

## 4. Supply and Demand Developments

GDP data for the first quarter of 2016 show that economic activity was in line with the April Inflation Report projections and posted a quarter-on-quarter and year-on-year growth of 0.8 and 4.8 percent, respectively. On the production side, the first quarter's quarterly GDP growth was largely fueled by agriculture and industry, while construction and services provided a relatively smaller contribution. On the spending side, private demand was the main driver of the quarterly GDP growth. In this regard, consumption demand spurred growth, whereas investment demand and net exports put downward pressure on growth.

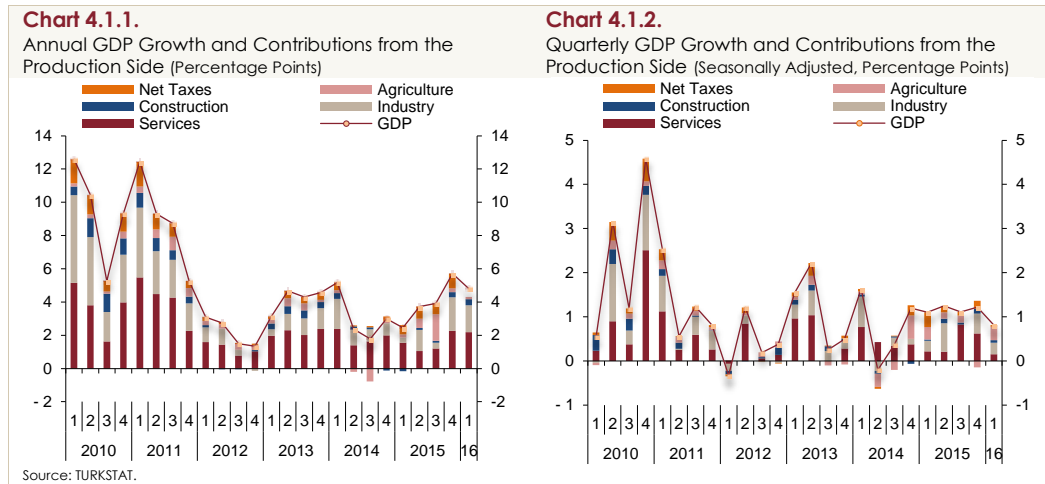
Data released for the second quarter of 2016 signal no additional rebound for economic activity. Industrial production was down 0.4 percent in April-May from the first-quarter's average. Sales, production and import indicators regarding domestic demand suggest a quarterly pickup in final domestic demand, albeit at a more decelerated pace than in the first quarter. Moreover, according to April-May data on external trade, external demand may provide a limited contribution to growth.

Domestic demand is expected to grow further in 2016, mostly due to consumer spending, while external demand may recover on the back of the moderate growth expected for Turkey's export markets. Nevertheless, import demand might rise depending on domestic demand conditions, prompting net exports to make a negative contribution to growth.

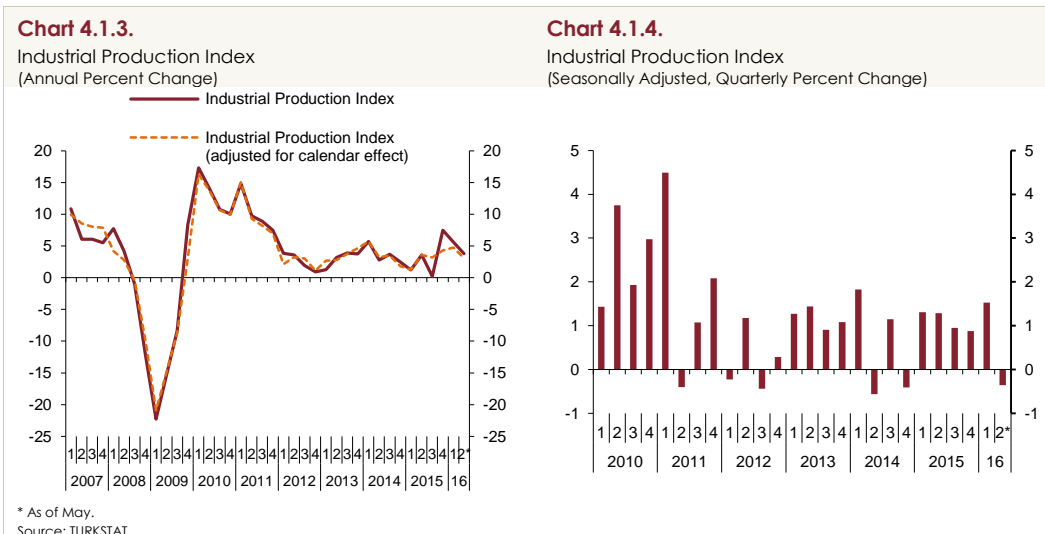
GDP growth faces downside risks that mostly emanate from external demand. Geopolitical tensions, the uncertainty about the European economy created by concerns over the EU's political and institutional integrity and the likely negative income effect of oil prices on Turkey's oil-exporting trade partners pose downside risks to external demand. Moreover, the tourism slump puts downward pressure on economic activity, employment and the current account balance. Yet, ongoing macroprudential measures and low commodity prices are expected to support the improving current account balance over 2016.

### 4.1. Supply Developments

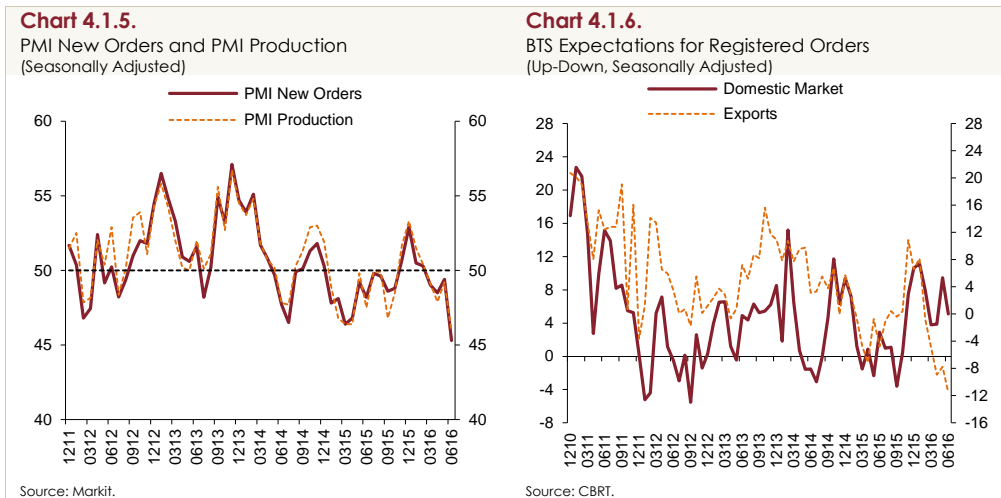
According to the data released by TURKSTAT, the GDP posted a year-on-year increase by 4.8 percent in the first quarter of 2016. Value added of all main sectors registered a surge in this period (Chart 4.1.1). The industrial value added increased by 5.7 percent on a par with the industrial production data, while the services value added registered a yearly growth of 4.2 percent similar to the previous quarter. The growth of agricultural value added returned to historical averages, whereas the rate of increase in the construction value added accelerated slightly to 6.6 percent on the back of mild weather conditions in winter. Net taxes continued to support growth, albeit more weakly than in 2015. In seasonal and calendar effect adjusted terms, the GDP expanded by 0.8 percent quarter-on-quarter (Chart 4.1.2). The agricultural sector saw the largest quarterly growth with 3.4 percent. The value added of industrial and construction sectors rose by a modest 1.0 percent, while that of the services sector increased by a mere 0.3 percent.



Annual industrial production growth slowed in April-May (Chart 4.1.3). Likewise, industrial production data adjusted for seasonal and calendar effects suggest that the recent moderate uptrend was not sustained in the second quarter. In fact, industrial production fell below the first-quarter's average by 0.4 percent in this period (Chart 4.1.4). June data point to an improving outlook, but signal no quarter-on-quarter rebound for the second quarter.

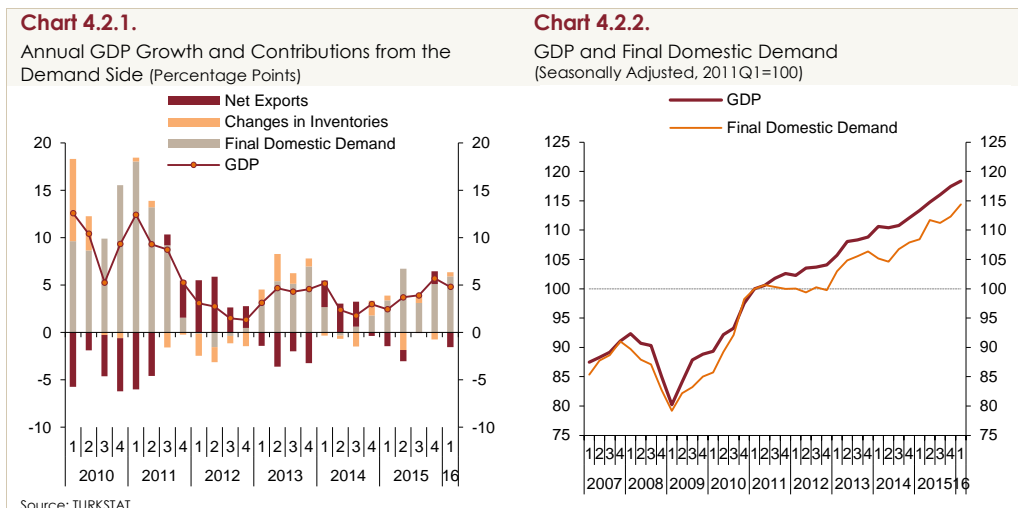


Survey indicators were in line with data realizations in the second quarter of the year. Second-quarter averages of the responses to PMI new orders and production questions dipped below the neutral mark, indicating a quarterly slowdown in production (Chart 4.1.5). Among BTS data, replies to questions on currently registered orders and total orders over the last 3 months show that external demand conditions weigh on production growth (Chart 4.1.6). Moreover, heightened geopolitical risks and the weak consumer and investor confidence curb the support of the confidence channel. Therefore, production is expected to maintain a moderate growth in the upcoming period.



