

4. Supply and Demand Developments

GDP data regarding the second quarter of 2013 suggest that economic activity grew stronger than the outlook presented in the July Inflation Report. The GDP, which posted a quarter-on-quarter increase by 2.1 percent in seasonally adjusted terms, recorded robust increases in two consecutive quarters. Thus, having followed a sluggish course in the second half of 2012, economic activity gained notable momentum in the first half of 2013. The final domestic demand, which surged in the first quarter, remained almost flat in the second quarter. An analysis of the components of the final domestic demand suggests that the private sector demand recorded a mild increase, while the public sector demand, which posted a strong increase in the first quarter, registered a decline. On the other hand, imports surged in this period, whereas exports recorded a more limited rise amid the weak course of the global demand. Thus, the deterioration of the balancing among demand components in the first quarter continued into the second quarter. Final domestic demand remained flat, while the rise in imports was attributed to the inventory accumulation and increased gold imports in this period. In fact, the change in inventories has proved positive for the first time following 7 consecutive quarters.

PMI and BTS survey indicators of the third quarter besides the sales of automobile and white goods point to a mild recovery in economic activity. On the other hand, the industrial production index, which increased in July, plunged in August, leading production to remain below the average of the previous quarter in the July-August period. August failed to fully reflect the underlying trend probably due to the religious holiday period. As the bridge day effect is not captured in official statistics, readings in August remained lower than the underlying trend (Box 4.1). A similar situation applies to import and export quantity indices. Therefore, the interpretation of the production and quantity indicators for external trade during the July-August period needs to be handled carefully.

Indicators regarding external demand suggest that imports of goods and services will decline at a lower level than exports in the third quarter. Thus, it is expected that the balancing of the demand components will register a slight improvement, which may lead a slight narrowing of the current account deficit. Moreover, it is anticipated that the weak course of capital flows, the cautious

monetary policy stance and the macroprudential measures will slowly pull the future credit growth rates to plausible levels. Accordingly, the gradual improvement of the current account deficit excluding the gold trade is expected to continue.

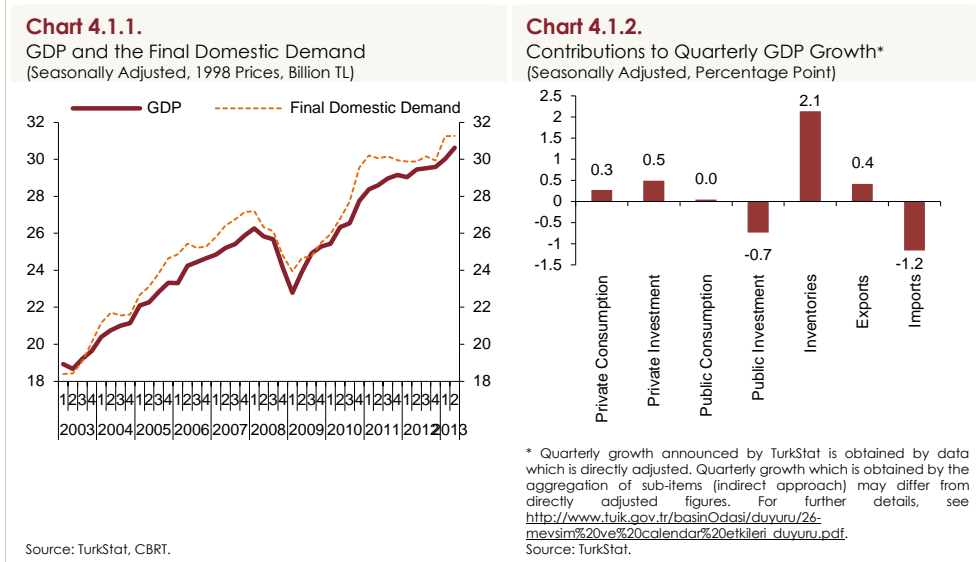
Employment and credit channels are envisioned to provide less support to the economic recovery in the upcoming period. In addition, lingering uncertainties regarding global monetary policies and volatile capital flows weigh on the future course of domestic demand. Therefore, the final domestic demand, which recorded a robust recovery in the first half of the year, is expected to follow a weaker course in the second half, and not pose an upside pressure on inflation and limit the widening of the current account deficit. On the other hand, the Euro Area's emergence from the recession by registering positive growth figures in the second quarter should be noted as a favorable development in terms of external demand.

4.1. Gross Domestic Product Developments and Domestic Demand

According to the national accounts data released by the TurkStat, the GDP posted a year-on-year increase by 4.4 percent in the second quarter of 2013. In seasonally adjusted terms, the GDP recorded a quarter-on-quarter increase by 2.1 percent. Thus, economic activity, which followed a weak course in the second half of 2012, accelerated significantly in the first half of 2013. On the other hand, the final domestic demand remained almost flat in this period, notwithstanding the robust increase in the first quarter (Chart 4.1.1). An analysis of the components of the final domestic demand suggests that private sector demand recorded a mild increase on account of the private consumption and private investments, while the public sector demand, which posted an upsurge in the first quarter, registered a decline (Box 4.2). On the other hand, imports surged in this period, whereas exports recorded a more limited rise amid the sluggish course of the global demand. Thus, the deterioration of the balancing among demand components in the first quarter continued in the second quarter.

In seasonally adjusted terms, changes in inventories provided the largest contribution to quarterly growth from the expenditures side. Private sector

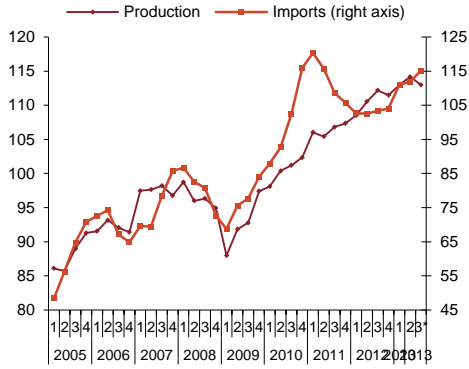
demand contributed positively to growth, while the public sector demand and net exports made negative contributions (Chart 4.1.2).



The third-quarter data point to a mild course in final domestic demand. Increases in the production and imports of consumption goods in July were replaced by slumps in August. Thus, production of consumption goods posted a decline in the July-August period on a quarterly basis, while imports of consumption goods continued on an upward trend (Chart 4.1.3). On the other hand, August may fail to correctly reflect the underlying trend because of the religious holiday, thus interpretation of the production and import data during the July-August period should be handled carefully. Meanwhile, quarterly increases in the sales of automobiles and white goods indicate that the private consumption demand will follow a mild course in the third quarter (Chart 4.1.4).

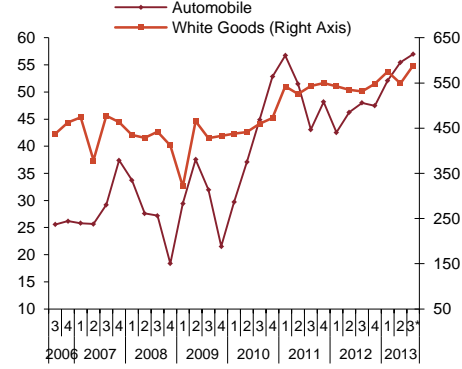
Investment indicators point to a weaker outlook compared to the consumption demand. For instance, both imports and production of investment goods excluding transport posted a decline (Chart 4.1.5). Production of mineral goods, one of the leading indicators of construction investments, registered a decrease, while imports of mineral goods posted an increase on a quarterly basis (Chart 4.1.6). This indicates that construction investments will follow a mild course in the third quarter. On the other hand, similar to the production and imports of consumption goods, the data on the production and imports of investment goods for the July-August period should also be handled cautiously as August included the religious holiday.

Chart 4.1.3.
Production and Import Quantity Indices of Consumption Goods
(Seasonally Adjusted, 2010=100)



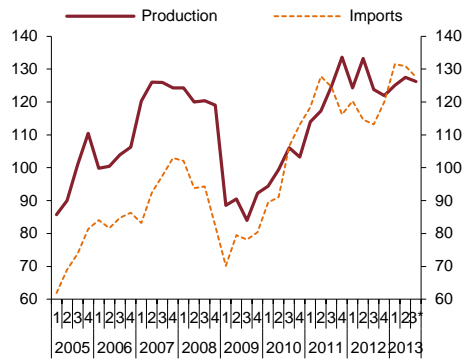
*As of August.
Source: TurkStat, CBRT.

