

4. Supply and Demand Developments

GDP data regarding the first quarter of 2013 suggest that economic activity remained largely consistent with the outlook presented in the April Inflation Report. Having followed almost a flat course in the last two quarters of 2012, the GDP exhibited a robust increase in the first quarter on the back of the final domestic demand. Strong increases in the GDP and the final domestic demand in the first quarter compensate for the weak course in the second half of 2012. Thus, the underlying trend of economic activity as well as domestic demand are considered to be moderate. On the other hand, exports remained flat in line with the stagnant global demand, while imports recorded an upsurge, thus slightly deteriorating balancing the demand components as envisaged.

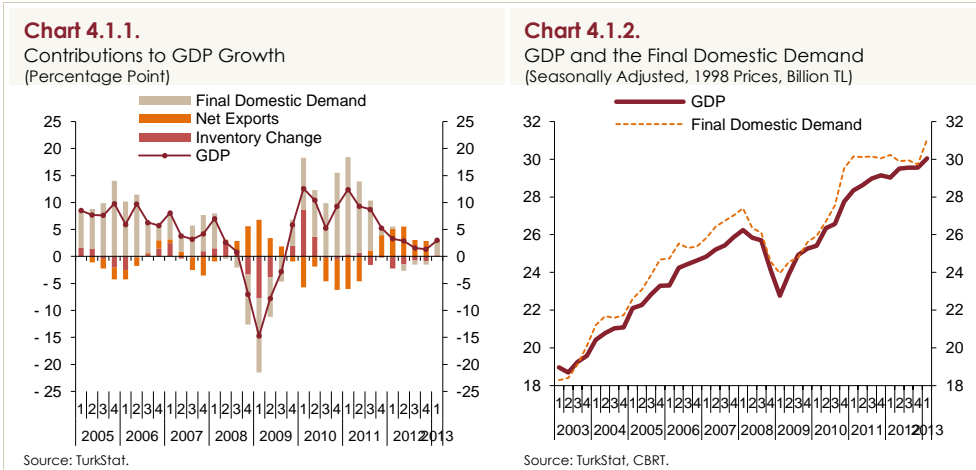
The second-quarter data indicate that economic activity settled into a track of mild recovery. On the production side, industrial production index hovered above the previous quarter's average in the April-May period. Moreover, non-farm employment registered a mild increase according to the Household Labor Force Survey data of April 2013. From the expenditures side, the recovery in final domestic demand is estimated to continue in the second quarter. Production and imports of consumption goods recorded a quarter-on-quarter increase in the April-May period. On the other hand, indicators of investment goods point to a weaker outlook compared to consumption demand. In fact, production of capital goods contracted in this period, while imports of investment goods excluding transport edged up. Production and imports of mineral goods, which are among indicators of construction investments, posted a decline on a quarterly basis.

External demand indicators suggest that exports of goods and services followed an almost flat course in the second quarter, while imports of goods and services increased amid recovering domestic demand and rising gold imports. Thus, it is anticipated that the balance among demand components will slightly deteriorate, ending in a widening of the current account deficit. On the other hand, the outlook of commodity prices and the CBRT's monetary policy stance, which observes macro financial risks, contain the deterioration in the current account deficit.