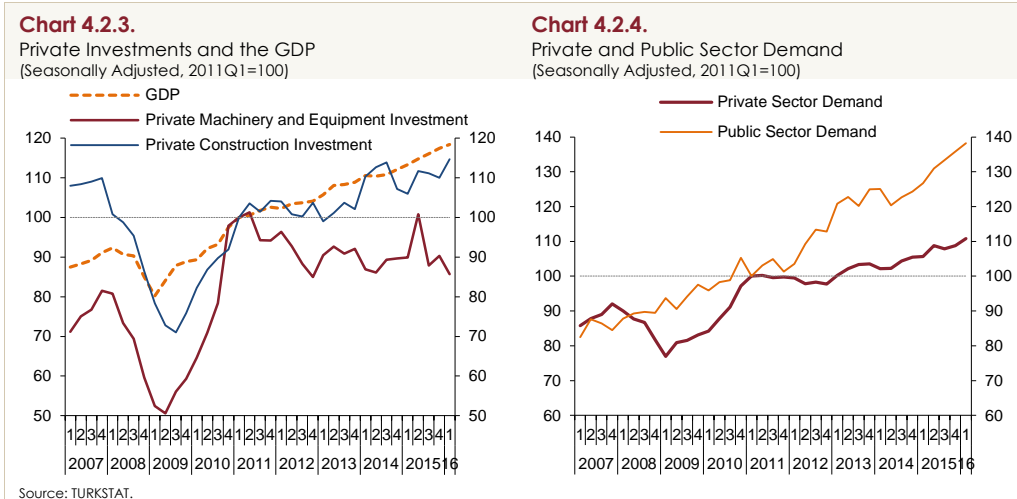
## 4.2. Demand Developments

The GDP data for the first quarter of 2016 on the expenditures side indicate that annual growth was spurred by final domestic demand as expected, yet the support of net exports turned negative again after only one quarter (Chart 4.2.1). Consumption expenditures were the only drivers of final domestic demand in this quarter, whereas total investments made no contribution at all. In seasonally adjusted terms, final domestic demand rose at a much faster rate than the GDP in the first quarter (Chart 4.2.2). Investments had a dampening effect on quarterly growth that depended heavily on consumer spending. Changes in inventories and net exports were other factors weighing on quarterly growth.

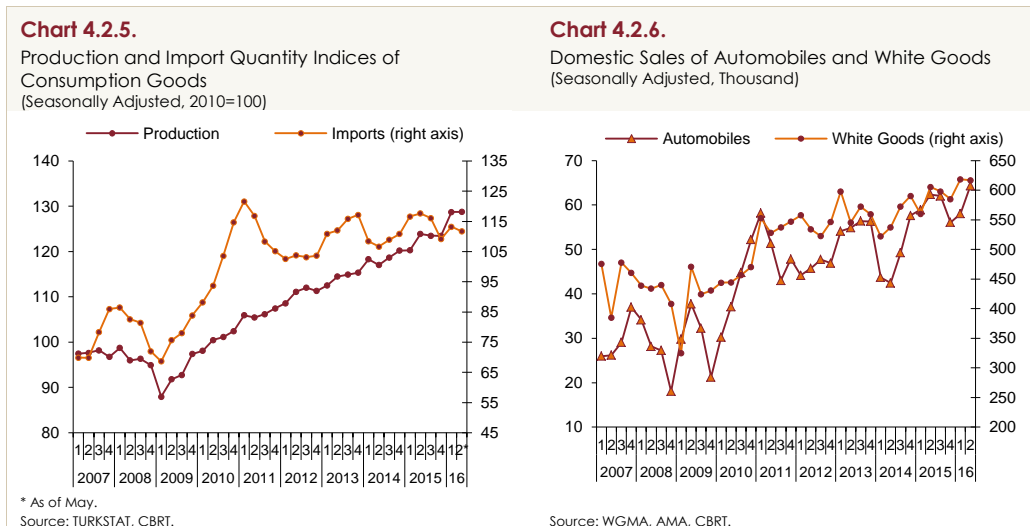


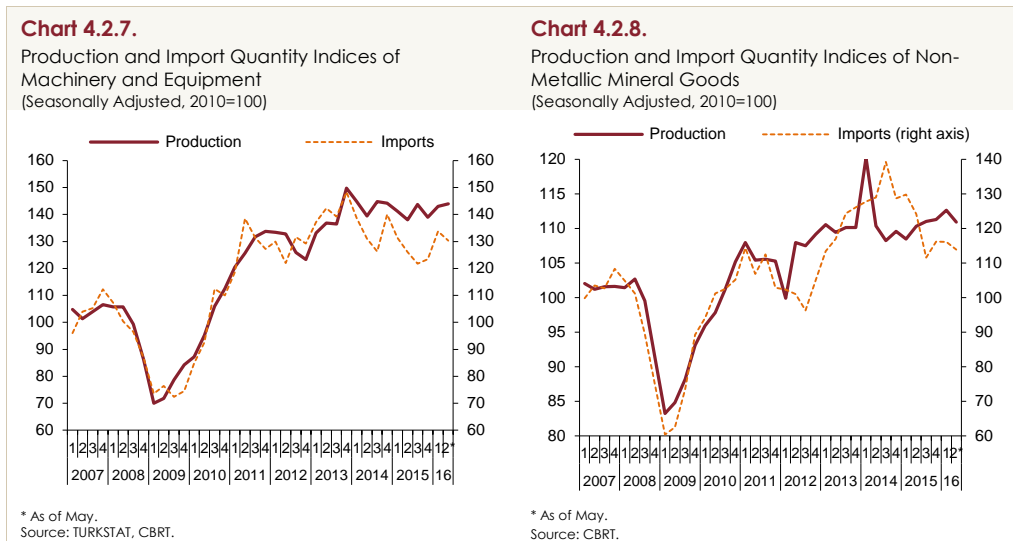
Private consumption expenditures registered a quarter-on-quarter growth of 2.9 percent in the first quarter, the highest quarterly increase since the fourth quarter of 2010. Across sub-items, expenditures on both durable goods and other items were on the rise. However, the rise in expenditures on goods and services excluding durables was more marked than in previous quarters. Meanwhile, public consumption expenditures remained on an uptrend. On the investments side, both private and public expenditures were relatively weak. Total machinery and equipment investments were down quarter-on-quarter for both the private and public sectors, while construction investments

edged up on private demand and mild weather conditions (Chart 4.2.3). In short, both private and public demand increased on the back of consumption, but investments remained subdued (Chart 4.2.4).

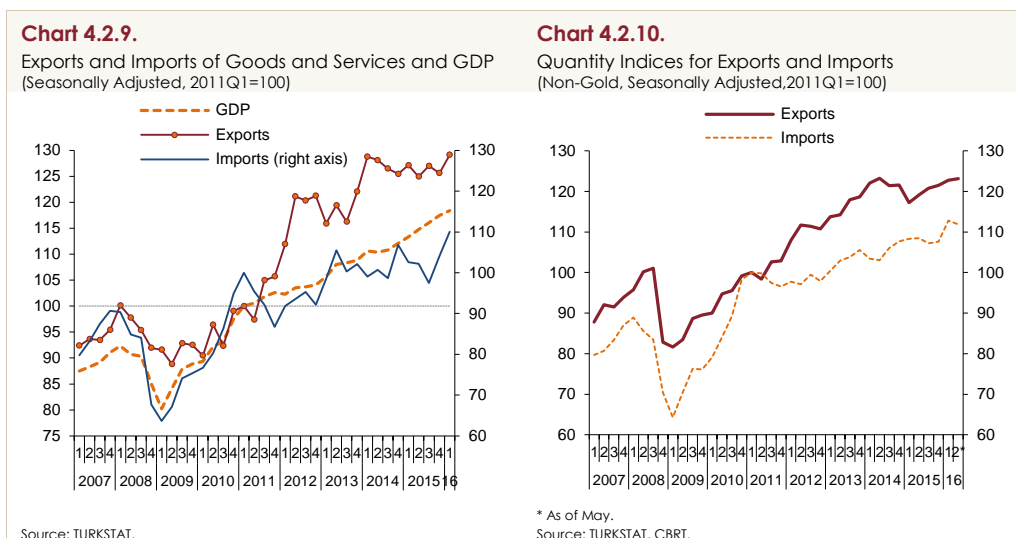


Data for the second quarter of 2016 suggest that the first-quarter outlook will remain largely intact. Accordingly, economic activity is expected to expand further in the second quarter, albeit at a slower rate than in the first quarter. The production and imports of consumption goods stimulating growth post no quarter-on-quarter increase (Chart 4.2.5). On the other hand, sales of automobiles continue to pick up (Chart 4.2.6). On the investments front, the production of machinery and equipment rose slightly, whereas the imports thereof decreased (Chart 4.2.7). An indicator for construction investments, the production and imports of non-metallic minerals, declined (Chart 4.2.8).