Chart 4.1.4.
Automobile and Domestic Sales of White Goods
(Seasonally Adjusted, Thousand)



*As of August for white goods.
Source: AMA, WGMA, CBRT.

Chart 4.1.5.
Production and Import Quantity Indices of Capital Goods Excluding Transport Vehicles
(Seasonally Adjusted, 2010=100)



*As of August.
Source: TurkStat, CBRT.

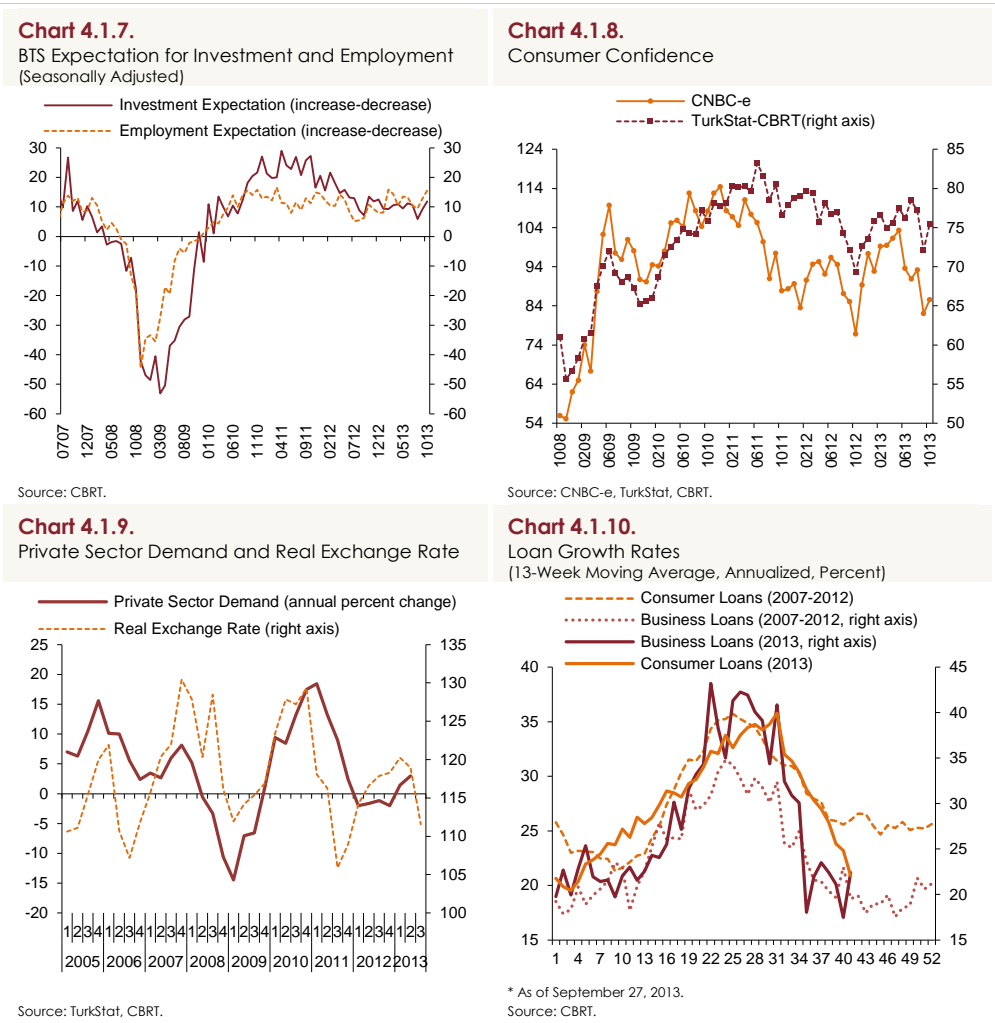
Chart 4.1.6.
Production and Import Quantity Indices of Non-Metallic Mineral Goods
(Seasonally Adjusted, 2010=100)



*As of August.
Source: TurkStat, CBRT.

The growth of final domestic demand is expected to continue moderately as the contribution of employment and the credit channel to the recovery may attenuate in the upcoming period. In fact, survey indicators point to a recovery in September and October. Thus, the BTS indicators on investment and employment, which declined on a quarterly basis in the third quarter, hovered above the third-quarter average in October (Chart 4.1.7). CNBC-e and CBRT consumer confidence indices also registered a slight recovery in October (Chart 4.1.8). This indicates that following its weak course in the third quarter, economic activity will display a more favorable outlook in the last quarter. However, it should be noted that the tightening in financial conditions may slow down the private sector demand (Chart 4.1.9). In fact, the growth rate of consumer loans, which hovered above the 2007-2012 average during the third

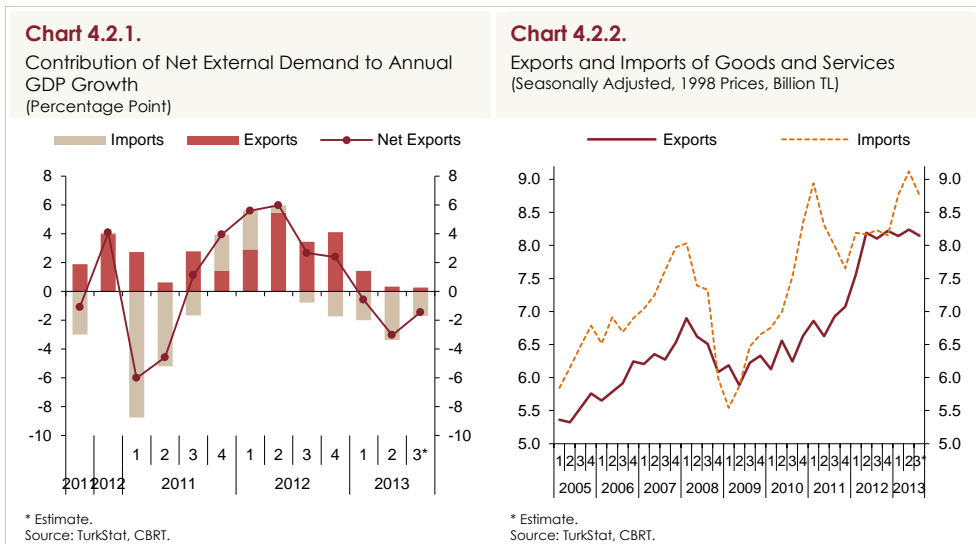
quarter, went below the long-term averages in the first week of October, while the growth rate of business loans continue with the recent fluctuating course (Chart 4.1.10). Moreover, uncertainties regarding economic policies in advanced economies and the resulting heightened volatility in capital flows continue to pose a downside risk on the domestic demand.



In sum, the final domestic demand, which recovered robustly in the first half of the year, is expected to continue with a mild track of recovery in the second half. Nevertheless, recent financial developments have weighed on the recovery outlook. Accordingly, domestic demand developments are not expected to pose an upside pressure on inflation and are anticipated to contribute to the recent improvement in the current account deficit.

4.2. External Demand

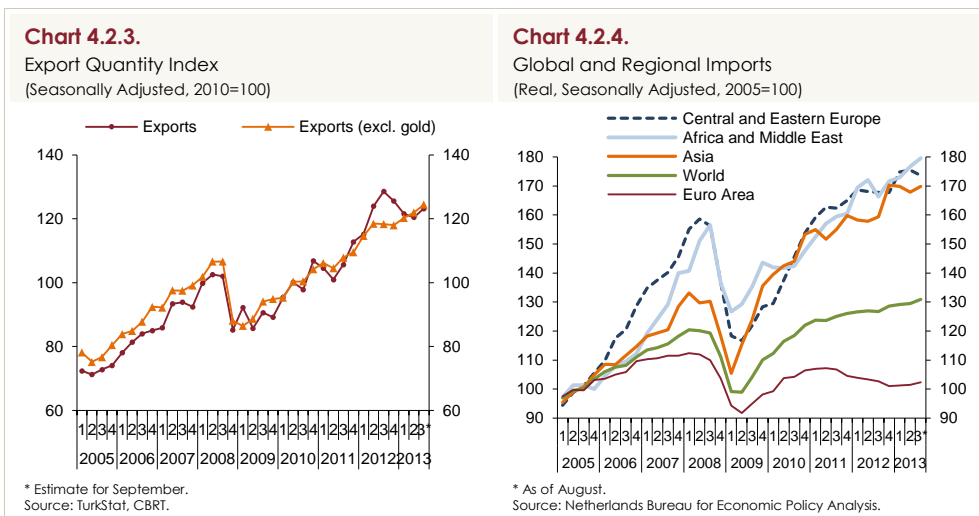
National accounts data in the second quarter indicated that the first-quarter deterioration in demand components continued. Exports of goods and services increased by 1.2 percent in this period, while imports thereof increased by 11.7 percent in annualized terms. Thus, the negative contribution of net exports to annual growth continued with an accelerated pace (Chart 4.2.1). Seasonally adjusted data suggest that exports of goods and services edged up amid unfavorable global developments, whereas imports posted a stronger increase (Chart 4.2.2). This rise in imports is attributed to the inventory accumulation and higher gold imports in this period.



