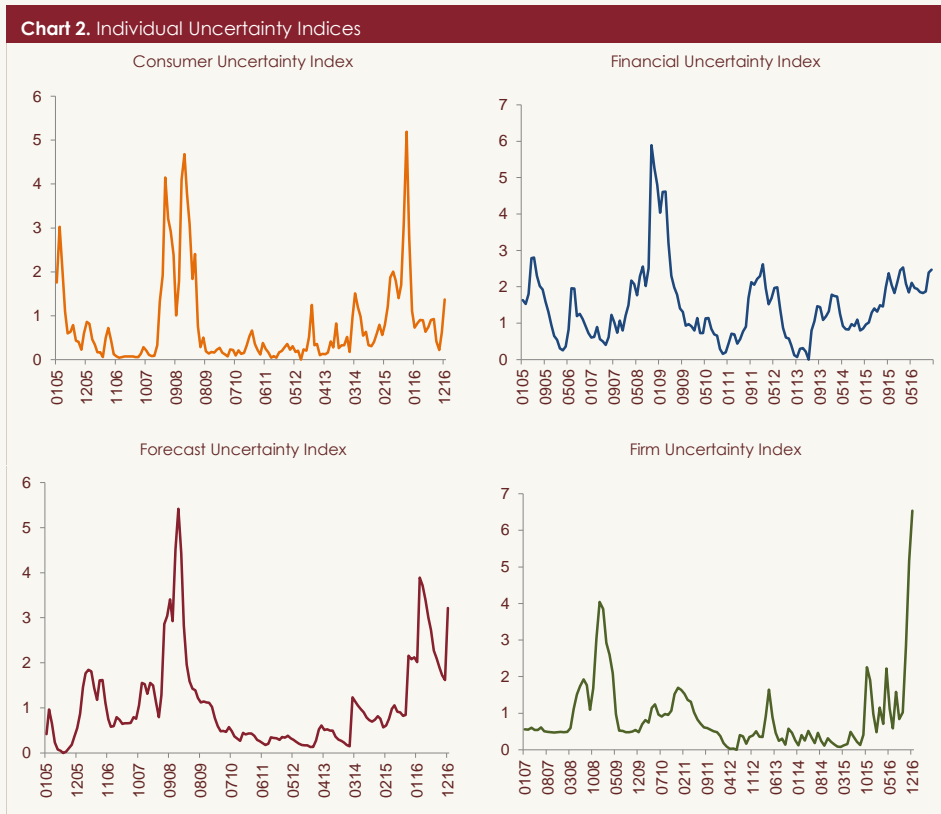
Table 1. Data Description and Sources

Financial Uncertainty Index	Consumer Uncertainty Index	Firm Uncertainty Index	Forecast Uncertainty Index
BIST 100	Consumer confidence index (Bloomberg HT, TURKSTAT-CBRT)	General economic situation expectation in the industrial sector (BTS, CBRT)	12-month-ahead inflation expectation (CBRT Survey of Expectations)
VIX	Financial situation of household for the last 12 months (Bloomberg HT, TURKSTAT-CBRT)	Retail trade confidence index (TURKSTAT)	Year-end expectation for the USD/TL (CBRT Survey of Expectations)
Implied volatility of USD/TL	Financial situation expectation of households for the next 12 months (Bloomberg HT, TURKSTAT-CBRT)	Business volume-sales for the last three months (TURKSTAT)	
EMBI	General economic situation for the last 12 months (Bloomberg HT, TURKSTAT-CBRT)	Expected number of orders placed by suppliers for the next three months (TURKSTAT)	
Interest rate volatility	General economic situation expectation for the next 12 months (Bloomberg HT, TURKSTAT-CBRT)	Business volume-sales expectation for the next three months (TURKSTAT)	
CDS	Convenience of spending on durable goods (Bloomberg HT)		
	Expectation for number of unemployed people (TURKSTAT-CBRT)		
	Probability of buying or building a house (TURKSTAT-CBRT)		