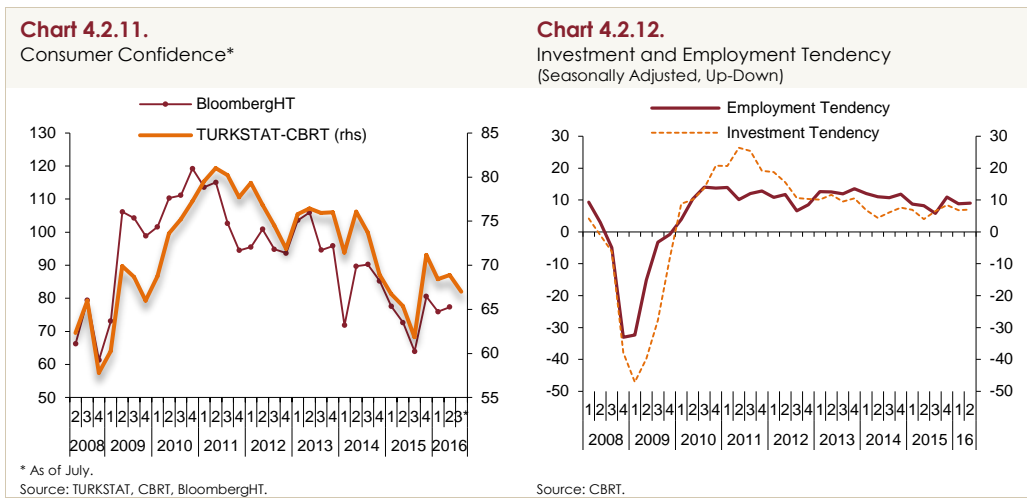
Both exports and imports of goods and services were up in the first quarter, yet the increase was more pronounced in imports (Chart 4.2.9). Thus, net exports provided a negative contribution to quarterly growth in the first quarter. Quantity indices excluding gold, which provide a better understanding of the underlying trend of external trade, followed a similar pattern. The rising domestic demand speeds up import demand, while geopolitical tensions dampen export growth. The non-gold export quantity index posted a quarter-on-quarter increase as of May, while the non-gold import quantity index dropped slightly (Chart 4.2.10). June data signal a quarter-on-quarter rise in both indices for the second quarter. Nevertheless, geopolitical factors continue to restrict the favorable contribution of net exports to the current account deficit and GDP growth. Still, the moderate global economic recovery, the high market-shifting flexibility of Turkish exports and recent favorable developments in the region might contain these risks.



In sum, economic activity expanded in the first quarter of 2016 on the back of private consumption spending. Second-quarter indicators for sales, production and imports point to a quarterly growth in domestic demand, albeit at a slower pace than in the first quarter. Additionally, April-May data on external trade hint at a more limited support from external demand.

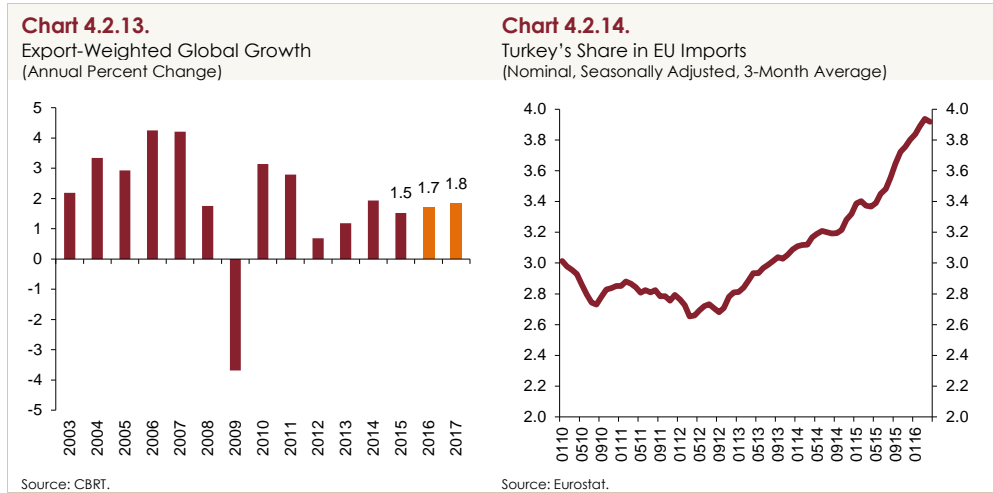
## Outlook for 2016

The second quarter's domestic demand appears broadly in line with April forecasts. After soaring in the first quarter, private consumption spending continued to bolster growth in the second quarter. In fact, sales of automobiles, white goods and houses suggest a favorable demand for durables. Likewise, the rise in retail sales of food and clothing bodes well for the demand for non-durables. The consumption spending is expected to remain robust throughout the year mainly on the back of the wage hike. As employment remained unaffected by the substantial wage hike, the income channel is able to support private consumption without any restraint (Charts 4.3.1 and 4.3.2). Moreover, the moderate course of consumer credits and a likely improvement in inflation might support consumption spending in this period.



Private investments may inch up in the second half of 2016 thanks to domestic demand conditions and the mild global economic growth. As investment tendency has yet to record a sizeable pickup notwithstanding some year-on-year rebound, and capacity utilization has failed to expand significantly despite hovering slightly above recent averages, investment growth is expected to be moderate in 2016 (Chart 4.2.12).

The expected improvement in Turkey's export markets is likely to support export growth in 2016 (Chart 4.2.13). Indeed, changes in the target zone composition amid the gradual EU recovery and geopolitical developments help Turkey's share in the EU market remain on the rise (Chart 4.2.14). However, wage increases, rising unit labor costs and the first-half appreciation of real exchange rates challenge the price competitiveness of Turkish exports. Thus, maintaining the marked first-quarter performance of exports will depend on the course of economic activity across EU members where the income elasticity of Turkish exports is high.

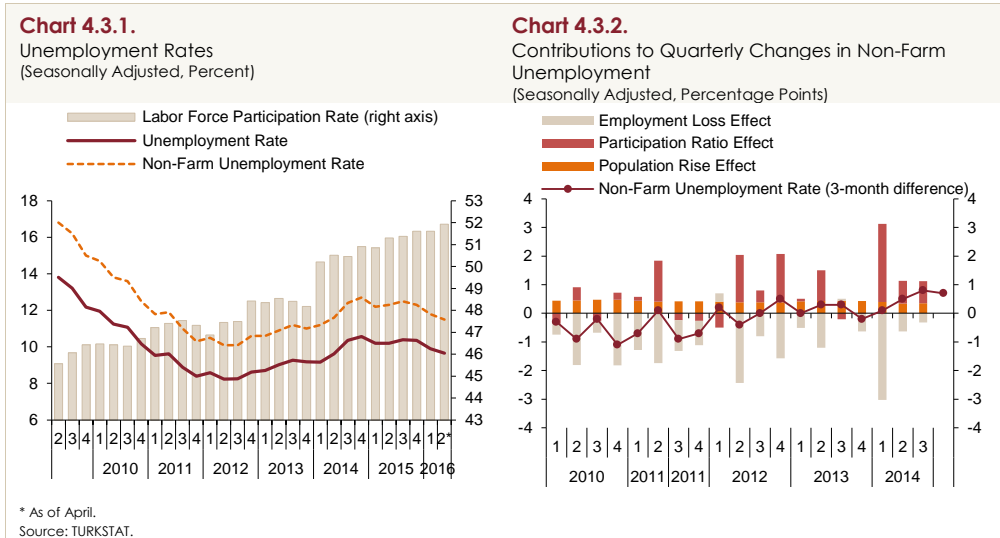


Risks to growth are on the downside due to external demand. Geopolitical developments, the Brexit-driven uncertainty over the European economy and the potential negative income effect of oil prices on Turkey's oil-exporting trading partners pose downside risks to external demand. In addition, although worries about the severity of the Chinese recession have subsided amid recent data releases, this downturn and the measures adopted to avoid a collapse continue to threaten global commodity and financial markets. Similarly, the Fed's monetary policy normalization remains a risk to global financial markets. Meanwhile, the recent domestic turmoil jeopardizes domestic demand while developments in the tourism sector put downward pressure on economic activity, employment and the current account balance.

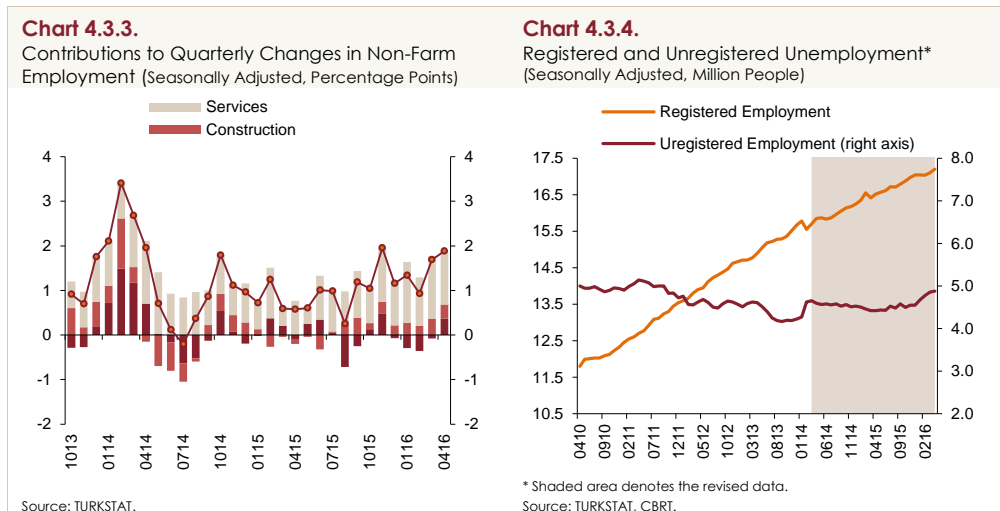
To sum up, 2016 is likely to be marked by an ongoing domestic demand growth, driven particularly by consumption spending, and a recovering external demand thanks to the expected mild growth across Turkey's export markets. Risks for the upcoming period are on the downside because of external demand. Despite this demand outlook, the current account balance is expected to improve further in 2016 owing to macroprudential measures and low commodity prices.

### 4.3. Labor Market

After remaining mostly horizontal throughout 2015, unemployment rates dropped between January and April 2016 (Chart 4.3.1). The labor force participation rate saw no increase in the first quarter, helping unemployment rates recede. Despite a higher labor force participation rate in March and April, the continued non-farm employment growth brought unemployment rates down further (Chart 4.3.2).