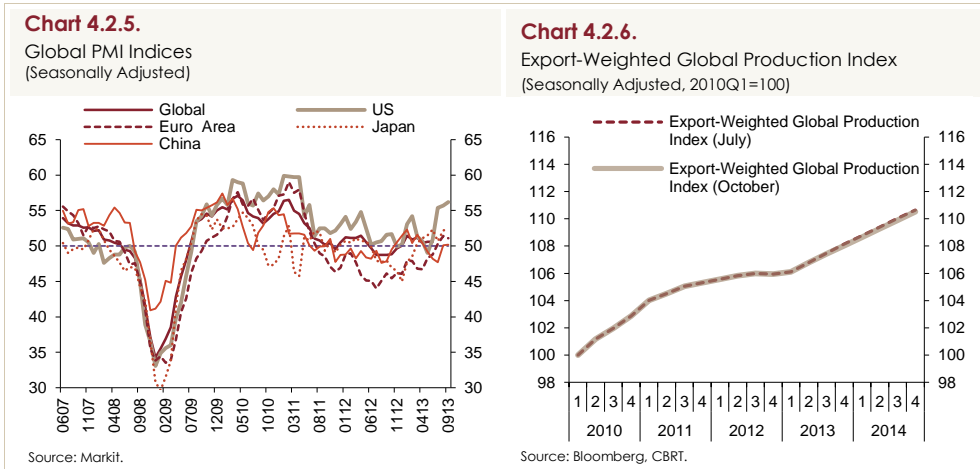
The third-quarter data reveal that the export quantity index recorded a slight decline in the July-August period. The core index excluding gold exports continued with its steady trend of the preceding two quarters and recorded an increase on a quarterly basis in this period (Chart 4.2.3). On the other hand, the monthly decline in both the headline and the core export indicators in August is attributed to the Ramadan Feast. Thus, the released data are likely to fail to fully account for the underlying trend. The bridge day, the 2.5-day-period between the weekend and the first day of the Ramadan Feast in August, weighed on both imports and exports. Therefore, to gain a better interpretation of the underlying trend, assessing the third-quarter outlook by also taking into account of the September forecasts will be more accurate. The recent indicators suggest that both the headline export quantity index and the export quantity index excluding gold may display a notable month-on-month rise in September.

Should such a rise appear, both indices are expected to increase on a quarterly basis as well.

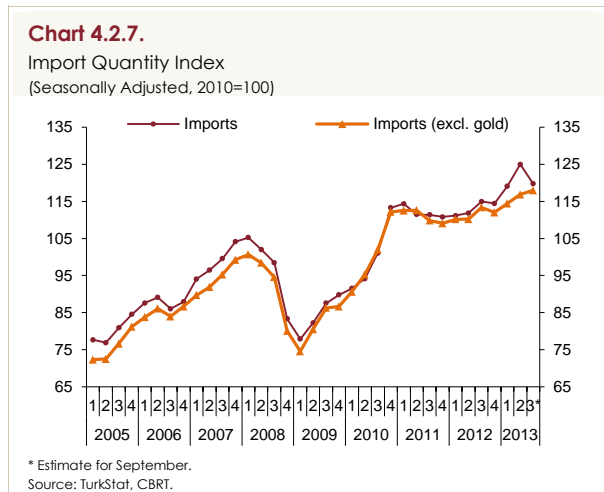
Global trends reveal that the mild increase in the global import demand gained pace in the July-August period. Import demand from the Euro Area, which has a notable share in our exports, recorded a limited increase after a prolonged period of a weak course. Asian import demand, which posted a decline in the second quarter, recorded an increase in the third quarter, while the increase in the import demand from MENA countries continued with a slower pace (Chart 4.2.4).



PMI indicators show that economic activity continues to recover on a global scale. In fact, the global PMI manufacturing index kept increasing above the neutral 50 (Chart 4.2.5). In the third quarter, the US PMI index registered a surge, while the Euro Area index remained moderate. Having declined in the second quarter, the Chinese PMI index climbed to 50 in the third quarter, while the Japanese index continued with a mild track of recovery. On the other hand, export-weighted global growth outlook, one of the medium-term indicators, remained broadly unchanged in the inter-reporting period (Chart 4.2.6). Global PMI and import indicators point to a more favorable outlook in external demand conditions compared to the first half of the year. Against this background, the underlying trend of exports of goods and services is expected to continue with an upward track in the third quarter. Yet, exports of goods and services are estimated to follow a weaker course amid the fall in gold exports (Chart 4.2.2).



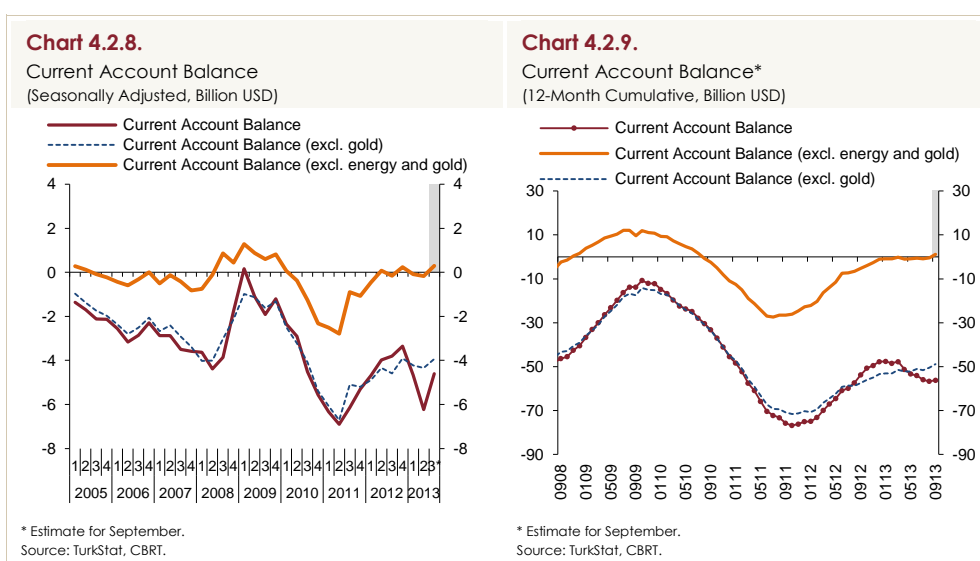
Following a robust increase in the first half of the year, the import quantity index decreased in the July-August period. This decline was driven by the fall in gold imports, while imports excluding gold continue with a slower pace of growth. Recently released indicators suggest a mild increase in September, yet total imports will register a quarter-on-quarter fall due to the decline in gold imports. On the other hand, in line with the expected mild increase in domestic demand, imports excluding gold are envisaged to increase slightly (Chart 4.2.7). Accordingly, imports of goods and services are expected to edge down in the third quarter (Chart 4.2.2).