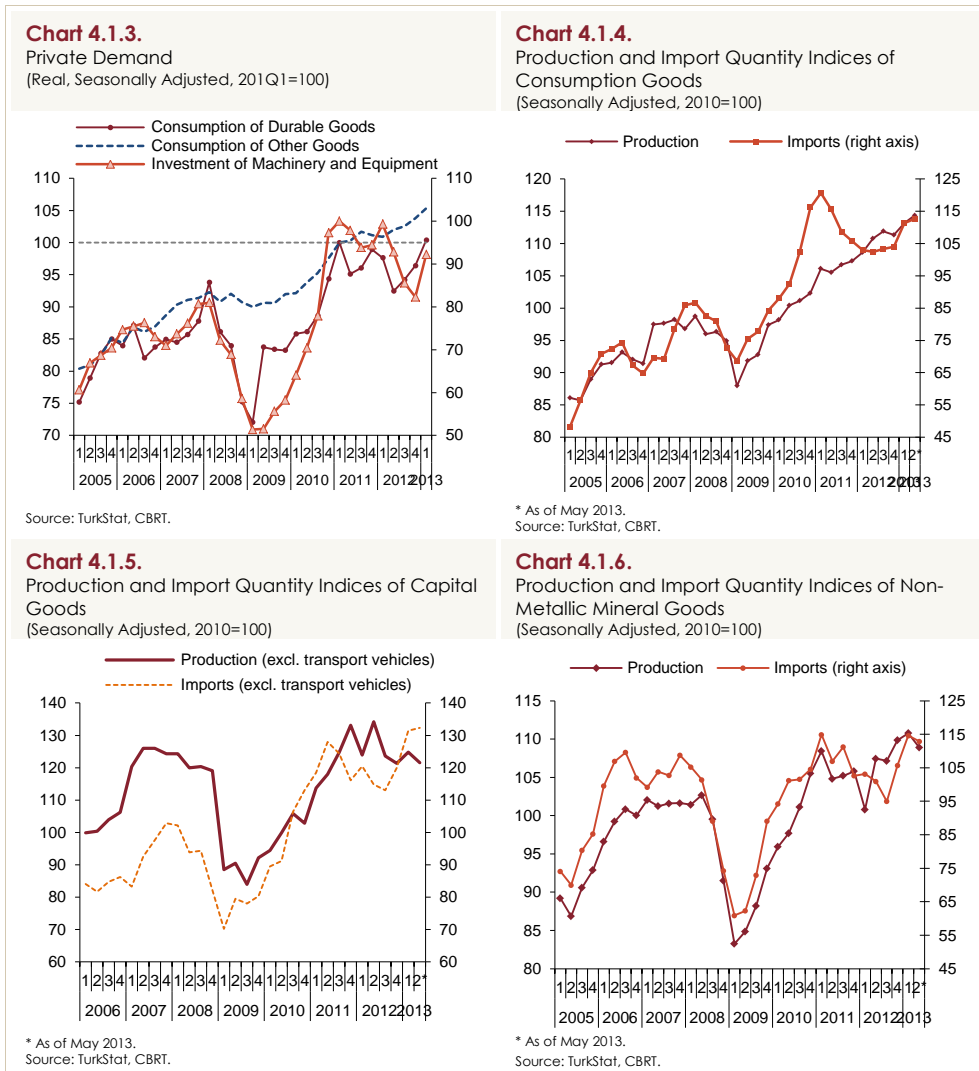
The employment channel is expected to further support recovery in the upcoming period. On the other hand, financial market developments since May due to uncertainties regarding the duration of the Fed's accommodative monetary policy have exacerbated the downside risks on the future course of domestic demand, especially through the confidence channel. Therefore, it is highly likely that the final domestic demand, which exhibited a sound recovery in the first half of the year, will follow a weak course in the second half. Accordingly, it is estimated that domestic demand will continue to support the disinflation process and restrict the widening of the current account deficit in the second half of the year.

4.1. Gross Domestic Product Developments and Domestic Demand

According to the national accounts data released by TurkStat, the GDP recorded a year-on-year increase by 3.0 percent in the first quarter of 2013, encouraged by final domestic demand. Having contributed negatively for three consecutive quarters, final domestic demand added 2.8 percentage points to growth in this period (Chart 4.1.1). Net exports, which have recently been the main driver of annual growth, did not contribute to growth in the first quarter. In seasonally adjusted terms, the GDP posted a quarter-on-quarter increase by 1.6 percent in the first quarter. The final domestic demand, which has remained almost flat for a long period, displayed a robust increase in the first quarter (Chart 4.1.2). On the other hand, boosts in the GDP and final domestic demand in the first quarter may include compensation for the weak course in the second half of 2012. Thus, the underlying trends of economic activity and domestic demand are still considered to be mild.



A closer scrutiny of the private sector demand in the first quarter suggests that consumption of durable goods including home appliances and automobile sales continued with an accelerated pace, while consumption of other goods remained on a stable uptrend (Chart 4.1.3).¹ Following a contraction for three consecutive quarters, investment in machinery and equipment displayed an increase on a quarterly basis. In sum, the first-quarter national accounts data indicate that the effects of the monetary policy, which has been accommodative since the second half of 2012, have grown more evident in the private sector demand.