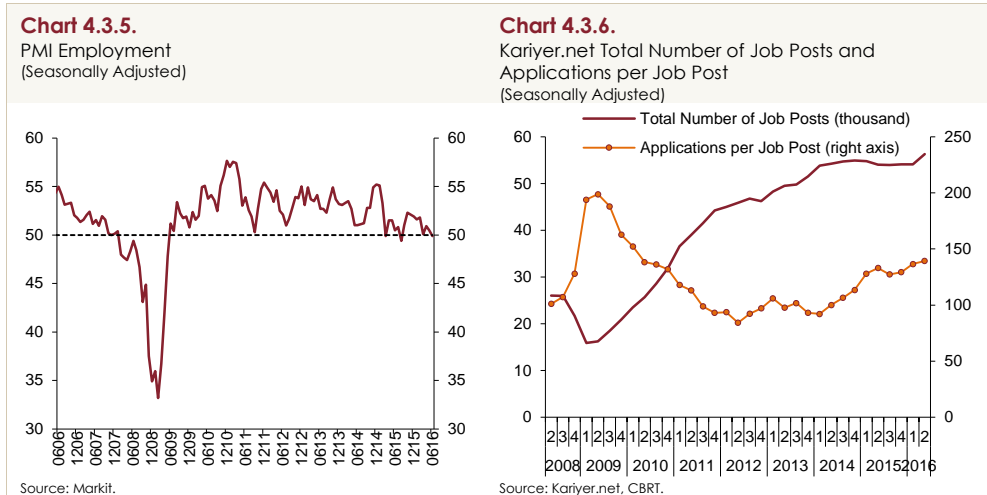
The main driver of non-farm employment between January and April was the services sector. The construction industry continued to provide a modest contribution to employment growth, while industrial employment picked up in March and April after the first-quarter fall (Chart 4.3.3). Services employment recorded the largest growth in public administration, education and healthcare, whereas employment in trade and restaurants-hotels provided little support due to the decline in tourism (Box 4.1). Across non-farm industries, registered employment was slightly up, while unregistered employment soared (Chart 4.3.4). The upsurge in unregistered employment can be attributed to the minimum wage hike of January 2016 (Box 4.2).



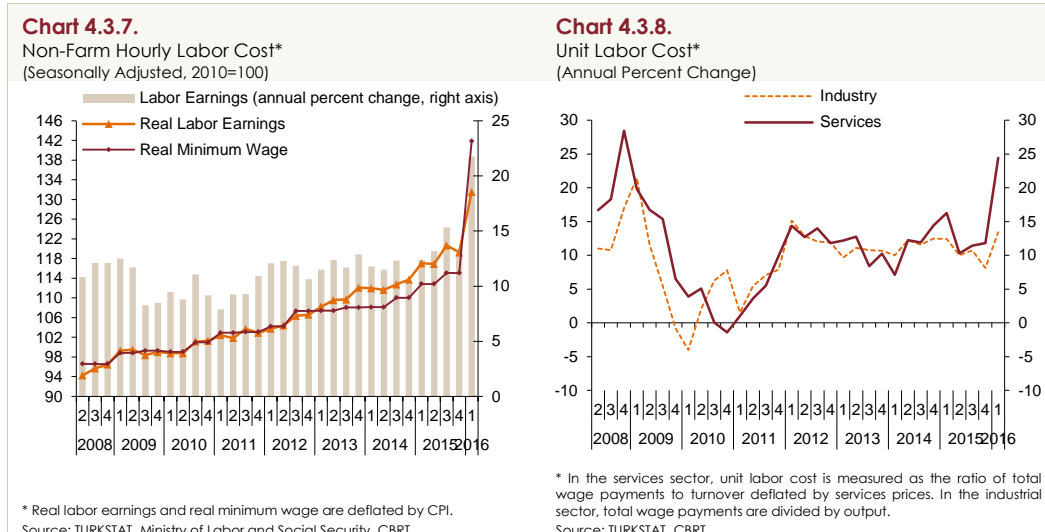
The PMI employment index, a measure of manufacturing industry employment, fell in June and neared the neutral mark (Chart 4.3.5). The ongoing trend of the PMI employment index signals no recovery for industrial employment.

Data from Kariyer.net indicate that total job posts were up in the second quarter of 2016 after remaining flat since the second quarter of 2015. Yet, due to rising job applications, the number of applications per job post increased mildly (Chart 4.3.5). Thus, leading indicators hinted that unemployment rates might stop falling in the upcoming period.





Wages rose in real terms in the first quarter of 2016, largely due to minimum wage increases (Chart 4.3.7). Wage hikes were more pronounced across sectors employing mostly minimum wage workers (Box 4.2). Both employment growth and wage hikes fueled household consumption through the income channel. On the other hand, unit labor costs increased, putting further upward pressure on firms' costs. Thanks to productivity gains, the rise in unit labor costs was more limited for the industrial sector; yet, experiencing no productivity gains, the services sector saw a major upsurge in unit labor costs (Chart 4.3.8).

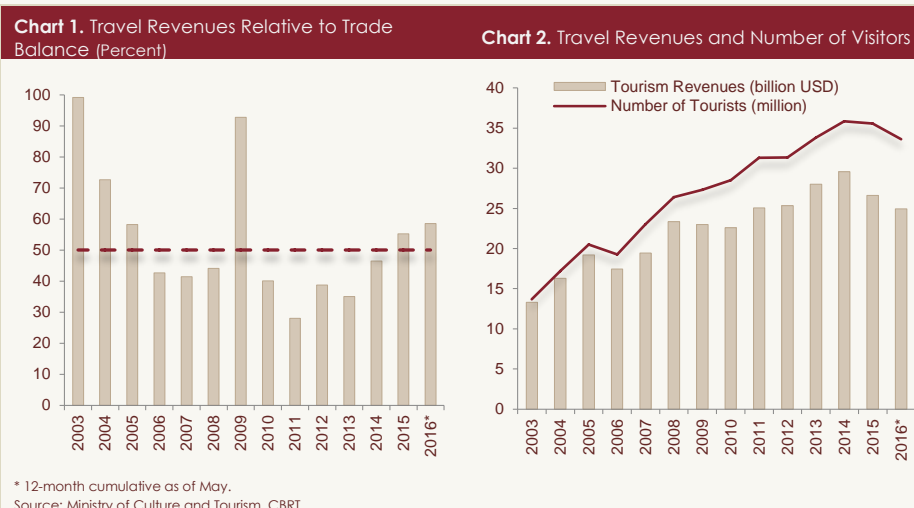


In conclusion, despite the minimum wage hike and the slowing tourism industry, employment was up and unemployment rates were down in the first months of 2016. The employment growth in services, particularly in public administration and community services, helped bring unemployment rates down. Employment is likely to remain on a mild upward track in the upcoming period, but unemployment rates may not fall.

**Box**  
**4.1**

**Effects of the Tourism Slowdown on the Current Account Balance, Growth and Employment**

Tourism is a key industry for economic activity with its FX-generating capacity and labor-intensive structure. This box presents an analysis of how changes in tourism revenues are likely to affect the current account, growth and employment.

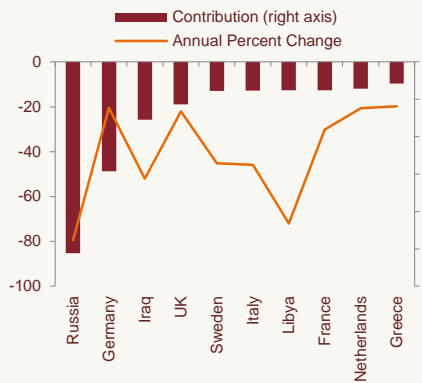


**Effects on the Current Account Balance**

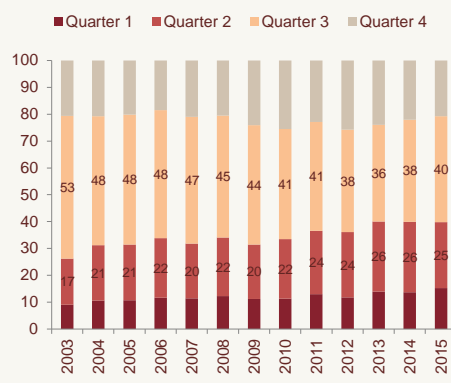
Tourism revenues are basically registered under Travel Revenues in the balance of payments statistics. Moreover, tourism activities contribute to the current account balance through revenues on international passenger and baggage transportation as well as revenues on other services including telecommunication and information. Being one of the main drivers of the current account balance, travel revenues finance a major portion of the foreign trade deficit (Chart 1). In particular, the ratio of travel revenues to the foreign trade deficit has been hovering around an average of 50 percent in recent years. Considering their impact on other income channels, a continued rise in tourism revenues is an important factor to restrict the current account deficit.

In January-May 2016, travel revenues dropped by 21.2 percent year-on-year amid geopolitical tensions while the number of departing tourists, a key input in measuring revenues, fell by 19.6 percent (Chart 2). By countries, the biggest slump occurred in tourist arrivals from Russia, Germany and Iraq. The number of Russian tourists fell by 79.4 percent in the first five months (Chart 3). Although arrivals from Iran, Israel and Jordan increased in this period, they were not enough to offset the decline in the total number of visitors.

The 21.2 percent plunge in travel revenues over the first five months caused the current account deficit to widen by 1.7 billion USD. However, by historical and quarterly trends, travel revenues mostly accumulate in the third quarter (Chart 4). Therefore, changes in the number of visitors over the coming months will determine total tourism revenues across the year.

**Chart 3.** Contributions to the Fall in Number of Visitors by Top-10 Countries (January-May 2016)

Source: Ministry of Culture and Tourism.

**Chart 4.** Travel Revenues by Quarters (Percent)

Source: CBRT.

### Effects on the GDP

The effects of tourism expenditures on the GDP are categorized under three types: direct, indirect and induced effects (UN, 2008). Direct effects are evident across sectors directly providing goods and services to tourists. Indirect effects can be observed in sectors of other goods and services that satisfy the demand from tourism-related sectors. Induced effects are generated when there is a change in the employment in sectors directly or indirectly related to tourism or in the wages of employees due to developments in tourism. Hence, the overall impacts of tourism revenues on the GDP are constituted of the sum of direct, indirect and induced effects.