The composite economic uncertainty indicator constructed for Turkey is presented in Chart 1. Accordingly, uncertainty is observed to be higher in periods of recession. This finding is supported by earlier findings by Haddow et al. (2013) as well as Gieseck and Largent (2016), which find similar results for the US, UK and the Euro area during 2008 global crisis. The uncertainty indicator declines during the post-crisis period from 2010 to 2012, but edges up in early 2014. This coincides with heightened global uncertainties driven by taper tantrum and other global factors that fed into elevated domestic uncertainty, resulting in increased risk premium, a depreciated Turkish lira and fluctuating financial markets. Fortunately, the rise in uncertainty was relatively modest and short-lived in this period. Uncertainty was back on an upward track in 2015. The fact that uncertainty indices for the Euro area and the US were dissimilar in this period suggests that the heightening was driven by domestic factors that may have been fueled by geopolitical tensions as well as the general elections in June and November.

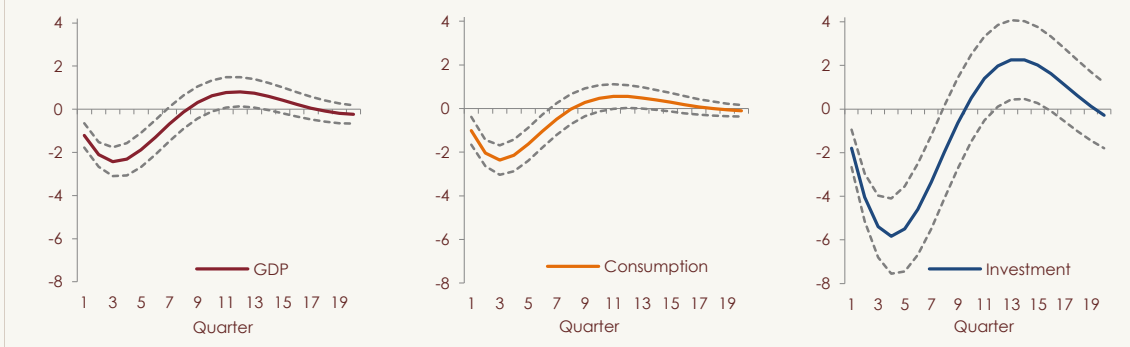
Chart 1. Composite Economic Uncertainty Indicator

In 2016, all uncertainty indicators, except for the consumer uncertainty index, were markedly higher than their historical averages. Moreover, the firm uncertainty index displayed a more notable rise, which can be attributed to the deterioration in firms' sentiment over business conditions and the demand outlook (Chart 2). The financial uncertainty index soared probably due to the rising risk premium and volatile exchange rates, while the rise in forecast uncertainty index may be attributed to higher disagreement among forecasters about the future path of the economy. On the other hand, consumer uncertainty was lower in this period compared to past periods.



shock. Taking into account the error band, the impulse responses of real GDP and private consumption range between (-1.8, -3.1) and (-1.7, -3.0), respectively. Meanwhile, investment responds more severely to the uncertainty shock. In particular, the maximum impact is observed at the end of four quarters by -5.8 percent, while the response ranges between -4.1 and -7.6 when standard errors are taken into account. The impulse response of economic activity indicators to uncertainty shock dies off in about two years, where that of investment lasts one quarter longer.

Chart 3. Impulse Responses to Uncertainty Shock
(Percentage Points)



In sum, economic uncertainty in Turkey has recently been on the rise. Analysis on the effects of uncertainty on macroeconomic variables suggests that the latest heightening in volatility may weigh on domestic demand and economic activity in the upcoming period.

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Box
4.2

Alternative Indicators for Output Gap

The output gap is defined as the difference between the actual output and the potential output. Potential output, on the other hand, is defined as the maximum level of goods and services that can be produced in an economy without accelerating the inflation rate. Potential output and the output gap cannot be observed directly. Hence, the output gap is estimated by various methods such as filtering or using production function approach and structural models. Survey indicators may also provide some insight into the output gap.