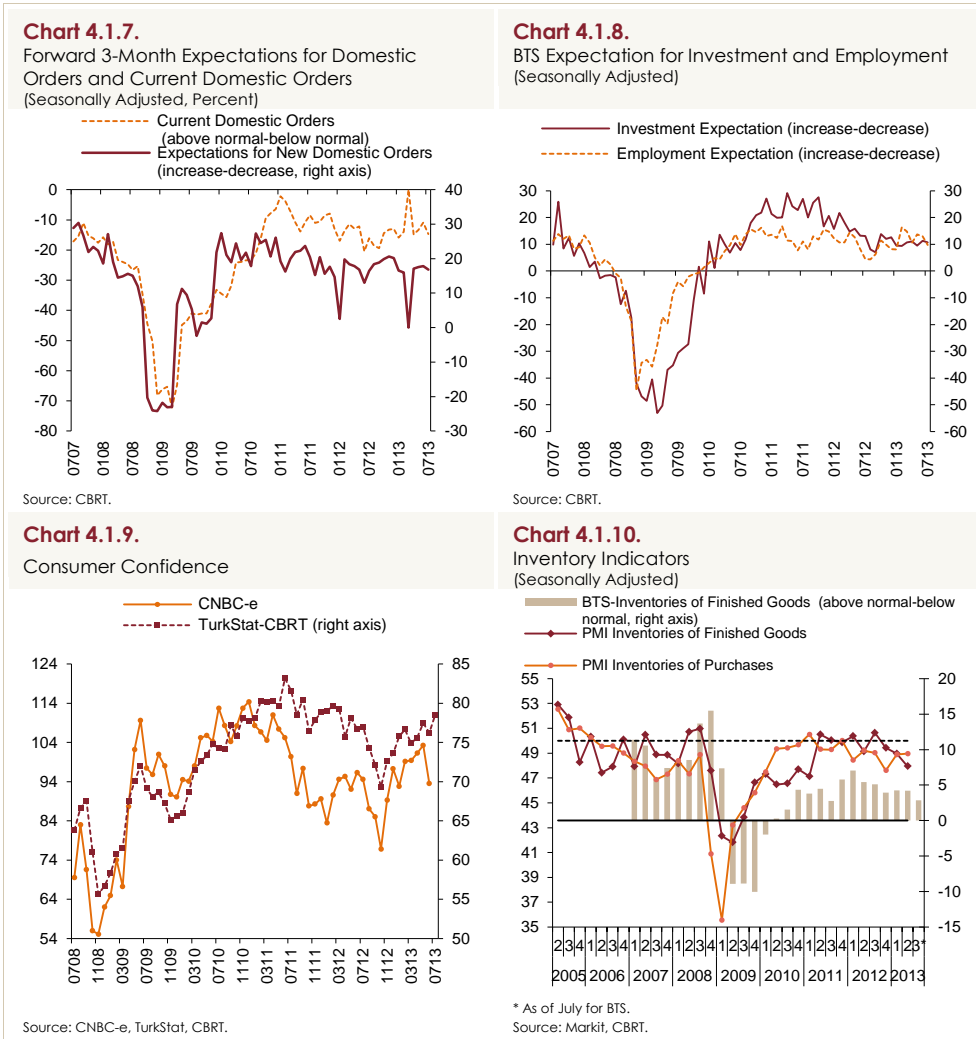


¹ Domestic consumption spending is released under 10 sub-items by TurkStat: 1. Food, 2. Clothing and Footwear, 3. Home Utilities (payments on electricity and water etc.), 4. Furniture-Home Appliances, 5. Health, 6. Transport-Communication, 7. Recreation-Culture, 8. Education, 9. Restaurants-Hotels, 10. Miscellaneous Goods and Services. Due to absence of data, which only include durables, furniture-home appliances, transport-communication (including sales of automobiles) and recreation-culture (including sales of TV) are aggregated to construct an indicator for the consumption of durable goods that are sensitive to exchange rate and financing conditions. Consumption of other goods is the sum of all other sub-items of domestic consumption.

Final domestic demand is estimated to have continued to recover in the second quarter. Production and imports of consumption goods increased further in the April-May period (Chart 4.1.4). Investment indicators point to a weaker outlook compared to the consumption demand. In fact, imports of investment goods excluding transport vehicles edged up, while production thereof decreased (Chart 4.1.5). Production and imports of mineral goods, which are among construction investment indicators, also decreased on a quarterly basis (Chart 4.1.5).