The impact of tourism on the GDP can be measured by using travel revenues recorded under the current account balance. These revenues include visitors' consumption on accommodation, food and beverage, domestic transportation, health and recreation. Estimates based solely on this data will only reflect direct effects and establish a lower bound on tourism's impact on the GDP. Chart 5 shows the share of tourism revenues in the GDP. Currently around 3 percent, this share is slightly above its long-term average for the last two years.<sup>1,2</sup> On the other hand, despite exhibiting a relatively similar pattern recently, the growth in tourism revenues is not highly correlated with economic activity (Chart 6). The lack of high correlation between these series can be attributed to the low share of tourism revenues in the GDP as well as to stress episodes and geopolitical and domestic tensions dampening tourism.<sup>3</sup> Tourism expenditures contributed directly to annual GDP growth by 0.2 points in the long term, 40 percent of which was registered in the third quarter.<sup>4</sup> In the first quarter of 2016, tourism expenditures had a direct effect of -0.2 and -0.1 points on annual and quarterly growth rates, respectively (Chart 7).<sup>5</sup>

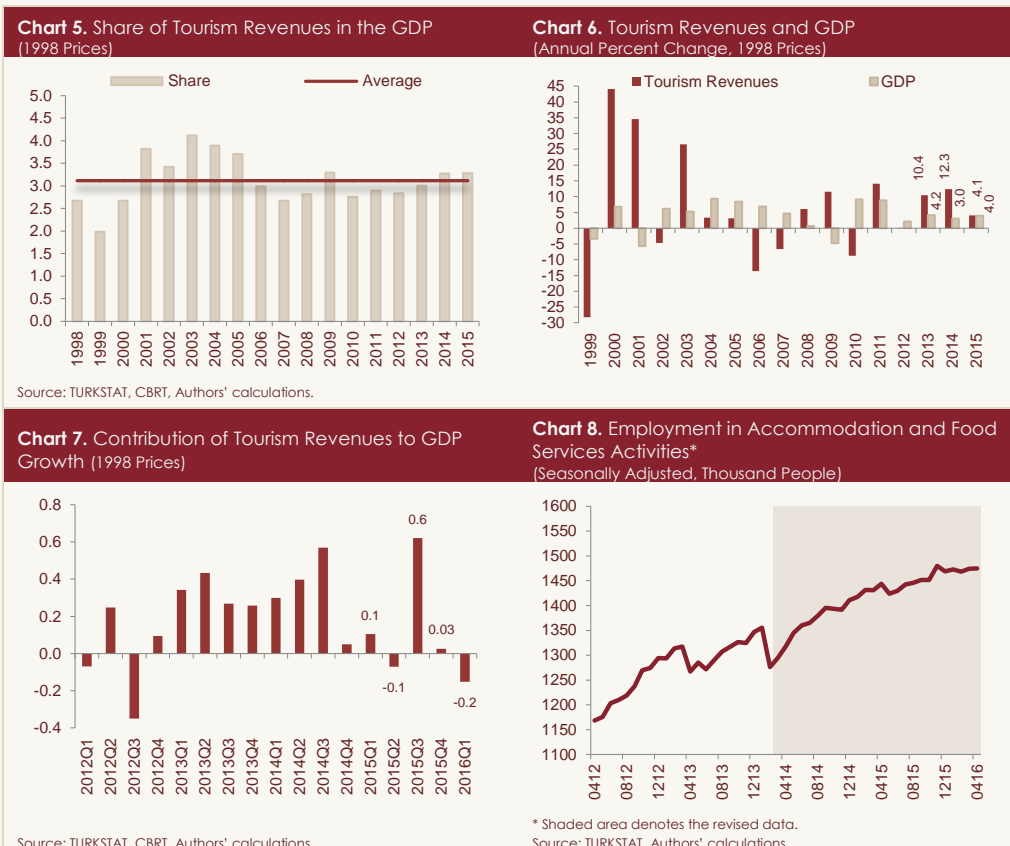
<sup>1</sup> Data on travel revenues are nominal and denominated in USD. When estimating the tourism contribution to growth, data series were first multiplied by the spot TL/USD rate for the relevant period and later divided by the services deflator to obtain real travel revenues.

<sup>2</sup> In addition to the data on travel revenues from the balance of payments, TURKSTAT releases data on tourism revenues, which, in addition to the sub-items of travel revenues, include international transport expenditures by domestic firms and roaming charges of visitors (CBRT, 2013). The results barely change when TURKSTAT's tourism revenues are replaced with travel revenues.

<sup>3</sup> In particular, the GDP contracted by 5.7 percent after the 2001 crisis. Yet, tourism revenues increased by 34 percent in real terms, which is viewed to be driven by the massive exchange rate depreciation that attracted many vacationers to Turkey.

<sup>4</sup> 25 percent of this increase was registered in the fourth quarter, while 17 and 18 percent were posted in the first and second quarters, respectively.

<sup>5</sup> The most common model used in the literature to measure the tourism impact on the GDP is the Vector Error Correction (VECM) model (Proença and Soukiazis, 2008; Kasimati, 2011 and Georgantopoulos, 2012). This model uses the real effective exchange rate, the number of international tourists and the GDP, and estimates the impact of a shock to tourist arrivals on the GDP. The first effect obtained through this model is the total effect. This methodology was adopted for Turkey, but the 3-variable VECM model produced no significant results.



### Effects on Employment

Tourism makes a major contribution to services employment. However, as tourism is not individually classified as an economic activity, data are not directly available for tourism employment. Tourism activities are related with many sub-items of services, making it difficult to measure tourism employment. Sectors usually affiliated with tourism are accommodation, food and beverage and travel agents. Nevertheless, the labor force in these sectors is not necessarily tourism-oriented and may also be employed for services offered to local residents. On the other hand, the assumption that tourism activities are confined to these sectors might cause tourism employment to be underestimated as it fails to take into account tourism activities in other services sectors.

To measure the contribution of tourism to services employment, a panel data equation is estimated for the 2008-2014 period using the differences in tourism densities across provinces (Aldan et al., 2016):

$$E_{ijt} = \alpha_{ij} + \beta_{1i}F_{jt} + \beta_{2i}D_{jt} + \lambda_i X_{jt} + \theta_{1i}t_{it} + \theta_{2i}t_{jt} + \varepsilon_{ijt}$$

In the above equation,  $E_{ijt}$  represents the employment to population ratio in sector  $i$ , province  $j$  and year  $t$ , and  $F_{jt}$  and  $D_{jt}$  denote overnight stays of foreign and domestic visitors in proportion to population.  $X_{jt}$  is the sum of electricity consumption and foreign trade per capita, which measures the effect of a province's socioeconomic development level on services employment. The equation also involves trend terms  $t_{it}$  and  $t_{jt}$  for each province and sector, respectively.

Employment data are compiled using annual SSI data, while other data are retrieved from the TURKSTAT. SSI data include only registered workers. This analysis links overnight stays of tourists with employment on a province basis. Thus, the estimates do not reflect employment in services (e.g. air transport) that are not necessarily offered by local businesses in provinces where tourists stay.

The estimated  $\beta$  coefficients are multiplied by the number of foreign and domestic tourists to obtain tourism-related employment figures for each sector, which are then aggregated to obtain tourism employment. According to employment figures thus achieved, there are 637,557 registered workers in the tourism industry (Table 1). Of this number, 392,650 workers are affiliated with foreign tourist oriented tourism and 244,907 workers are engaged in domestic tourism. Put differently, 8.8 percent of registered workers in services is employed in tourism activities. Counting foreign visitors only, tourism employment accounts for 5.4 percent of services employment.

Table 1 summarizes estimation results. Accommodation is found to be the most tourism-related sector with 95.8 percent of total employment generated by tourism and 60.8 percent led by foreign visitors. Moreover, accommodation employment accounts for about half of total tourism employment (44.7 percent). Despite being the second biggest industry with regards to dependence on foreign visitors, the travel agents industry makes only a modest contribution to employment due to its relatively small size. Meanwhile, tourism employment in the food and beverage industry is quite low. In particular, most of the tourism-related employment in this sector is generated by domestic tourism, which makes up 9.8 percent of those employed, whereas international tourism accounts for only 6.2 percent. Although trade and support services are a major provider of tourism-related employment, tourism accounts for a limited part of employment in these sectors. Therefore, employment in the accommodation sector seems to be the best indicator to monitor tourism employment.

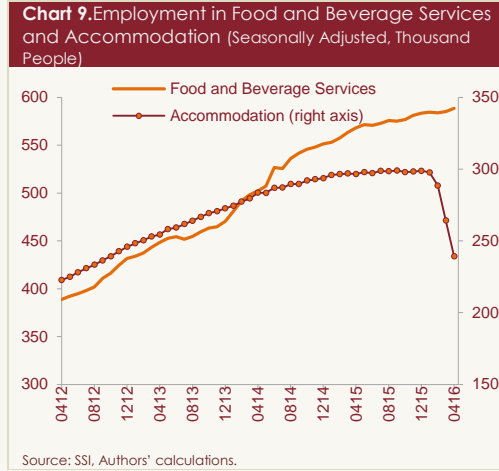
**Table 1. Tourism Employment by Sectors\***

	Foreign Visitors			Domestic Residents			Total Tourists		
	Tourism Employment	Share of Tourism in Sectoral Employment (Percent)	Share of Sector in Tourism Employment (Percent)	Tourism Employment	Share of Tourism in Sectoral Employment (Percent)	Share of Sector in Tourism Employment (Percent)	Tourism Employment	Share of Tourism in Sectoral Employment (Percent)	Share of Sector in Tourism Employment (Percent)
Services	392,650	5.4	100.0	244,907	3.4	100.0	637,557	8.8	100.0
Retail Trade	66,344	5.3	16.9	51,687	4.2	21.1	118,032	9.5	18.5
Accommodation	180,826	60.8	46.1	103,979	35.0	42.5	284,804	95.8	44.7
Food and Beverage	34,891	6.2	8.9	55,131	9.8	22.5	90,022	15.9	14.1
Travel Agents	16,196	29.7	4.1				16,196	29.7	2.5
Business Support Activities	39,878	10.2	10.2				39,878	10.2	6.3

\* As of 2014.

Source: SSI, Authors' calculations.