One common method for estimating the output gap is filtering, which is the decomposition of an output series (usually the GDP) to its long term trend, where the percentage deviation of output from this long-term trend is called the output gap. However, statistical filters such as Hodrick-Prescott (HP) face heavy criticism in the literature as they fail to provide information on the sources of growth (e.g. productivity) and have an end-of-sample bias.^{7,8} On the other hand, given their simplicity and minimum data requirement, central banks generally resort to these filters to measure and monitor the output gap.

In addition to filter-based methods, the output gap may also be estimated by the cyclical indicator approach, which is based on combining different cyclical indicators. These indicators, such as the capacity utilization rate, contain information pertaining to the various sectors of the economy and provide direct information about the phase of the business cycle by showing whether the economic activity is at peak or in contraction, trough or recovery. These indicators are aggregated to form an estimate for the output gap simply by taking their averages or more sophisticatedly by principal component analysis or dynamic factor models.⁹

This box presents output gap measures obtained by two different approaches. First, filter-based output gap indicators are introduced. Next, alternative output gap indicators are presented, which contain direct information about the economic slack. The CBRT utilizes both of these methods for the measurement of the output gap series presented in the Inflation Report.

Filter-Based Output Gap Indicators

In this analysis, the filter-based output gap indicators are estimated by HP and Kalman filters. For the HP, the smoothing parameters are set to 1600, 98 and 19.¹⁰ Output gap estimates obtained by the Kalman filter, which are MNZ, ECB and adapted ECB, are in the spirit of ECB (2015). The output gap is based on the decomposition of the seasonally adjusted GDP series in natural logarithms into its trend and cyclical component. The latter, which corresponds to the output gap, is then modeled using relevant survey indicators. For survey indicators, the analysis uses the answer to the "lack of demand" question concerning factors restraining activity in BTS, the Monthly Tendency Survey for the Services Industry, the Monthly Tendency Survey for Retail Trade and the Monthly Tendency Survey for the Construction Industry.

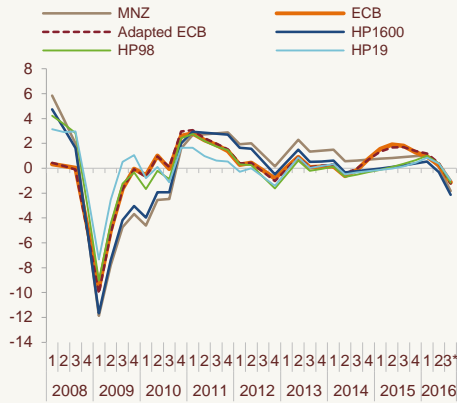
⁷ Statistical filters do not establish a link between inflation and production/productivity. For example, when growth is completely driven by productivity, unit costs will not change and such a growth will not be inflationary.

⁸ The end-of-sample bias occurs when there are significant updates to the output gap as new data are added to the sample. The literature criticizes the estimation of output gap by production function or structural models. For example, as discussed in Garcia-Saltos et al. (2016), the output gap estimated by the production function method relies on potential total factor productivity and potential labor series, which are commonly obtained using a filtering method. For the output gap estimated using structural models, most of the criticism focuses on the structure of these models and the magnitude of shocks.

⁹ For further details, see Aastveit et al. (2008), Rodriguez et al. (2006), McNelis and Bagnic (2007) and Pybus (2011).

¹⁰ Using the GDP series of the 1987Q1-2007Q3 period, Alp et al. (2011) have shown that the optimal HP-filter smoothing parameters for Turkey are 19 and 98.

Chart 1. Filter-Based Output Gap Estimate Using Old GDP Series (Percent)



* Forecast.
Source: Authors' calculations.