The recovery of final domestic demand is expected to continue moderately amid sustained support via employment and credit channels, albeit at a diminishing pace. On the other hand, financial market developments since May amid uncertainties regarding the duration of the Fed's accommodative monetary policy have exacerbated the downside risks on the future course of domestic demand, especially through the confidence channel. More specifically, domestic demand indicators of the BTS as well as investment and employment expectations displayed a decline in July (Charts 4.1.7 and 4.1.8). Meanwhile, consumer confidence indices went down in June, whereas the CBRT-TurkStat confidence index went up in July (Chart 4.1.9).

Inventory indicators suggest that the inventory accumulation process has not started yet in the second quarter. Inventories of finished goods, a BTS indicator of inventories, followed a flat course while the PMI indicator of finished goods inventories, an indicator of the change in inventories, went down. The PMI indicator on inventories of purchases also followed a flat course at low levels (Chart 4.1.10). The confidence channel influences economic activity also through the changes in inventories. More specifically, production may fall short of demand, should final demand continue to be met by inventories. On the other hand, an analysis of cumulative decreases in inventories suggests that as demand stabilizes, production with the incentive to accumulate inventories has the potential to support economic activity.

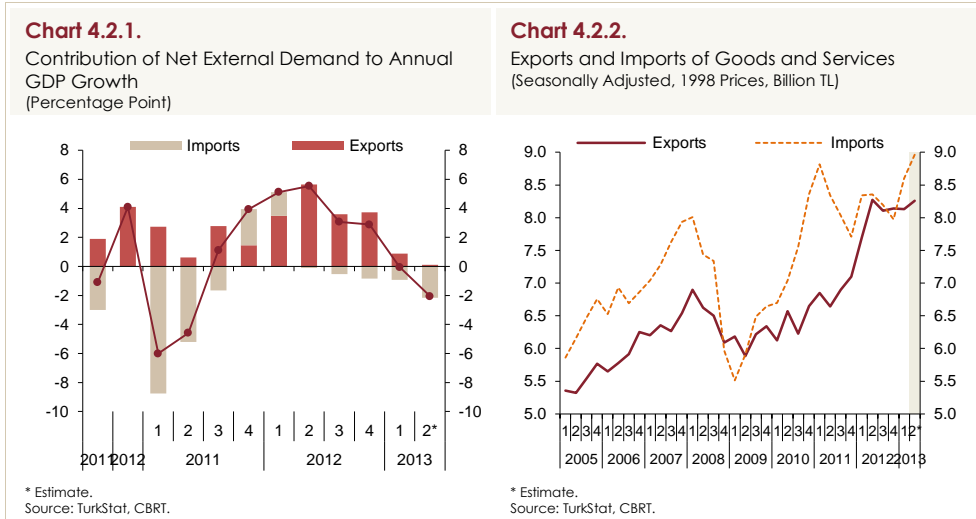


In sum, final domestic demand, which recovered robustly in the first half of the year, is expected to continue with a mild recovery in the second half. However, downside risks on the recovery were aggravated amid the recent developments in financial markets. Accordingly, domestic demand is expected to support disinflation and restrict the widening of the current account deficit.

4.2. External Demand

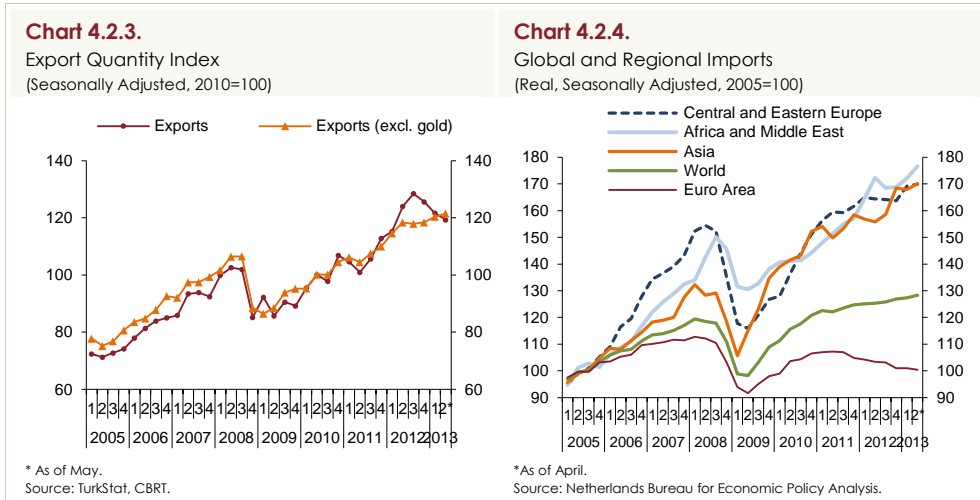
In the first quarter of 2013, national accounts data pointed to a slight deterioration in the balancing of demand components. In this period, exports and imports of goods and services recorded a year-on-year increase by 3.4 and 3.2 percent, respectively. Thus, net exports, which provided the largest contribution to annual growth across 2012, did not offer a positive contribution to growth in the first quarter (Chart 4.2.1). Seasonally adjusted exports of goods