The quarterly data from the HLFS presents employment data jointly for the accommodation sector with the food and beverage services under the heading of accommodation and food service activities. Accordingly, total employment in accommodation and food services has recorded no fall as of April (Chart 8). However, the SSI data on registered employment point to a divergence between accommodation employment and food and beverage services employment (Chart 9). Employment in food and beverage services has shown no decline as of April, yet accommodation employment dropped in the January-April period after a stagnant year in 2015.



To sum up, although the HLFs shows no decline in tourism employment, the SSI data suggest a tourism-driven drop for registered employment in accommodation. This divergence can be attributed to the absence of individual data for accommodation employment in the HLFs and the fact that food and beverage services are relatively less vulnerable to tourism. Another reason could be the failure of the SSI data to show unregistered employment. In this context, the effects of tourism developments on employment and unregistered employment are believed to have emerged, albeit partly, in April. However, the joint data from the HLFs do not indicate a decomposition of these effects. In conclusion, it is crucial to closely monitor the impact of changing tourism revenues, while the recent developments are expected to limit the downturn in tourism revenues.

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Box  
4.2

## Effects of Minimum Wage Hikes on the Labor Market: A Preliminary Evaluation

The minimum wage was raised by 30 percent in the first quarter of 2016, which has been marked as the highest rate of increase since 2004. As the minimum wage is close to the average wage in Turkey and the earnings of a major portion of workers are within the minimum wage neighborhood, the wage hike is expected to have spillovers on the labor market. Previous works analyzing the Turkish labor markets reported that the minimum wage hike in 2004 had a considerable impact on average wages, while increasing unregistered employment and shortening the duration of employment (Gürçihan-Yüncüler and Yüncüler, 2016; Papps, 2012; Pelek, 2013).

This box provides a preliminary descriptive assessment of overall and sectoral effects of the recent minimum wage hike. To this end, TURKSTAT's Short-Term Business Statistics are used along with the SSI's Monthly Bulletins and HLFS. Sectors vary with respect to the intensity of minimum wage earners, which forms the basis to this analysis. Accordingly, the impact of a minimum wage hike is expected to be more significant for wages and employment across sectors that are intensive in employees earning around the minimum wage. This hypothesis is tested for each dataset.

The minimum wage intensity is determined by using HLFS data for 2014, where intensity is set by the ratio of employees earning between 80 and 120 percent of the average minimum wage. This estimation is conducted for 88 sectors based on the Nace Rev2 classification.

Overall, preliminary observations reveal that the minimum wage hike has no marked impact on total employment.

#### **TURKSTAT Short-Term Business Statistics**

TURKSTAT publishes Trade and Services Indices and Industrial Labor Input Indices under the Short-Term Business Statistics. These data, which cover most of the industrial and services sectors, are released every quarter. Unlike HLFS data, these sectors do not include public services, education, healthcare, culture and arts and other services. Moreover, compiled from firm surveys, these statistics only reflect registered employment.

Chart 1 shows the increase in wages and employment for sectors covered by this dataset. Sectors are listed on the horizontal axis according to the intensity of minimum wage earners. To make sure that post-minimum wage hike developments of the first quarter of 2016 were not following a trend, the average quarterly increases in 2015 were also included in the chart. Accordingly, minimum wage intensive sectors saw a larger increase in wages but a smaller growth in registered employment over the first quarter of 2016. The minimum wage weighted by the number of workers rose by an average 11.7 percent quarter-on-quarter.

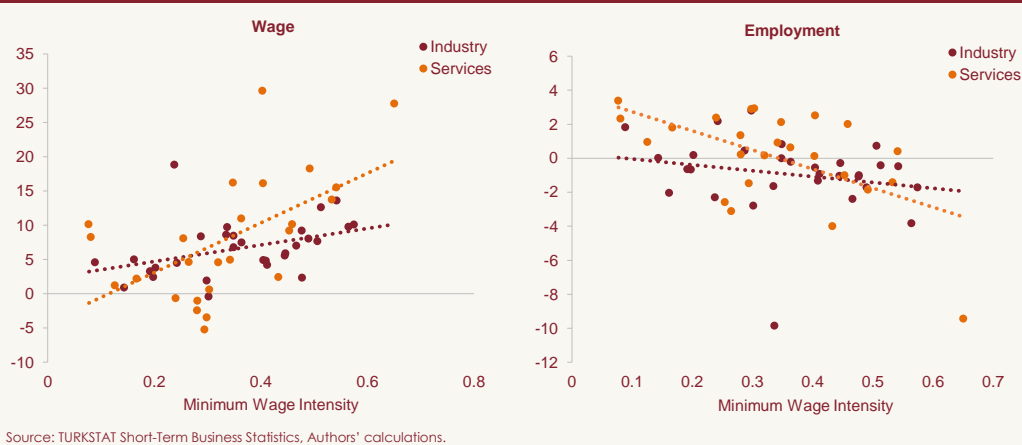
**Chart 1. Increases in Wages and Employment in Minimum Wage Intensive Sectors**  
(Percent, Seasonally Adjusted)



Source: TURKSTAT Short-Term Business Statistics, Authors' calculations.

Chart 2 shows the first quarter's employment and wage growth for industrial and services sectors. Accordingly, the minimum wage effect is more substantial for the services sector. The implications of the minimum wage hike for wages and employment were more evident in services.

**Chart 2. Increases in Wages and Employment in Minimum Wage Intensive Sectors during 2015Q4-2016Q1**  
(Percent, Seasonally Adjusted)

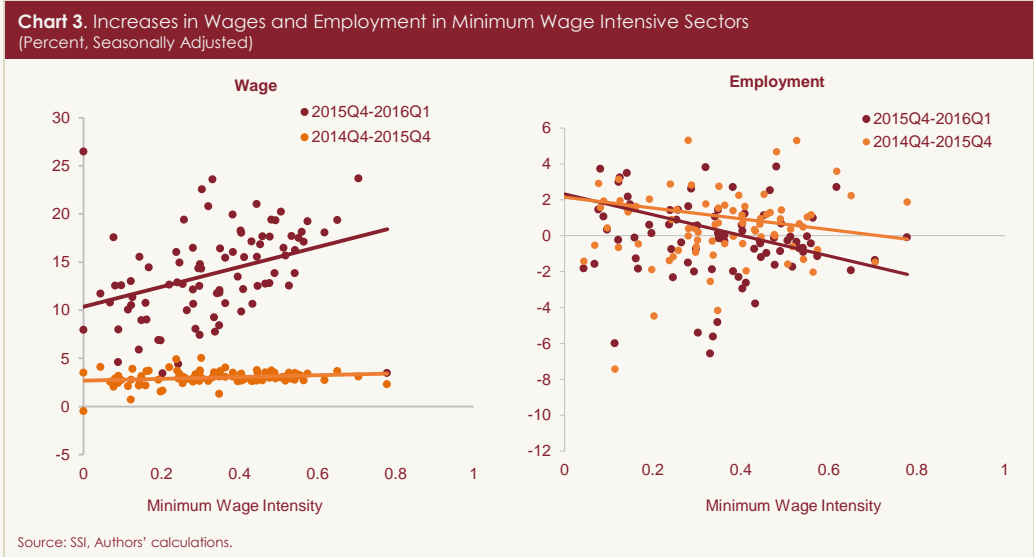


Source: TURKSTAT Short-Term Business Statistics, Authors' calculations.

**SSI Data**

The SSI compiles monthly data on private sector employment and average daily pay, which covers the industrial, construction and services sectors. Chart 3 shows wage and employment growth for sectors included in this dataset. Similar to the above analysis, a higher intensity in minimum wage employment is associated with larger increases in wage and a smaller rise in registered employment. Unlike the above analysis, the relation between employment growth and minimum wage intensity varies only mildly in the first quarter compared to 2015. The average wage increase weighted by employment rose by 15.3 percent in the first quarter.

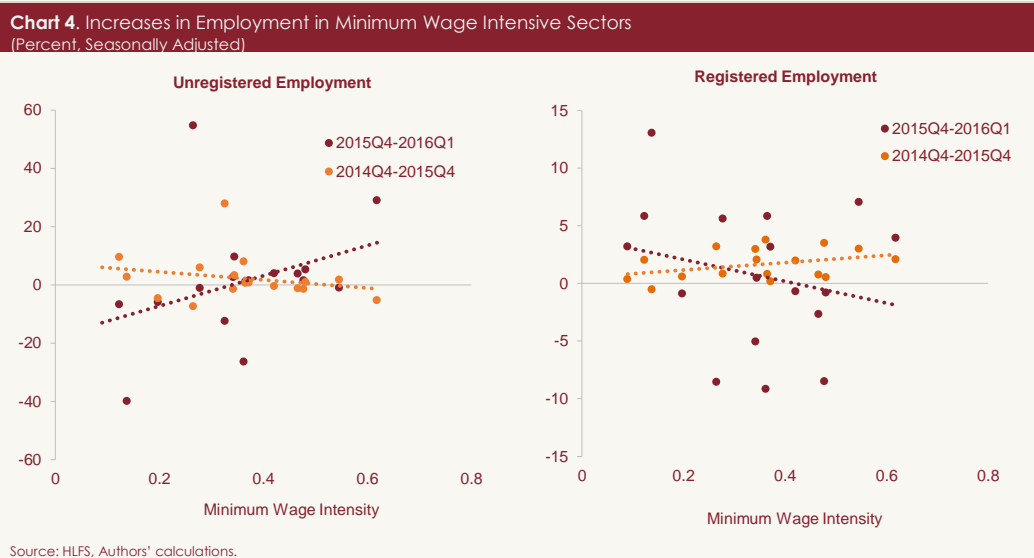




**HLFS Data**

The HLFS provides data for both registered and unregistered employment. However, the monthly HLFS employment data are compiled on a more aggregated level compared to other datasets. Therefore, only 18 sectors are used in this analysis. Yet, the analysis is conducted separately for registered and unregistered employment, which provides a major feedback for monitoring the labor market.

Accordingly, unregistered employment growth is observed to be higher in minimum wage intensive sectors (Chart 4). Based on a similar analysis conducted for different time periods, Bakış et al. (2016) also concluded that the minimum wage affects unregistered employment.