Chart 2. Filter-Based Output Gap Estimate Using New GDP Series (Percent)

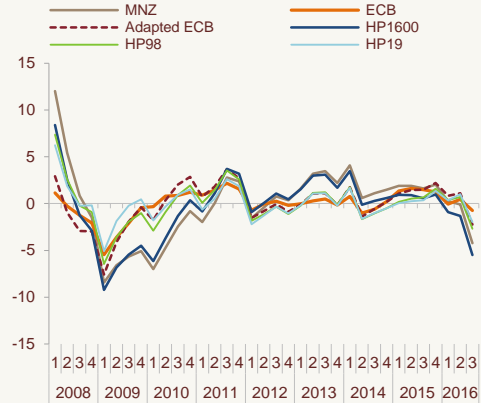
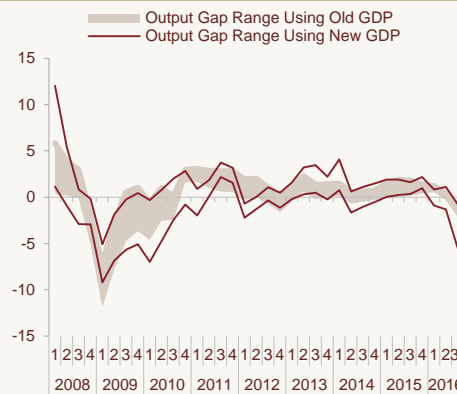
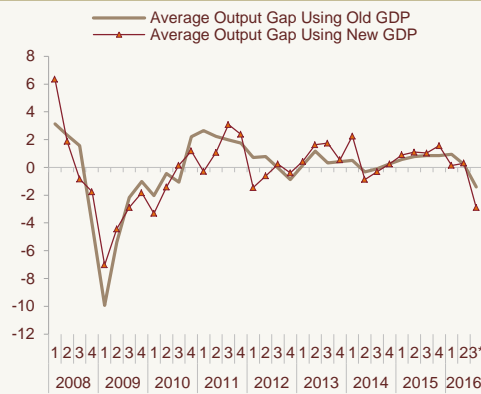


Chart 3. Output Gap Range for Filter-Based Estimates Using Old and New GDP Series (Percent)



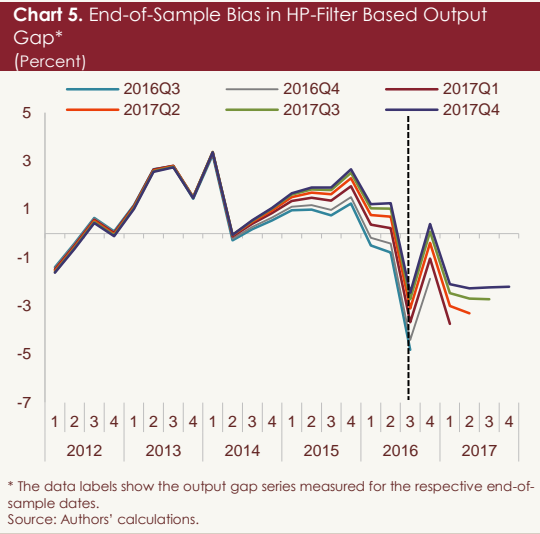
* Forecast.
Source: Authors' calculations.

Chart 4. Average Output Gap for Filter-Based Estimates Using Old and New GDP Series (Percent)



Charts 1 and 2 show filtered-based output gap series estimated using old and new GDP series. Accordingly, two striking observations can be noted. First, the output gap estimate using the old GDP series presents only one trough, which occurs during the global crisis; whereas, the output gap measure based on the new GDP series exhibits two troughs, occurring at close intervals. Secondly, the output gap estimate of the new GDP series is more volatile, which is an important factor for real-time policy actions. In fact, the output gap range, which is constructed using the minimum and maximum values of output gap estimates, reveals that the output gap series based on the new GDP has a wider range in the 2009-2010 period and after 2012. This indicates that the output gap series based on new GDP data has higher uncertainty (Chart 3). Taking the averages of the indicators presented in Charts 1 and 2, the output gap is estimated to be -1.4 by the old GDP data as of the latest observation, and is revised downward to -2.9 percent by the new GDP series (Chart 4).