Final domestic demand is expected to exhibit a mild increase due to the depreciation of the Turkish lira, aggravated uncertainties over the global economy and the recent hikes in lending rates. It should be noted that this may curb imports. However, the Euro Area overcame the recession and registered positive growth figures in the second quarter. Moreover, the Euro Area survey

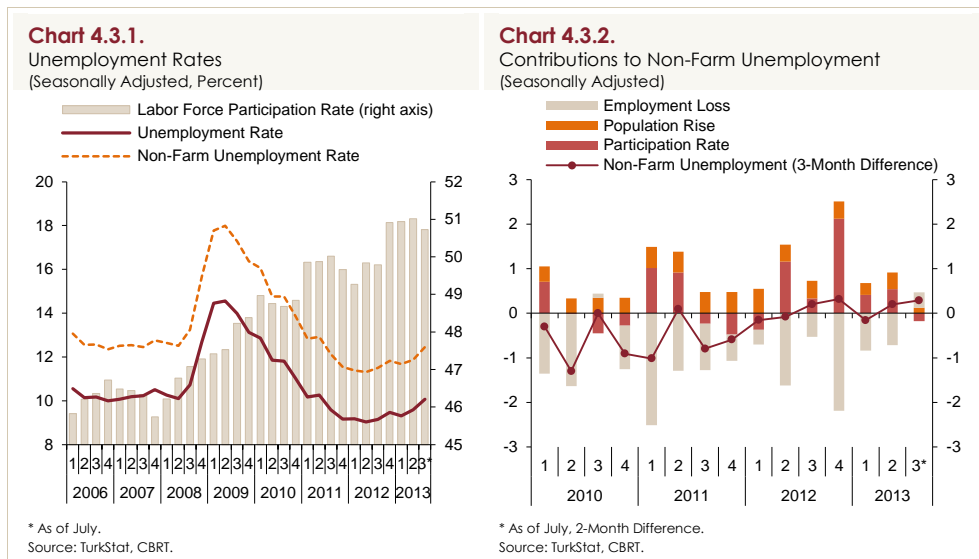
indicators posted an improvement, which are all considered to be favorable developments with regard to the external demand. Overall, net exports are expected to continue with negative contributions to growth in the third quarter (Chart 4.2.1).

The current account balance is expected to recover slightly amid the slowing import demand. In line with the decline in gold imports, the current account balance excluding energy and gold displayed a similar outlook as well (Chart 4.2.8). Accordingly, the deterioration in the 12-month cumulative current account balance came to a halt (Chart 4.2.9).

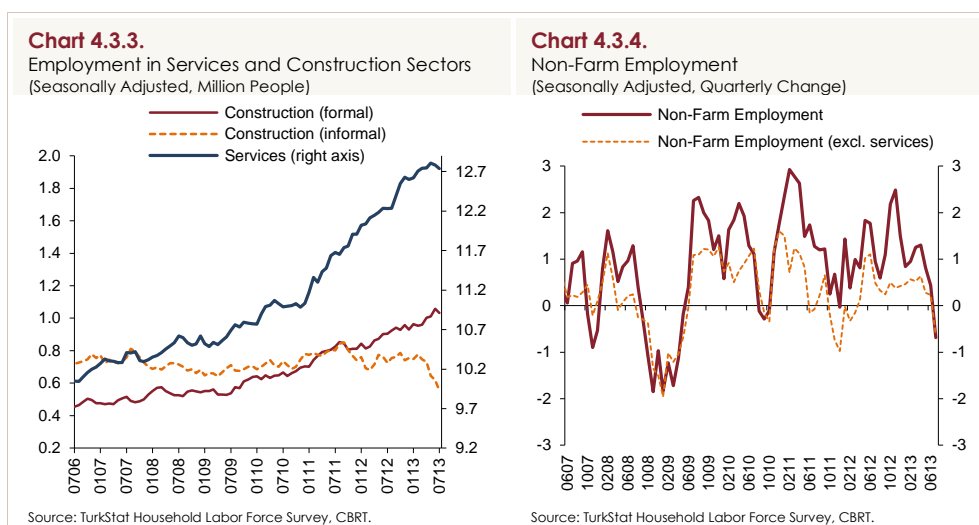


4.3. Labor Market

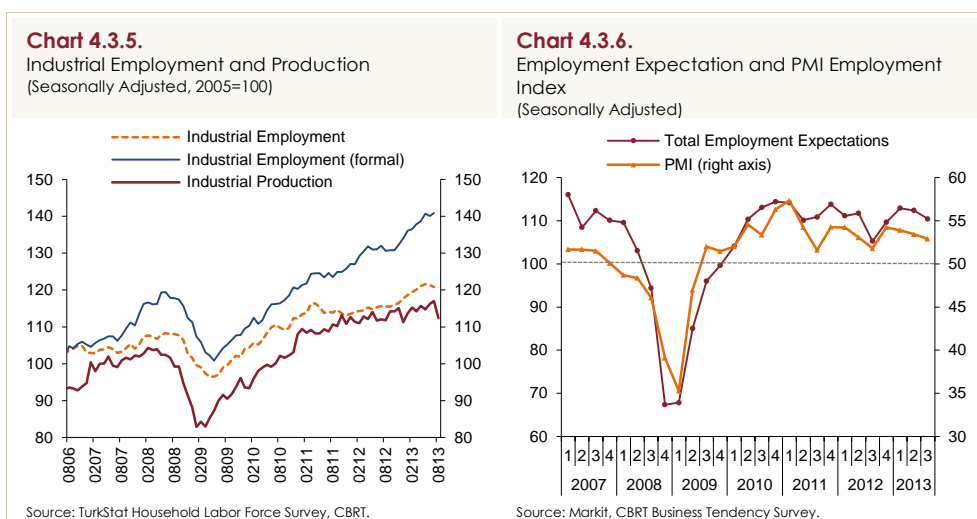
Total and non-farm unemployment rates displayed a limited rise in the second quarter of 2013 on a quarterly basis (Chart 4.3.1). Non-farm employment edged up quarter-on-quarter; however, the labor force participation rate recorded a higher growth than employment, thus leading to an increase in unemployment rates (Chart 4.3.2). On the other hand, non-farm employment exhibited a decline in the June-July period and unemployment rates continued with an upward trend as in the second quarter (Chart 4.3.1).



In the second quarter of 2013, the services employment continued to remain relatively weak in the June-July period and recorded a quarter-on-quarter decline (Charts 4.3.3 and 4.3.4). The uptrend in the construction sector employment, which has been ongoing since early 2012, was interrupted in late 2012. This sluggish course has been more apparent in the first quarter of 2013 and continued in the second quarter. Meanwhile, registered and unregistered employment diverged notably. In other words, registered construction employment exhibited a noticeable uptick in the second quarter, whereas unregistered employment posted a significant fall on a quarterly basis. Similar trends were seen in June, while in July, both registered and unregistered construction employment displayed a decline (Chart 4.3.3).

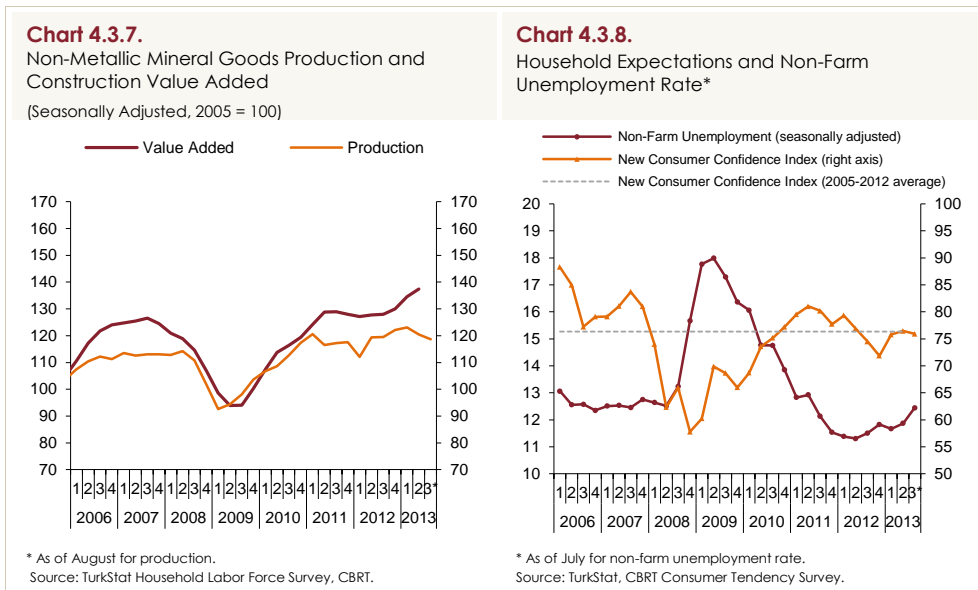


Following the last quarter of 2012, industrial employment registered increases in the first two quarters of 2013. The surge in industrial employment in these periods played a key role in rising non-farm employment. Unlike the volatile recovery in industrial production, industrial employment displayed a more robust increase (Chart 4.3.5). However, in the June-July period of 2013, industrial employment exhibited a notable decline.