and services remained flat amid unfavorable global conditions whereas, imports of goods and services in seasonally adjusted terms registered a brisk increase upon rising domestic demand (Chart 4.2.2).

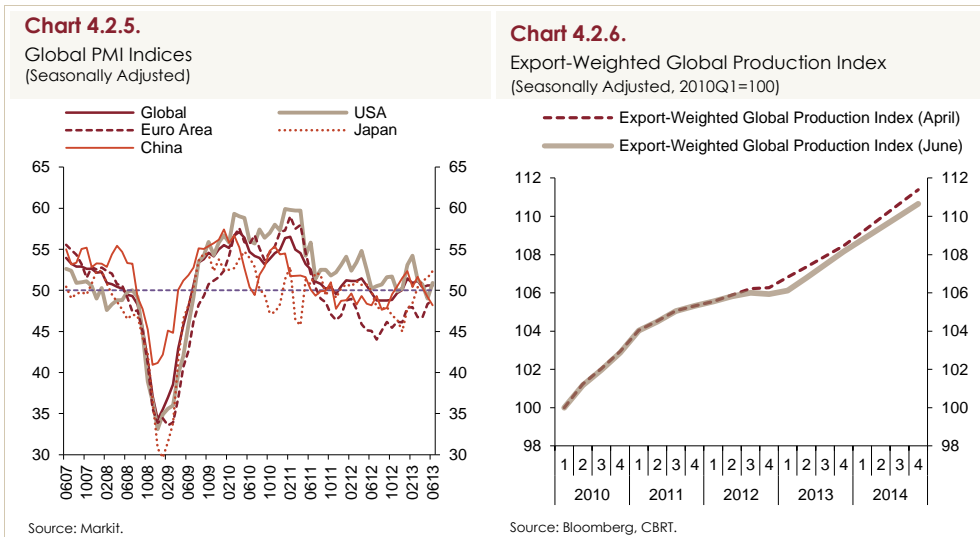


Having declined for two consecutive quarters, data pertaining to the second quarter of 2013 show that export quantity index fell further in the April-May period. This fall is attributed to the slowdown in gold exports. In fact, unlike the headline index for exports, the core index excluding gold exports continued to register a mild increase in this period (Chart 4.2.3). Recently released indicators point to a possible month-on-month increase in the headline index and the core index in June. As for quarterly terms, the course of exports will remain in tandem with the current outlook.

Global trends indicate that world demand for imports posted a mild quarter-on-quarter increase in the April-May period. However, the import demand of the Euro Area, our major trading partner with a large share in Turkish exports, continued to deteriorate. The import demand by Central and Eastern European countries remained unchanged from the first quarter. On the other hand, import demand by the MENA as well as Asian countries went up in this period (Chart 4.2.4). Accordingly, external demand conditions displayed a slightly more favorable outlook in May compared to the first quarter. In the second quarter, the underlying trend in exports of goods and services remained on an upward track, while exports of goods and services followed almost a flat course due to the decline in gold exports (Chart 4.2.2).