Another major source of uncertainty in estimating the output gap is the end-of-sample bias, which can be better depicted in Chart 5. In particular, adding quarterly data to the GDP series changes the HP-filtered output gap estimate at the end of the sample. In fact, the output gap is estimated to be -4.8 percent for 2016Q3 – the latest observation available for the current GDP data, while it is -2.5 percent when the sample is extended until 2017Q4 by using forecasts. This suggests that filtered-based output gap estimates are associated with high uncertainty, which hinders real-time policymaking. This prompts policymakers to seek alternative measures, which are exempt from the end-of-sample bias. Alternative indicators presented may help to remedy this problem.



Alternative Output Gap Indicators

In this regard, two alternative output gap indicators are proposed for the Turkish economy. These indicators have the advantage of being exempt from the end-of-sample bias. Also, they are not subject to the uncertainty problem associated with the GDP measurement as these series are produced without using GDP data but rather using other data, which are considered to be directly linked to output gap. Although the contents of the output gap series estimated in this context are the same, the estimation methods are different. The first output gap series is estimated by taking the unweighted average of selected indicators. The second output gap series, on the other hand, shows the common component of selected indicators estimated with the dynamic factor model.¹¹ Indicators used to produce alternative output gap series are shown in Table 1.

Table 1. Direct Output Gap Indicators
PMI-Backlogs of work (Markit)
BTS-Factors restraining production-Lack of demand (inverted, CBRT)
BTS-Duration of production to be sustained by current orders (CBRT)
BTS-Current total orders (CBRT)
Capacity utilization rate in manufacturing (CBRT)
Capacity utilization rate in services (TURKSTAT, CBRT)
Capacity utilization rate in retail trade (TURKSTAT, CBRT)
Capacity utilization rate in construction (TURKSTAT, CBRT)
Household purchasing power (annual percent change, TURKSTAT-CBRT Consumer Tendency Survey)
Application per job vacancy at Kariyer.net (inverted, Kariyer.Net)
Vacancy rate for offices (out of 100, PROPIN)

¹¹ Erdoğan-Coşar et al. (2013) conduct a similar analysis for Turkey. Additionally, Kara et al. (2007), Ögünç and Sankaya (2011), Alp et al. (2012), Üngör (2012) and Erdoğan-Coşar et al. (2013) are other studies measuring the output gap for Turkey.

Direct output gap indicators have signaled a negative and widening output gap outlook since early 2016 (Charts 6 and 7).¹² In average terms, the output gap is around -2.5 percent in the fourth quarter of 2016. In short, alternative output gap indicators point to an increased disinflationary demand conditions in the second half of 2016.

Chart 6. Alternative Output Gap Indicators Using Unweighted Average (Percent)

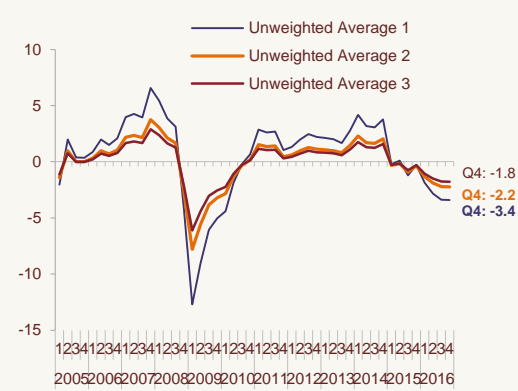
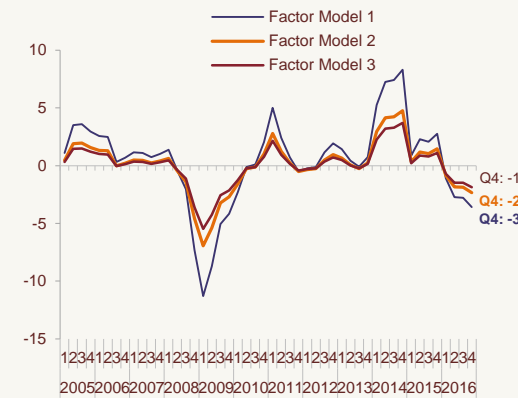