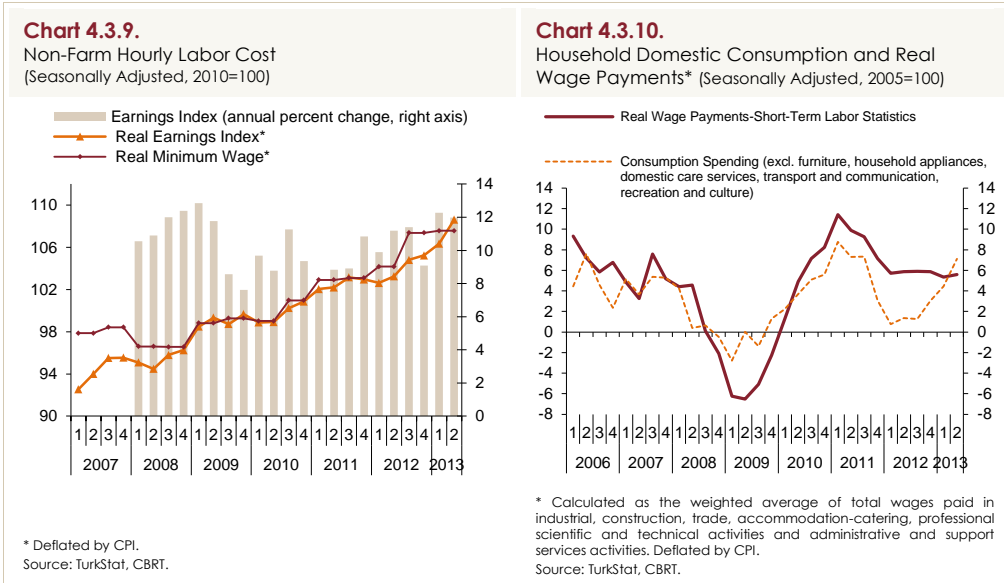


Leading indicators signal a probable slowdown in employment growth in the third quarter of 2013. Firstly, industrial production recorded a plunge in August and has followed a fluctuating course since March (Chart 4.3.5). Industrial production presents a weaker outlook than employment, thereby restricting expectations for an increase in employment. Secondly, even though the PMI indicator for the manufacturing industry employment remains optimistic, it recorded a decline in the third quarter (Chart 4.3.6). Similarly, the BTS indicator regarding total employment expectations, which reflects views of the private firms operating in the manufacturing industry sector, posted a remarkable quarter-on-quarter increase in the first quarter of 2013, yet trended downwards in the second and third quarters (Chart 4.3.6). In addition, production developments in the manufacturing of non-metallic mineral goods, which provide the construction sector with intermediate goods, signal a deceleration in construction activities in the third quarter (Chart 4.3.7).

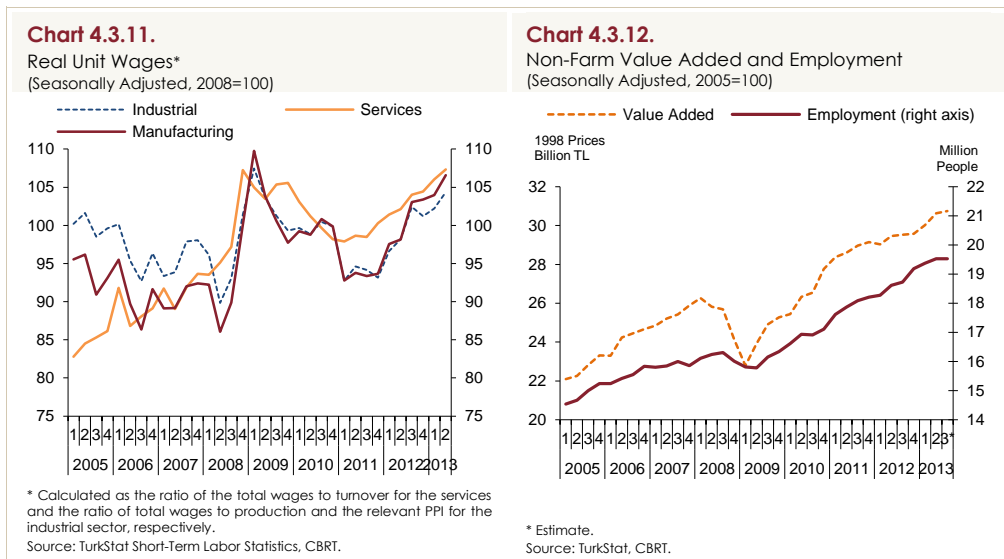
Following the flat course in the second quarter of 2013, the CBRT's consumer confidence index, which reflects households' sentiments across Turkey, displayed a slight quarter-on-quarter decline and remained below its long-term average (Chart 4.3.8). Parallel to the course of other leading indicators of employment, the consumer confidence index continues to hover around its long-term average.



Analysis of labor market developments with regard to domestic demand suggests that total wage payments, which rose particularly due to the developments in hourly earnings, supported the domestic consumption spending in the first two quarters of 2013. The non-farm hourly earnings index released under Labor Cost Indices continued to increase in real terms in the second quarter of 2013. Although this increase remained above the minimum wage rise in quarterly terms, the year-on-year change in the two series displayed a parallel course (Chart 4.3.9). Total wage payments, which also reflect employment dynamics, continued with an upward trend in line with wages. Meanwhile, household domestic consumption spending excluding durable goods recorded a robust increase in the second quarter of 2013 (Chart 4.3.10).



Analyzing wage developments from the cost side suggests that real unit wages in the industrial and services sectors increased further in the second quarter of 2013 (Chart 4.3.11). The weak course of average productivity as well as the surge in hourly wages fuels the rise in real unit wages (Chart 4.3.11). This rise, which is considered to be a risk factor especially for the services sector with high labor intensity, points to the likelihood of an elevated cost pressure induced by wages. However, this finding, which is observed via average values at a macro scale, also entails compositional effects, thereby impeding reaching a certain conclusion.



In sum, non-farm employment decelerated in July 2013. The labor force participation rate moves in tandem with employment. Leading indicators for

the third quarter of 2013 and the labor market data of the June-July period suggest that non-farm employment will exhibit a weak outlook in the third quarter (Chart 4.3.12). Meanwhile, uncertainties regarding the global economic outlook may restrain the improvement of the employment conditions, especially in the industrial sector.

Box
4.1

Impact of Bridge Days on the Industrial Production Index

A working day between two consecutive official holidays ¹ or between an official holiday and a weekend is called “the bridge day”. Industrial production is affected badly on bridge days since a vast part of workers take these days off to have longer holidays, or firms allow staff to take a leave, especially in the months with low demand. In fact, Bozok and Kanlı (2013) indicated that bridge days preceding or following religious holidays have a considerable effect on industrial production, while the effects of bridge days close to national holidays on production are not statistically significant. ² The findings of this study suggest that on bridge days close to religious holidays, production level declines compared to a normal working day.

On the other hand, the industrial production index and its subcategories are adjusted for seasonal and calendar effects by TurkStat, by not taking the bridge day effect into account. As also stated by Bozok and Kanlı (2013), this causes the seasonally- and calendar-effect-adjusted industrial production index to fail to reflect the underlying trend in the month that includes the religious bridge days and the subsequent month, by also causing more volatility. In this respect, August 2012 is selected for the analysis as it includes a bridge day variable of 4 days from 22 to 25 of August (Chart 1).³ The official data released by the TurkStat indicate that the industrial production index adjusted for seasonal and calendar effects fell by 0.3 percent in August 2012, and increased by 2.2 percent in September. When the bridge day effect is included in adjustments for seasonal and calendar effects, industrial production proves to have edged up by 0.8 percent in August on a monthly basis contrary to the officially announced data, and posted a milder increase by 1.0 percent in September compared to the official data (Chart 2). In other words, the official data point to a more pessimistic underlying trend in months including bridge days of religious holidays and to a more optimistic one for the following month. This not only challenges the analysis of the underlying trend, but also creates additional fluctuations in the series.

¹ Sundays are excluded.

² For further details, see Bozok and Kanlı (2013).