In sum, these findings support the argument that the minimum wage hike had no adverse impact on total employment. Readings point to a quarterly wage growth of 12 to 15 percent on average. A better understanding of the effects of the minimum wage hike can be achieved by analyzing the forthcoming micro datasets for 2016.

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Box  
4.3The Welfare Effect of Shortened Completion Times of Public Investments<sup>6</sup>

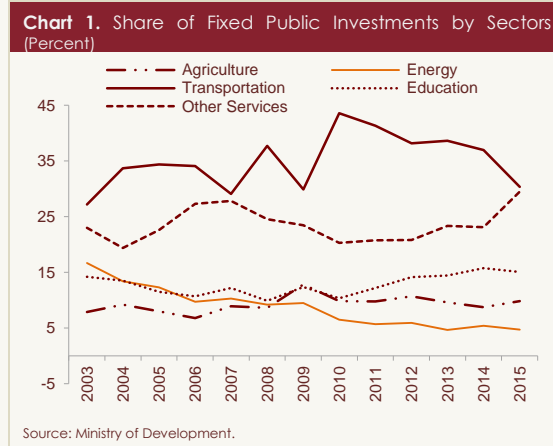
Public investments are critical for the overall functioning of the economy. This is due to the fact that public investments lead to the accumulation of public capital stock, the majority of which is composed of public goods in infrastructure, creating positive externality. Due to the recent global economic slowdown, public investments are now playing a major role in reviving the economy.<sup>7</sup>

As highlighted in the IMF's Public Investment Management Assessment (PIMA) Framework of June 2015, completion times of public investments are important. According to the PIMA Framework, the three key pillars for assessing the quality of public investment management are:

- 1- Planning: Having sustainable levels of investment,
- 2- Allocating: Selecting the right sectors and projects,
- 3- Implementing:
  - a. Implementing on time,
  - b. Implementing on budget.

Some recent developments in the Turkish economy suggest that remarkable gains may have been achieved regarding item 3.a. According to the Ministry of Development, the average completion time of public investments dropped from 8.5 years in 2002 to 4 years in 2015. This box shows the effect of this improvement through a standard welfare analysis.

A question may arise naturally at this point as to how much of this reduction is driven by changes in the composition of public investment projects. As shown in Chart 1, the share of energy sector in total public fixed investments fell by 12 points between 2003 and 2015, while shares of investments in other services, transportation and agriculture increased by 6.5, 3.2 and 1.9 percent, respectively. This shift in the composition of public investments might have helped bring the completion times down. Such changes may also correspond to the developments pertaining to pillars 1 and 2 of the PIMA.

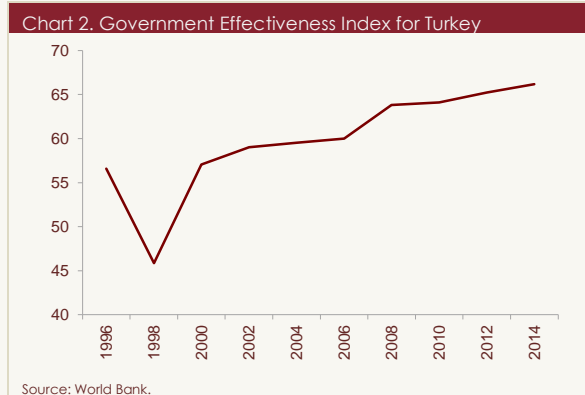


On the other hand, as seen in Chart 2, the World Bank's Governance Index indicates that Turkey has been on a trajectory of permanent improvement since 2000. Kaufmann et al. (2010), which is the background paper for the measurement of this index, states that the index encompasses not only other properties of public services but also the quality of public policy formulation and implementation. Thus, the improvement in the index suggests that shorter completion times are partly a result of the improving governance. This study assumes that completion times of public investments are shorter due to improvements in pillar 3.a of PIMA, while the status of other pillars remained constant over time.

<sup>6</sup> This box is based on Özbilgin (2016).

<sup>7</sup> Examples may include the October 2016 World Economic Outlook, initiatives taken under G20 presidencies of Australia and Turkey, and projects such as the OECD Productivity Network.

A theoretical model is needed to lay the basis for the welfare analysis. The model will be as simple as possible to provide transparency on the effects of such a reform. The starting point is the standard real business-cycle model. However, it is also necessary to model public investments in order to analyze their effects. In the spirit of earlier literature, this is handled through an augmented production function, which includes public capital stock creating positive externality for the overall economy. It is not possible to study the effects of shorter completion times of public investments under the standard model where the investment transforms into capital stock in a single period. Hence, the completion time of public investments is modeled via the time-to-build function of Wen (1998).



The time-to-build function of the model can be calibrated to mimic the recent improvement in the Turkish economy, i.e. the shortened period for the transformation of public investments into capital stocks, from about 9 years in the past to about 4 years now. This feature of the model enables to examine the welfare effect of the reform through a widely used standard welfare analysis, which focuses on two economies. In the S (slow) economy, the transformation of public investments into public capital takes 9 full years, whereas in the F (fast) economy, the duration is 4 years. Otherwise, F and S economies are the same. The parameters of both models are adjusted and solved for the Turkish economy, and as in the previous literature, the Hicksian Compensating Variation (HCV) is then calculated to measure the welfare effect of the reform. The HCV measures how much the consumption of S economy households should be increased to reach the welfare level of F economy households at any time and state. Accordingly, a positive HCV means reform-induced welfare gains.

Under the baseline calibration of the model parameters, the welfare effect of the reduced completion time for public investments, down from 9 years to 4 years, corresponds to a 0.69 percent increase in consumption. The reason behind these remarkable welfare gains is that public and private investment and capital stocks reach higher levels in the long-run under shorter completion times. Considering how the model functions, the mechanism behind these gains can be briefly explained as follows: a reduction in completion times prompts an increase in the social demand for public investments. Rising public investments lead to a positive externality and higher productivity, thus pushing private investments higher. Hence, the economy's total capital stock expands, helping to reach a higher income level. As a result, despite becoming more of an investment-based economy due to the decreased consumption-to-income ratio, the economy experiences major welfare gains as the consumption grows in levels.

When some difficult-to-measure parameters of the model are calibrated to alternative, but still reasonable values, the positive effect of the reform is even larger. The assumptions that make the economy more flexible in general deliver more positive effects of the reform. As shown in Table 1, the assumption of a lower risk aversion and a more flexible labor supply, or a more positive externality across the economy brings the HCV closer to 1 percent. Other cases investigated include the asymmetrical distribution in the weight of

investments in capital stock transformation across time. The assumption that investments are front-loaded in the sense that investments in the initial periods are more important for public capital stock formation leads to the conclusion that the reform has a much larger positive effect.

**Table 1.** The Welfare Effect of the Reform under Alternative Assumptions

	HCV (percent)
Basic calibration	0.686
Less risk aversion	0.788
Less risk aversion and more labor flexibility	0.862
Positive externality across the economy	0.965
Front-loaded projects	0.852
Back-loaded projects	0.537

Source: Author's calculations.

The model predicts a higher level for public investments under faster completion times, which implies a larger public capital stock in the long-run. This has other potential favorable effects such as increases in total factor productivity, positive impact on growth rates and the narrowing of the infrastructure gap vis-a-vis the developed world.<sup>8</sup>

According to the analysis presented in this box, the recent shortening of completion times of public investments is highly likely to deliver major welfare gains. However, there are certain issues to be kept in mind given the limits of the analysis. This study measures the effect of reduced completion times based on the assumption that the effect of other issues under the PIMA or similar criteria is constant. Continued budget discipline and structural reforms may amplify the positive effects.

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<sup>8</sup> The conclusions drawn herein coincide with the findings of the empirical analysis from the October 2014 World Economic Outlook. This analysis concluded that a rise in public investments would lead to a larger public capital stock and a greater growth rate, which is positively correlated with the efficiency of public investments.

Box  
4.4

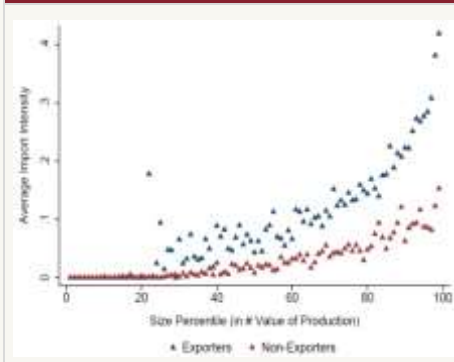
## Firm Size, Imported Intermediate Goods and Export Behavior

The current account balance is a key indicator of economic stability. The main driver of Turkey's current account deficit is the external trade deficit. Across subcategories of goods factored into the external trade deficit, the largest contributors are intermediate goods. This box summarizes the findings of Lu and Ulu (2016) that analyze the interaction between firm size, number of imported varieties, import intensity in intermediate goods and the exporting behavior of firms.

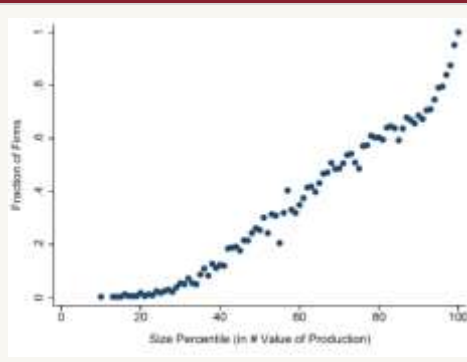
Countries with reduced trade barriers often experience a rise in exports coupled with a larger growth in imports. Similarly, these countries face a rise in the ratio of imported inputs to exported goods. Intermediate goods account for two-thirds of world trade (Hummels et al., 2001). Additionally, a production function estimation that employs labor, capital and intermediate goods as inputs reveals that intermediate goods represent the largest part of total production costs.<sup>9</sup> In view of these findings, one can conclude that intermediate goods play a major role in production and external trade. This box seeks to illustrate these relationships for Turkish manufacturing firms.