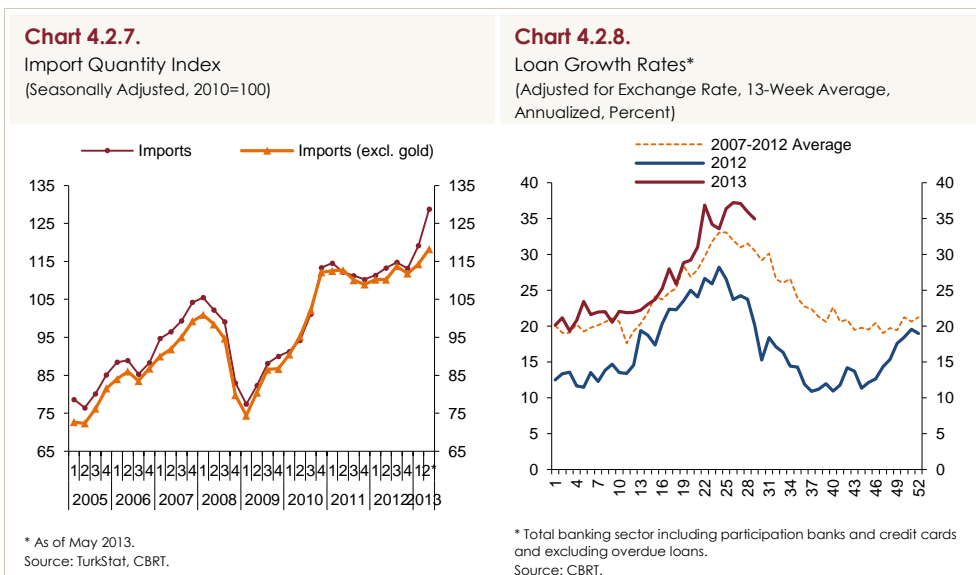


PMI indicators signal a sustained recovery in economic activity at a global scale. More specifically, the global PMI manufacturing index continued to hover above 50 in the second quarter of the year (Chart 4.2.5). The sub-indices regarding the US, the Euro Area and Japan display a mild recovery. However, the PMI index for China trended downwards in the past couple of months and fell below 50, thus constituting a risk factor. Additionally, the export-weighted global production index, one of the medium-term indicators, deteriorated slightly in the inter-reporting period (Chart 4.2.6).

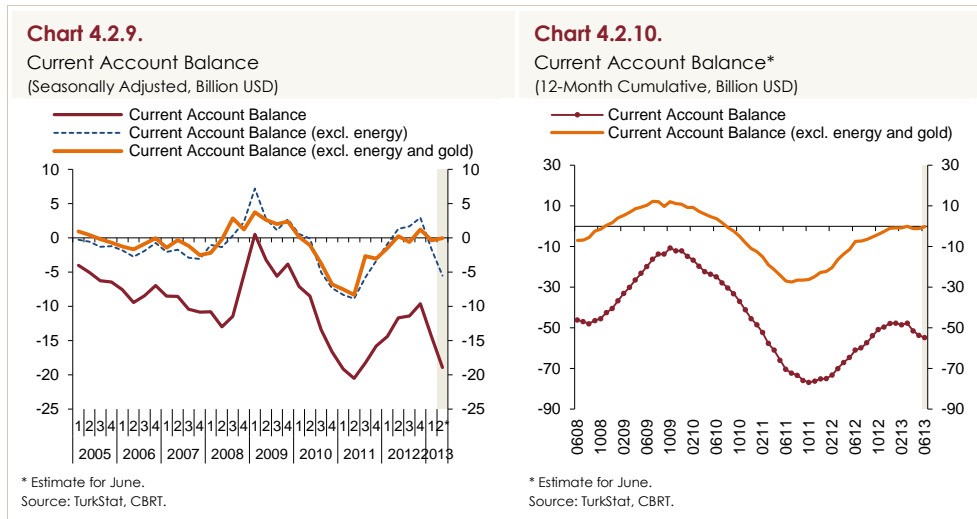


Having sustained its robust increase, the import quantity index went up by 8 percent in the April-May period compared to the first quarter. Although the recently released indicators point to a fall in June, they show that the quarterly

increase will remain above the first quarter figures. The surge in imports is also attributable to the rising gold imports. More specifically, the core index for imports excluding gold increased relatively mildly (Chart 4.2.7), while imports of goods and services remained on an upward track in the second quarter (Chart 4.2.2). Meanwhile, total loans hover close to the 2007-2012 average, but above the readings in 2012, which experienced a stagnant domestic demand (Chart 4.2.8). The fall in consumer confidence indices amid both domestic and external uncertainties in June besides slight increases in interest rates stand out as factors to curb the growth in final domestic demand. Overall, net exports are expected to contribute negatively to growth in the second quarter for the first time after a 2-year interval (Chart 4.2.1).