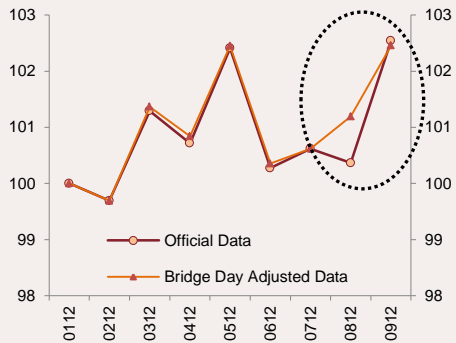
³ According to the working day variable used by the TurkStat, Saturday is considered to be a working day. In other words, production is suspended only on Sundays. Thus, Saturdays are included in working days in the calculation of bridge days.

Chart 1. August 2012 Calendar*

2012						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

* The Ramadan Feast was celebrated between 19 and 21 August. Bridge days are between 22 and 25 August.

Chart 2. Industrial Production Index
(Seasonally Adjusted, 2012 January=100)



Source: TurkStat, Authors' calculations.

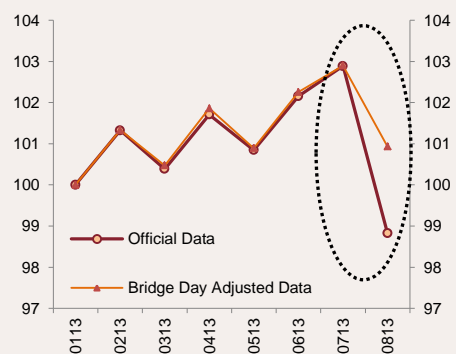
In addition, the bridge day effect was examined for August 2013 on the seasonally- and calendar-effect-adjusted industrial production index. Industrial production plunged by 4.0 percent in August on a monthly basis, registering the most remarkable hard-landing in the post-crisis period. However, as also stated above, since the Ramadan Feast was in August and there was a bridge day variable of 2.5 days, the officially announced data should be handled with caution (Chart 3). In fact, analyses taking the bridge day variable into account suggest that the fall in the industrial production index is between -1.8 and -2.0 percent (Chart 4). This reveals that the hard-landing in the recently released industrial production index fails to show the accurate underlying trend. Moreover, it should be noted that in case the industrial production in September goes back to its level in July, the official data may point to a robust uptick and the data taking the bridge day into account may reveal a milder increase.

Chart 3. August 2013 Calendar*

2013						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

* The Ramadan Feast was celebrated between 8 and 10 August. Bridge days are 5 and 6 August and the eve of Feast, which was half day off (7 August).

Chart 4. Industrial Production Index
(Seasonally Adjusted, 2013 January=100)



Source: TurkStat, Authors' calculations.

REFERENCES

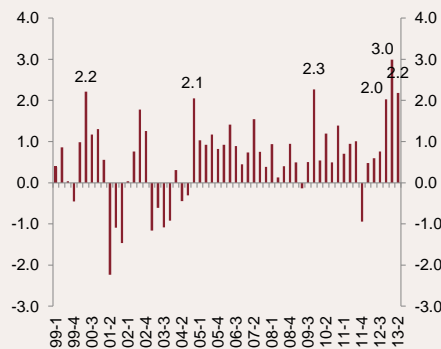
Bozok, B., İ. B. Kanlı, 2013, Impact of “De Facto” Bridge Holidays, CBT Research Notes in Economics No.13/08.

Box
4.2

Contribution of Public Expenditures to GDP Growth

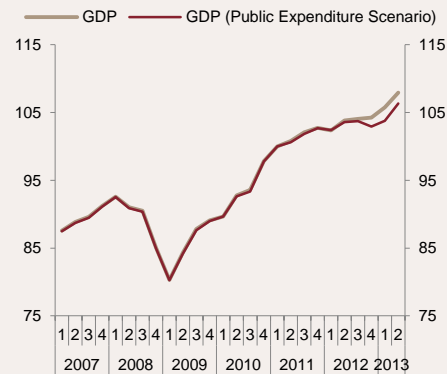
Public expenditures in Turkey have recently gained great momentum and contributed significantly to the annual GDP growth. In fact, in the last quarter of 2012 and the first two quarters of 2013, the public sector's contribution to annual growth went far above the historical averages (Chart 1). This causes a noticeable divergence between the actual GDP and the GDP obtained under the assumption that public expenditures remain on a normal trend (Chart 2). In this context, this box gives an analysis of the contribution of the public sector to growth using third-quarter data on budget expenditure realizations and budget allowance across the year.⁴

Chart 1. Contributions of Public Expenditures to the Annual GDP Growth (Percentage Point)



Source: TurkStat.

Chart 2. GDP and GDP as per the Public Expenditure Scenario (Seasonally Adjusted, 2011 Q1=100)



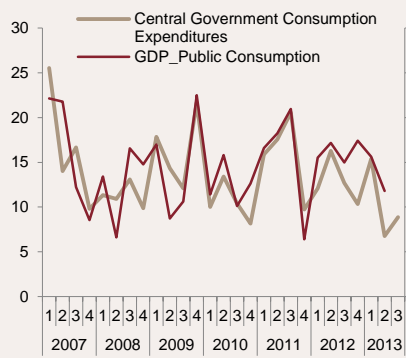
* The GDP series formed by assuming that public expenditures maintain the trend over the 2005-2012 period in the last 3 quarters. Source: TurkStat, CBRT.

Public expenditures under the GDP, which are released by the TurkStat, are calculated mostly by taking into account the Central Government Budget Statistics (CGBS), Local Administrations Budget Statistics (LABS) and Social Security Institutions Budget Statistics (SSIBS) released by the General Directorate of Public Accounts under the Ministry of Finance. However, the CGBS is released on a monthly basis with a lag of 15 days, LABS and SSIBS are released on a quarterly basis with a lag of 3 months. On the other hand, central government consumption and investment expenditures make up a considerable portion of public expenditures. Thus, forecasts regarding public expenditures can be based on the CGBS.

⁴ As budget realizations are current figures, comparisons used in this study are based on GDP at current prices.

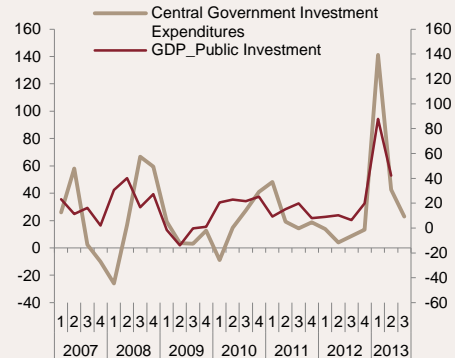
Data on the central government expenditures in the third quarter of 2013 are announced by the Ministry of Finance. Accordingly, these data point to a rise in the annual rate of increase of the central government consumption expenditures in the third quarter (Chart 3).⁵ On the other hand, the central government investment expenditures, which surged in the first half of the year on an annual basis, lost pace in this period (Chart 4).⁶

Chart 3. Central Government Consumption Expenditures and Public Consumption Expenditures under National Income (Annual Percent Change, Current Prices)



Source: General Directorate of Public Accounts, TurkStat.

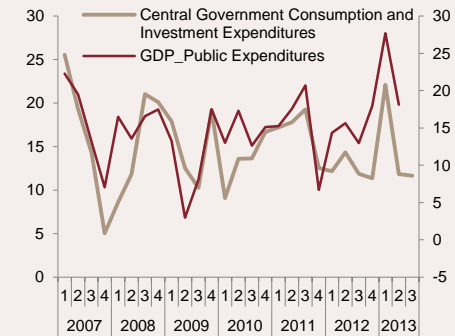
Chart 4. Central Government Investment Expenditures and Public Investment Expenditures under National Income (Annual Percent Change, Current Prices)



Source: General Directorate of Public Accounts, TurkStat.

When evaluated jointly, the central government consumption and investment expenditures reveal that the annual rate of increase in the central government total budget expenditures under current prices edged down in the third quarter (Chart 5).⁷ Taking into account the budget allowance across 2013, the annual growth of the central government budget expenditures is envisaged to decrease in the fourth quarter. Accordingly, the high-rated contribution of public expenditures in the first half is estimated to decline in the second half of the year.

Chart 5. Central Government Consumption and Investment Expenditures and Total Public Expenditures under the GDP (Annual Percent Change)



Source: General Directorate of Public Accounts, TurkStat.