Chart 7. Alternative Output Gap Indicators Using Factor Models (Percent)

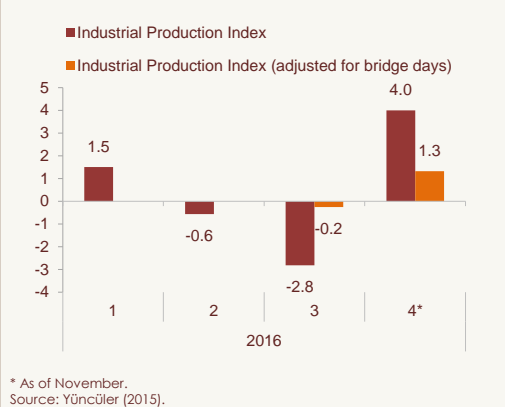


Source: Authors' calculations.

Near-Term Outlook

Industrial production contracted by a quarterly rate of 2.8 percent in the third quarter of 2016. This slowdown was largely attributed to the loss of workdays driven by the extended religious holidays and the mid-July turmoil. Indeed, when adjusted for workday losses beyond regular calendar effects, the underlying activity posted a rather limited contraction. In the fourth quarter, there was a technical recovery owing to the compensation of workday losses, while the underlying trend saw a more modest recovery (Chart 8). In other words, the V-pattern of the industrial production observed in the second half of 2016 mostly reflects workday effects while the underlying trend presents no such fluctuation. Hence,

Chart 8. Quarterly GDP Growth (Percent, Adjusted for seasonal and calendar effects)



output gap estimates should be based on the underlying trend rather than temporary fluctuations in the economic activity. Despite the predicted rapid recovery for the fourth quarter of 2016, which mostly reflects the compensation of the workday losses, the assumptions are unchanged, which foresee a modest underlying economic activity and a widening output gap in the second half of 2016. The average of the quarterly growth rate in the first and second half of 2016 also points to a modest path regarding the pace of the recovery in the economic activity.

¹² The scale of the estimated output gap indicators was aligned with the GDP cycles. The GDP cycles are estimated by the HP filter to calculate the trend component. The scale of the series in Charts 6 and 7 was aligned with GDP cycles using smoothing parameters set at 1600, 98 and 19, respectively.

In conclusion, output gap measurement presents some uncertainties due to data revision, the estimation methodology and the phase of the business cycle. Yet, using different approaches, it can be assessed that economic activity put an increased downward pressure on inflation through the second half of 2016. The same conclusion can be reached with an alternative approach that eliminates uncertainties regarding data revision and estimation methodology. Accordingly, the initial point of the output gap forecasts presented in Chapter 7 is set by taking into account these assessments as well as the judgmental forecasts.

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Box
4.3

The Weakening Real External Trade Deficit-GDP Relationship and Loan Growth

This box discusses the weakening relationship between the real external trade deficit and the GDP growth in Turkey over the past few years, and also analyzes how this relation can be linked to loan growth. The real external trade deficit is derived from the real export and import series, which are obtained by using the annual percentage changes in TURKSTAT's export and import quantity indices. Using real series provides a more reliable picture about the relationship between the GDP and the external trade deficit as it eliminates the terms of the trade effect. Meanwhile, gold trade is excluded from the measurement of the real external trade deficit given its high volatility and low correlation with economic activity.