Chart 1 shows the import intensity of intermediate goods for firms in the same size bins (percentiles) by their exporter status. Since exporter firms tend to be large, the lower size percentiles do not accommodate many exporter firms. Accordingly, the Chart shows that import intensity of intermediate goods increases for larger firms. Also, the import intensity of intermediate goods is significantly higher for exporters than for non-exporters, where this gap widens at an accelerated pace for larger firms. Chart 2 shows the number of exporters in each size bin. Accordingly, the lowest size percentiles contain only a few exporters, whereas higher size bins are dense in terms of exporters.

**Chart 1. Import Intensity of Intermediate Goods by Exporter Status**



**Chart 2. Exporter Status by Firm Size**



<sup>9</sup> Amiti and Konings (2007) found out that intermediate goods account for 60 to 70 percent of total production costs across all production functions estimated for almost all manufacturing industries.

As seen in Chart 2, Chart 1 statistics are produced by ranking all firms in each size bin according to their size, regardless of their exporter status, and therefore non-exporters are not sufficiently represented in lower size percentiles. Hence, exporter firms are represented better in higher percentiles. Thus, Chart 3 replicates the same analysis from another perspective. This time, firms are grouped as exporters and non-exporters, and consequently ranked within their own groups, while the same statistics are calculated for firms in the new size percentiles.<sup>10</sup> Accordingly, it becomes more evident that exporters use more intermediate inputs than non-exporters, and the cost share of imported intermediate inputs grows faster with size for exporters than for non-exporters.

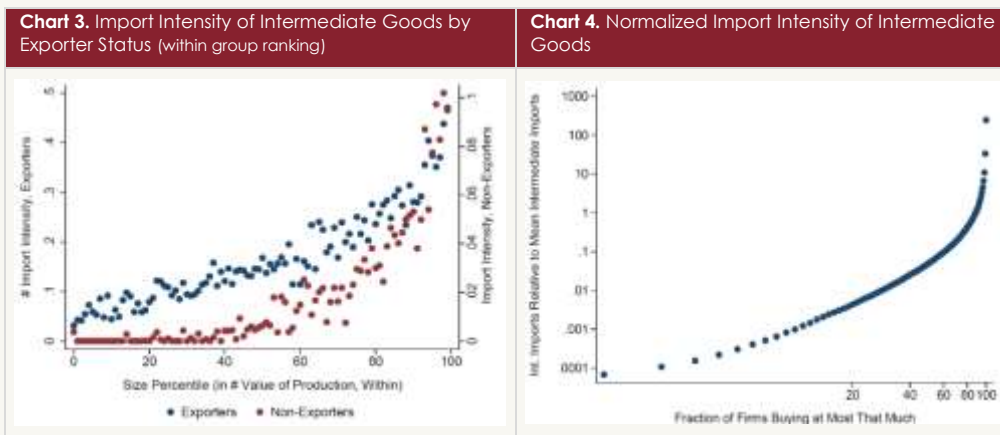


Chart 4 relates the percentage of firms with the import intensity of their intermediate goods normalized by their average expenditures, which can also be interpreted as a cumulative distribution function for importer firms' normalized intermediate input expenditures. For instance, if a firm is importing intermediate inputs, with 0.1 probability, it is spending at most one thousandth of the average expenditure, and with 0.86 probability, it is spending at most the average expenditure on imported inputs. The biggest intermediate input importers spend one million times more on intermediate goods than the smallest intermediate input importers.

As the number of imported intermediate input varieties goes up, the number of importers importing that many varieties goes down. Chart 5 shows that only a fraction of firms imports very diverse sets of intermediate inputs whereas many import only a few different varieties of intermediate inputs. The variety of imported intermediate inputs also differs across exporters and non-exporters. Chart 6 presents a breakdown of the previous analysis between exporter and non-exporter firms along with size percentiles. For each size percentile, the number of imported varieties is larger in exporters than in non-exporters. Although this reflects rankings within groups, the number of imported varieties is still higher for exporters of each size when all firms are ranked regardless of their exporter status.<sup>11</sup>

<sup>10</sup> This representation has the advantage of having equal number of firms in each size bin for both exporters and non-exporters. On the other hand, this analysis fails to reveal the information regarding the actual size differences between these two types of firms, and even though they are represented in the same size bins, exporters and non-exporters may vary in size.

<sup>11</sup> This study identifies each type of good separately as a good under Harmonized System-12 (HS12) item by country. A description by HS codes leaves graphical interactions intact but reduces product variety by around 10 percent.

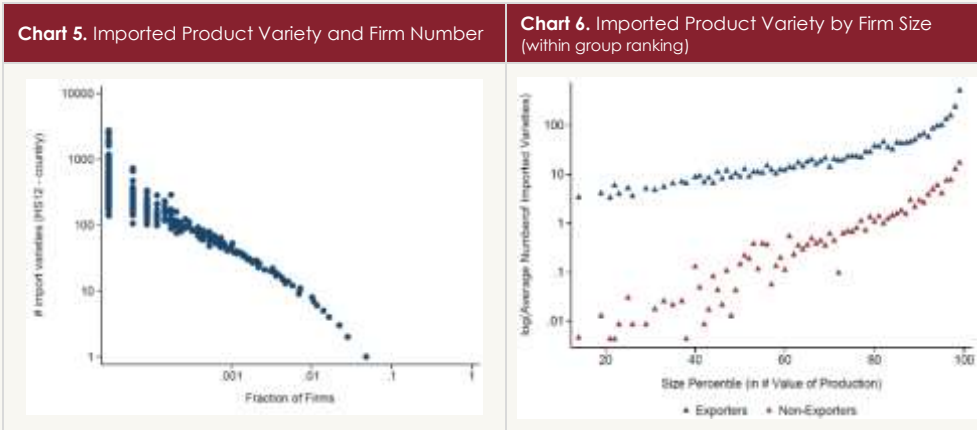


Chart 7 displays firm revenues for exporters and non-exporters, which clearly shows that revenues are higher for exporters. Although, Chart 2 shows the absence of a one-to-one relationship between firm size and firm's exporter status, Chart 7 shows revenues of firms ranked within groups by their exporter status. Analyzing the underlying motive in terms of the share of foreign ownership, the behavioral patterns are found to be similar for firms with no foreign capital.

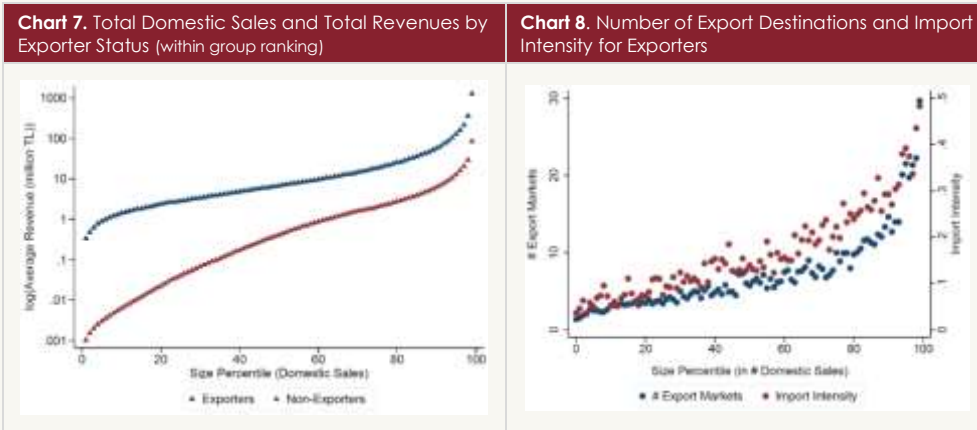
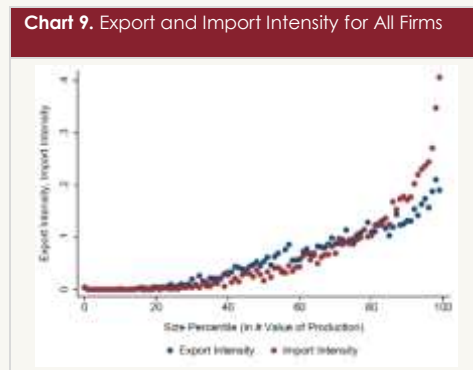


Chart 8 ranks exporters by their domestic sales. Accordingly, the number of export destinations and the import intensity of intermediate goods are higher for larger firms.

Chart 9 shows the export and import intensities by firm size, which depicts that both export and import intensity is higher for larger firms.





Today, stages of production take place at different countries and final products reach users at the end of a global value chain. Hence, countries strive to get the top value-added share from this value chain. A country's rank in the global value chain both affects and is affected by its wages, investments in human capital, the allocation of labor across various industries and many other economic indicators.

Many studies have revealed that imported intermediate inputs have a positive impact on the productivity of importers. Saygılı et al. (2010) shed light on the motives behind firms' import behavior by conducting an interview among firms which represent 35.9 percent of the total manufacturing value added in Turkey. As reasons for importing intermediate goods, 96.6 percent of these firms identify lack of domestic supply while 75.2 percent state the lower cost of importing the input from abroad.

Goldberg et al. (2010) explore the positive impact of lower trade barriers on intermediate goods imports on firms' product scope. The analysis shows that 31 percent of the new products launched by domestic firms in India was due to the availability of new intermediate inputs that were not available prior to barrier reduction.

The findings from this box conclude that imported intermediate inputs are highly correlated with the exporting behavior of firms. In this regard, an effective way to monitor the success and growth of exports is to focus on the domestic value added generated by exports rather than monitoring total export figures, as emphasized by Johnson and Noguera (2012).

This box presents the regularities observed between the size, imported input use and exporting behavior of Turkish manufacturing firms. Accordingly, exporters have higher import variety and intensity of intermediate goods than non-exporters. In addition, import intensity is higher for larger firms. Also, export intensity is positively related to import intensity of intermediate goods, where both intensities are higher for larger-sized firms. Moreover, import intensity of intermediate goods increases for a greater number of export destinations. A better understanding of the complementarity between exports and imports as implied by these findings will pave the way for alternative solutions to Turkey's current account deficit problem.

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