⁵ Central government consumption expenditures consist of Personnel Expenditures, Premiums to Social Security Institutions and Purchase of Goods and Services, which are considered to be indicators for public consumption under the GDP.

⁶ Central government investment expenditures consist of Capital Expenditures, which are considered to be an indicator for public investments under the GDP.

⁷ Central government total budget expenditures are the sum of central government consumption and investment expenditures.

Box
4.3

Degree of Rigidity in Residential Rents in Turkey

Studies examining the frequency of price changes find varying degrees of rigidity across consumption goods. For example, Klenow and Kryvtov (2008) showed that price tags changed once every 4 months in the US, and once every 7 months excluding the discount periods on average. Özmen and Sevinç (2011) found the frequency of price changes in Turkey to be approximately 7 weeks in all goods, and even longer for the services sector. These findings motivate the hypothetical inclusion of Calvo-type price rigidity (Calvo, 1983) in theoretical models of New Keynesian macro analysis. The rigidity assumption in these models prevents prices in the model mechanism to simultaneously respond to the changes in the monetary policy, and assures that the monetary policy is influential on real economic variables within the short term. This provides a systematical analysis of the real effects of the monetary policy and a model-based formation of the policymaking process.

Although residential rents have a large share in expenditure items within household budgets, only few studies have analyzed the degree of rigidity in rents, which are not subject to menu costs and have a different pricing mechanism due to the market structure.⁸ According to the micro data compiled by the Income and Living Conditions Survey, which is produced and published by the TurkStat, tenants spend around 30 percent of their total household income on residential rents in Turkey. This ratio reaches as high as 50 percent of income for the heads of households. Due to this reason, reporting of the degree of rigidity in residential rents in Turkey is important.

This study measures the degree of rigidity in residential rents in Turkey by using the 2008-2011 panel dataset of the Income and Living Conditions Survey of the TurkStat. In this dataset, households rather than persons are monitored and detailed information is included about the feature of houses at a micro scale. Moreover, the survey also provides information as to whether there has been a change of tenants (turnover units) or not in the surveyed year. Years included in the analysis are grouped in pairs as 2008-2009, 2009-2010 and 2010-2011, by also monitoring whether the rents and/or the tenants have changed annually. The sample consists of 3,403 observations, with calculations based on the methodology by Genesove (2003).

⁸ Genesove (2003), Hoffmann and Kurz-Kim (2006) and Shimizu, Nishimura and Watanabe (2010) estimate the degree of rigidity in residential rents in the US, Germany and Japan, respectively.

Table 1. Brief Information on the Degree of Rigidity in Residential Rents				
	2008-2009	2009-2010	2010-2011	All years
(-) Change (%)	13.5	15.2	14.1	14.3
No change (%)	23.4	33.3	33.3	31.5
(+) Change (%)	63.1	51.5	52.6	54.2
No change* (%)	27.5	37.3	37.1	35.4
No change** (%)	8.3	18.7	19.4	17.1
Average	0.100	0.068	0.070	0.075
Median	0.087	0.022	0.036	0.048
Standard deviation	0.204	0.190	0.192	0.194
Turnover rate	0.212	0.216	0.213	0.214

*, ** denote turnover and non-turnover rate, respectively.

The average change in the amount of nominal rent, the median and the standard deviation besides the frequency of change in rents are depicted briefly in Table 1.⁹ Analysis of all years suggests that, on average, 31.5 percent of the rents in Turkey are not subject to annual changes in nominal terms. The duration of an average change in rents corresponding to a rigidity degree of 31.5 percent is roughly 4 months. Rigidity degree falls to 17.1 percent in houses with turnover units, while it climbs to 35.4 percent with non-turnover units. As merely 21.4 of the houses for rent is subject to turnover, the nominal rigidity is mostly driven by houses with non-turnover units. In addition, in the crisis period from 2008 to 2009, the rigidity degree saw a decline in houses both with turnover and non-turnover units. This is due to the lack of a consensus in price adjustments in the rent market due to elevated uncertainty. The proportional increase in upside price adjustments during crisis periods can be attributed to the sizeable decline in the nominal rigidity of the rents of houses with turnover units. In other words, large shocks are quickly reflected into the rents of houses with turnover units as depicted in Charts 1-3. Another striking point as presented in the charts is the lower price adjustment (negative or positive) in houses with non-turnover units compared to houses with turnover units. This observation bears the idea that when the contracts are renewed for available tenants, price changes are formed at comparatively reasonable levels due to various reasons in tenant-landlord negotiations.

⁹ For a detailed analysis, see Aysoy, Aysoy and Tümen (2013).

On the other hand, this study also analyses other micro factors that determine rigidity by using variables on household and house features. Contrary to Genesove (2003), the types and sizes of houses are not found to be significant. However, similar to Genesove's findings, the status of the tenant (changed or unchanged) is found to be highly significant. Grid pricing, which is the rounding effect that may arise during rent adjustments, is highly significant for houses with both turnover and non-turnover units. On average, 68 percent of the nominal rigidity in rents stem from grid pricing, which is higher than the ratio estimated by Genesove (2003) for the US. Moreover, the total income of the head of the household is found to be statistically significant on rigidity. An increase by 10 percent in the income of the head of household decreases the probability of rigidity by 3.3 percent in units with non-turnover units. In addition, the increase reduces the probability of a change of housing by 2 percent. These estimations suggest that the high-income group tends to pay the increased costs rather than moving out and opting for longer-term lease contracts. Regressions yield similar results when the income is replaced by the employment status of the head of the household. This proves that the opportunity cost is considerably important to the tenant.

In sum, around one third of the rental houses in Turkey are not subject to an annual change in rent. In other words, residential rents display a considerable rigidity. Results may also enhance the follow-up of the effects of the monetary policy on the real economic variables in the short term, and also contribute to the inflation accounting.

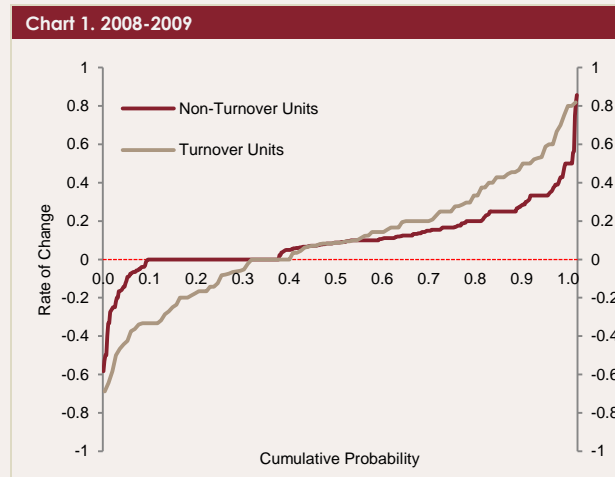


Chart 2. 2009-2010

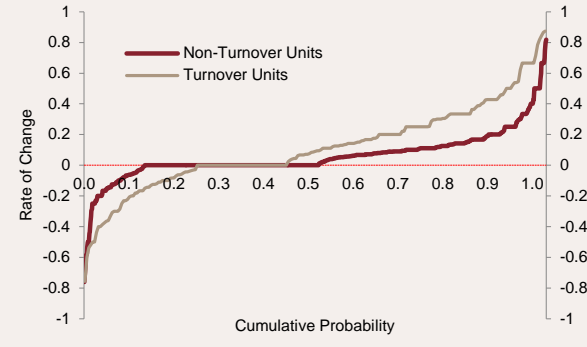
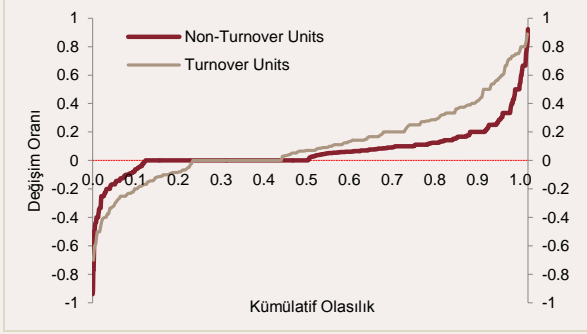


Chart 3. 2010-2011



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Box
4.4

The Effects of Demographic and Social Changes on Household Savings in Turkey

This box presents an analysis of the possible effects of the anticipated change in the demographic structure of Turkey on household savings in the upcoming years. Moreover, the effects of the increase in the number of college graduates within the total population and the labor force participation rates on household savings are explored in this box (Ceritoğlu and Eren, 2013).