Chart 1 shows the change in the real external trade deficit excluding gold and the GDP growth¹³, which presents two major evidences. First, the long-term course of both the real external trade deficit and the real GDP growth point to a contemporaneous and positive correlation between both series. Second, although the real external trade deficit growth is larger than the real GDP growth in terms of historical averages, it has remained below the GDP growth recently. In other words, looking at the Turkey's high-growth periods during (2003-2007) and (2011-2015), the increase in real external trade deficit in response to a 1-percent GDP growth appears to decrease over time. For example, while the Turkish economy grew by 7.3 percent on average in the 2003-2007 period, the real external trade deficit expanded by an average of 30.6 percent. In the 2011-2015 period, the GDP grew by 7.2 percent on average, whereas the real external trade deficit widened by only 5.7 percent.

Imports play a major role in the contemporaneous movement and weakening correlation of growth and real external trade deficit (Chart 2). Although historically, GDP has grown at a slower pace than imports, this has been reversed since the first quarter of 2012, which suggests that the relationship between the real external trade deficit and the GDP has markedly weakened in the recent past.

Chart 1. Real External Trade Deficit and GDP Growth
(Annual Percent Change)

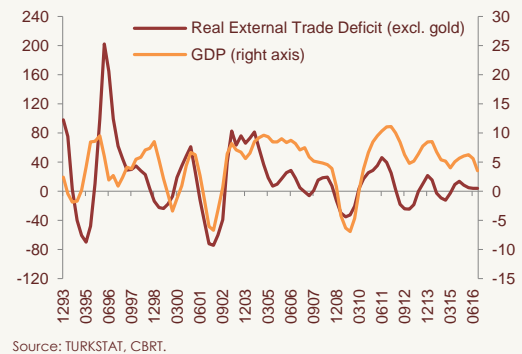
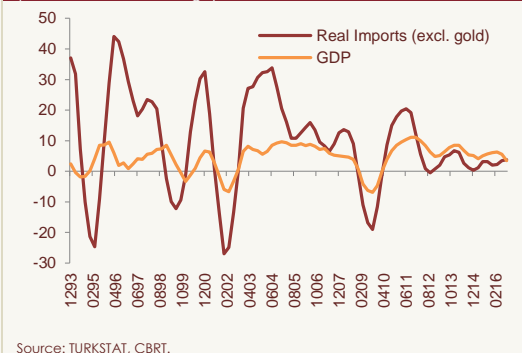
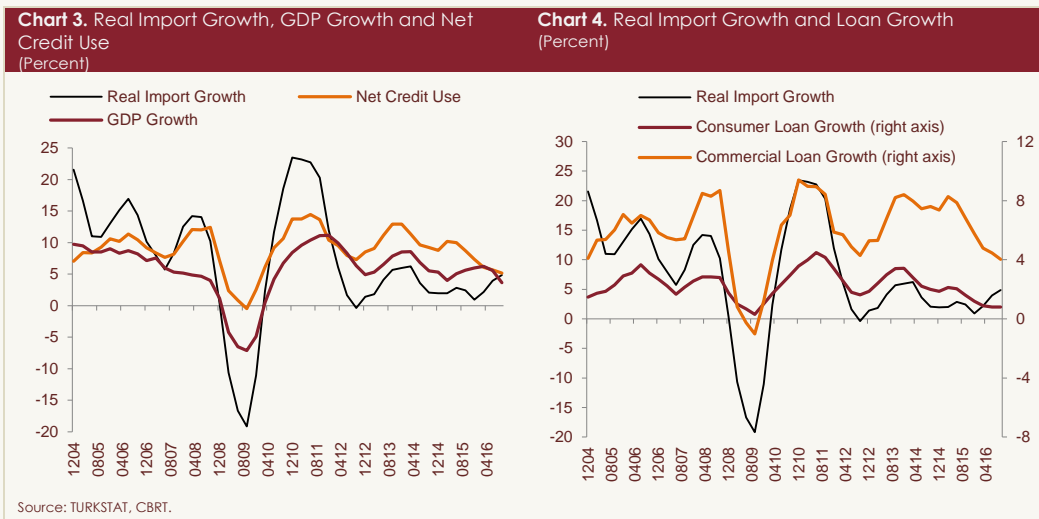


Chart 2. Real Imports and GDP
(Annual Percent Change)



¹³ For annual domestic income growth, the annual changes in the TURKSTAT's new chained volume indices is used, while old GDP series based on 1987 prices are used for growth rates before 1998.