In the forthcoming years, the share of young population within the total population is anticipated to decline, while the share of the population at working age and retirement age are expected to increase as population growth slows in Turkey. This change in the demographic structure is envisaged to improve savings by pushing up the average income of households.

Under the assumption that macroeconomic variables will remain constant, the extent to which the changes in the demographic and social structures will affect household savings rates in the future in Turkey are estimated using a regression model based on the demographic structure. This box mainly gives estimates of the direction and size of the savings rate rather than their levels.

TurkStat Household Budget Surveys constituting the basic data source of this box are designed as consecutive cross-sectional surveys without any panel dimension since the same families and individuals are not followed later. TurkStat Household Budget Surveys entail detailed information on the analyses of household disposable income and consumption expenditures. Household savings are obtained by subtracting consumption expenditures from household disposable income. Moreover, surveys entail information on the age groups of family members, their preferences regarding participation in the labor force and their education levels. This box shows the analysis of the aggregated data from consecutive 8 cross-sectional surveys between 2003 and 2010.

Basically, a plain regression model is used to estimate the contribution of the individuals making up the respective household to the household savings or income. For a detailed analysis, individuals of the household are classified according to age groups, gender, education and labor force participation status.¹⁰ The estimated equation is as follows:

¹⁰ This study analyzes 12 age groups, which are 0-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64 and 65+.

$$x_h = \sum_{g \in \{m,f\}} \sum_{e \in \{u,d\}} \sum_{l \in \{i,o\}} \sum_{a=1}^N \beta_{x_{g,e,l,a}} n_{g,e,l,a,h} + \epsilon_{x_h}$$

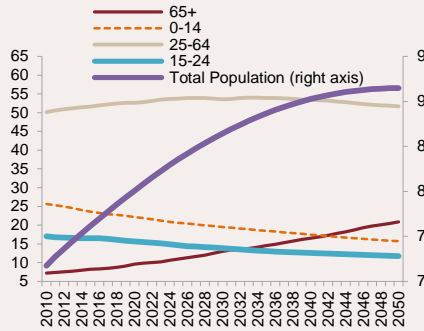
In the regression equation above, m denotes males, and f stands for females. In addition, u expresses graduates of college or higher education, d are those with no college degrees, i stands for those included in the labor force and o denotes those not included in the labor force. Income and savings are presented by a single equation rather than by separate equations. In this case, $x \in \{y, s\}$ denotes both the household disposable income (y) and savings (s). Each $\beta_{x_{g,e,l,a}}$ coefficient gives the average contribution of the respective subgroup to the household disposable income or saving, while a denotes age groups. Thus, $n_{g,e,l,a,h}$ variable equals the number of people in the h household with a particular education level, labor participation status, age and gender features. Estimated β coefficients are multiplied by the number of people in the respective subgroup. Summation of obtained values facilitates the calculation of total savings or disposable income for the household sector.

This method is based on the main assumption that the obtained coefficients remain fixed in the estimation period. Doing so, savings rates of individuals are assumed to remain unchanged in the respective period. Coefficients do not change, while the number of people in the subgroup attributed to the coefficients change, which causes total household savings and disposable income to change within time.

The data on the number of females, males and total individuals are obtained from TurkStat population projections. The total population in Turkey besides the dispersion of the population with respect to age groups is depicted in Chart 1. Individuals in each age group are firstly divided into two subgroups as males and females, and then divided into further subgroups considering their possession of college degrees and labor participation rates. In the classification of individuals with regard to their possession of college degrees, the rates of college graduates in each subgroup are separately obtained by using the TurkStat Household Budget Survey data for the 2003-2010 period. Assuming that the college graduation rate will maintain its trend from the 2003-2010 period in the following years, college graduation rates are projected separately for males and females in each age group for the period up to 2050 (Chart 2). The number of

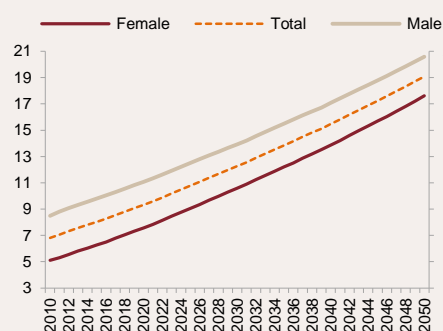
males and females with or without college degrees are separately found for each age group by using these rates.

Chart 1. Total Population (Million People, Percent)



Source: TurkStat.

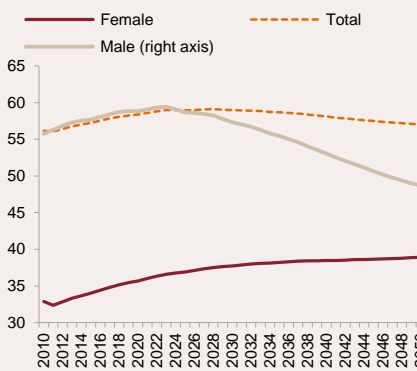
Chart 2. Rate of College Graduates (20+, Percent)



Source: TurkStat, Authors' calculations.

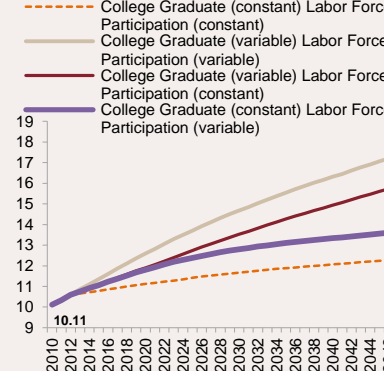
Following the classification in terms of education level, individuals were divided further into subgroups with regard to their labor participation rates. Labor participation rates were obtained from the TurkStat Household Budget Survey data. Labor participation rates were calculated separately for males and females of each age group for college graduates and for those with no college degrees. Forward-looking figures were estimated in a way to reflect the trend of each subgroup in the 2003-2010 period. Participation rates obtained by aggregating the estimations for subgroups are given in Chart 3. Participation rates for each subgroup exhibited a regular pattern of increase here, while labor participation rates of males and the total population increase up to the midst of the 2020's, yet taper off in following years contrary to expectations. This stems from the change in the dispersion of population in Turkey with respect to age groups, and dominates the expected rates of increase for each subgroup.

Chart 3. Labor Participation Rate (20+, Percent)



Source: TurkStat, Authors' calculations.

Chart 4. Saving Rate Projections (Percent) *



Source: TurkStat, Authors' calculations.

All econometric estimations are carried out using the ordinary least squares method with 88,600 individual observations and household weights. Obtained coefficients are multiplied with the number of people in the respective subgroup to estimate the aggregated disposable income and savings for the household sector. Thus, by aggregating contributions of the individuals to disposable income and savings, projections for the period between 2010 and 2050 are obtained.

Firstly, it should be underlined that the emphasis of this study is on the significance of the rate of increase in household savings rather than their levels. Through the aggregation of the contributions of individuals to income and savings according to age and gender groups, the household savings rate is estimated to increase by 3.60 percentage points in the 2010-2025 period and by 7.61 percentage points in the 2010-2050 period and might reach 17.72 percent (Chart 4). Around 2.26 percentage points of the rise is to be driven by the change in the demographic structure, while 1.37 percentage points is due to the increase in the labor participation rates. The portion of 3.81 percentage points is attributed to the expected increase in the number of college graduates. Meanwhile, the cross effect resulting from the joint analysis of the rise in the labor participation rate and the number of college graduates contributes to the household savings rate by 0.17 percentage points.¹¹

To sum up, empirical findings revealed that the highest contribution to the rise in the household savings rate will be provided by the increase in the number of college graduates, which is followed by the change in the demographic structure and the rise in the labor participation rate. This is driven by the considerably larger contribution of college graduates, who are in the labor market, to household income and savings compared to all other subgroups. Moreover, considering the effect of the possible future improvements in the quality of education on income, it is assessed that increases in the household disposable income and savings rate may even be larger.

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¹¹ Projections are based on the assumption that college graduation and labor participation rates will increase in the analyzed period. However, should the college graduation and labor participation rate remain unchanged from 2012 despite the change in the demographic structure, the household savings rate is estimated to increase by 1.30 percentage points from 2010 to 2025 and by 2.26 percentage points from 2010 to 2050 and reach 12.37 percent (Chart 4).