The recent weakening in the real external trade deficit and the GDP relationship appears to be linked to net credit use and loan type (Charts 3 and 4). Therefore, the relationship between the real import growth and net credit use is analyzed, using the ratio of the annual changes in the domestic credit stock to the GDP as a measure for credit use. Accordingly, a strong correlation is observed between real import growth and net credit use. This is also supported by earlier CBRT studies, which demonstrate that loan growth is strongly correlated with the GDP and the current account deficit (Küçük-Yeşil et al., 2017; Kara and Tiryaki, 2013; CBRT, 2011). The relationship between the real GDP and net credit use remains mostly unchanged in the 2004-2016 period, whereas the link appears to have grown weaker since the first quarter of 2012. Another major finding is that the relationship between net credit use and real import growth differs considerably depending on the loan type. In particular, real import growth seems to diverge from net credit use for the case of commercial loans after 2012. In fact, hovering close to 2004-2007 levels, commercial loan growth remains robust after 2012, whereas real import growth plunges in the same period. On the other hand, real import growth exhibits a stronger correlation with consumer loans, where both series follow a similar downtrend after 2012.

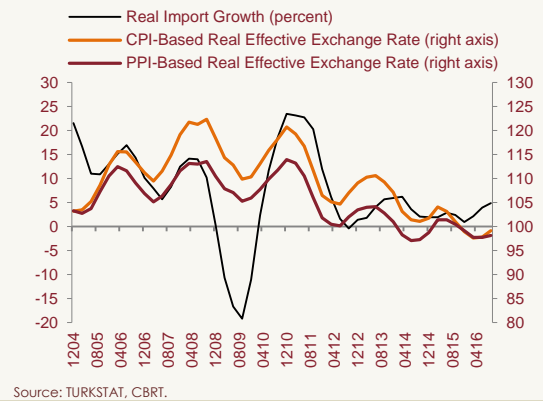


The relationship between real import growth and loan growth diverges across loan type due to the fact that both consumer and commercial loans have direct and indirect effects on import growth, yet through different channels. In particular, an increase in consumer loans stimulates imports directly by increasing the demand for imports of consumption goods. Moreover, consumer loan growth induces demand for imports of intermediate and investment goods in sectors sensitive to domestic demand and having high dependence on imported inputs, which therefore increases imports indirectly. A rise in commercial loans, on the other hand, might stimulate the imports of intermediate and investment goods in the short term, but would reduce the need for imports by exerting a favorable effect on the GDP and exports through increased production in the medium to long term.

Meanwhile, in analyzing the recently weakening link between real import growth and the GDP growth, the real exchange rate should also be taken into account. Both the CPI and the PPI-based real exchange rate indices have been trending down since 2011. Accordingly, the CPI-based real effective exchange rate dropped by 8 percent from 112.8 in the 2004-2011 period to 103.6 in the 2012-2016 period, where the real effective exchange rate depreciated in tandem with the decelerating real import growth (Chart 5). Thus, the decline in the real import growth can be partly explained by the depreciating real exchange rate.

To sum up, the fact that the growth in consumer loans remained more modest than that for commercial loans due to macroprudential policies in place since 2011 had a dampening effect on real import growth, which also led to weaker relationship between real external trade deficit and GDP growth. Recently, both the economic slowdown and the exchange rate developments weigh upon imports. Moreover, consumer loan growth has declined to record-lows as of July 2016. This created some room for maneuver to bring consumer loans up to moderate levels, allowing for the withdrawal of a majority of tightening macroprudential policies in the second half of 2016. The measures taken to bolster consumer loans are expected to stimulate economic activity in the upcoming period without posing any major risk to the current account deficit.

Chart 5. Real Import Growth and Real Effective Exchange Rate



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