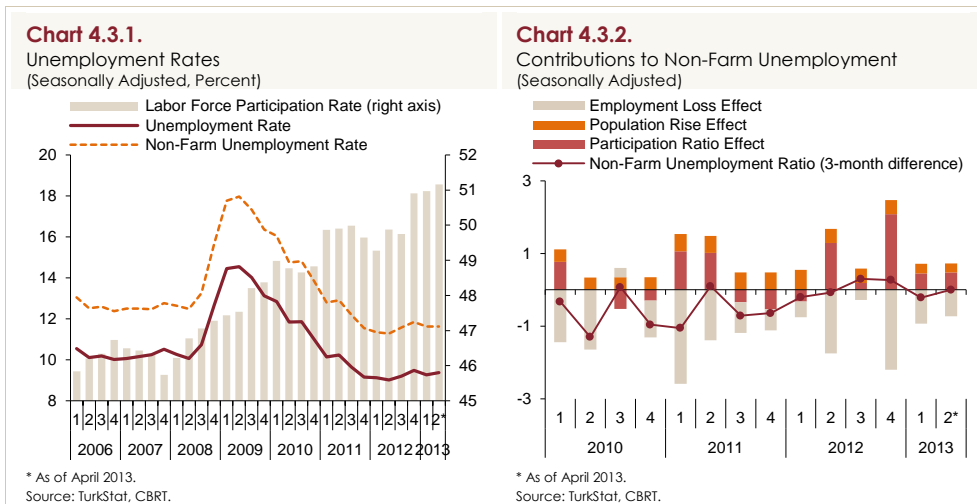


The recovery of the current account balance was interrupted amid the robust increase in import demand. Hence, the current account deficit has recently widened further. Nevertheless, the current account balance excluding gold and energy, which is one of the indicators on the underlying trend of the current account balance, stayed close to zero. Moreover, the divergence between the current account balance excluding energy and the current account balance excluding energy and gold suggests that the external gold trade played a crucial role in this deterioration (Chart 4.2.9). Accordingly, the 12-month cumulative current account balance has deteriorated in recent months (Chart 4.2.10). However, the elevated downside risks on domestic demand upon the recent financial developments are expected to contain the widening current account deficit.



4.3. Labor Market

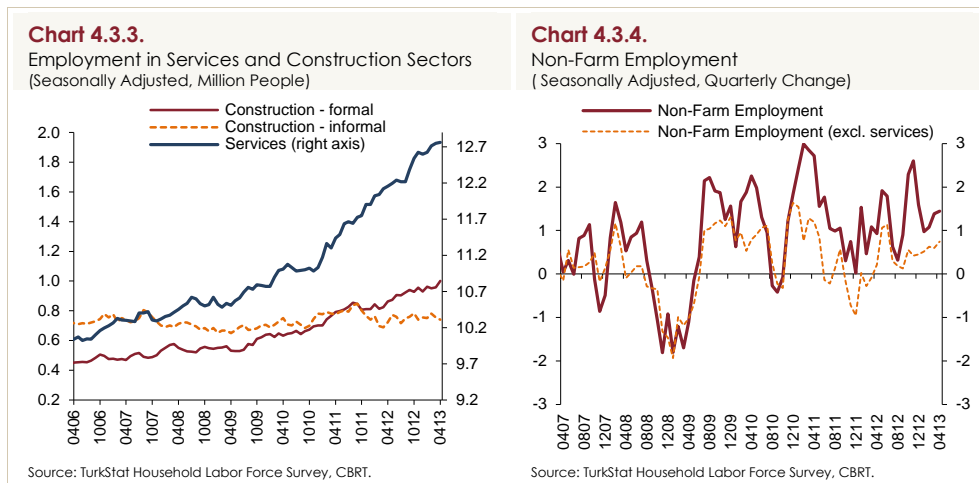
Total and non-farm unemployment rates posted a limited quarter-on-quarter decline in the first quarter of 2013 (Chart 4.3.1). Non-farm employment recorded a quarter-on-quarter increase in this period, while unemployment rates decreased upon the relatively weak course of the rise in the labor participation rate (Chart 4.3.2). On the other hand, the rate of increase in non-farm employment remained virtually unchanged, while unemployment rates followed a flat course in the March-April period of 2013 amid the rise in the labor participation rate (Chart 4.3.1)².



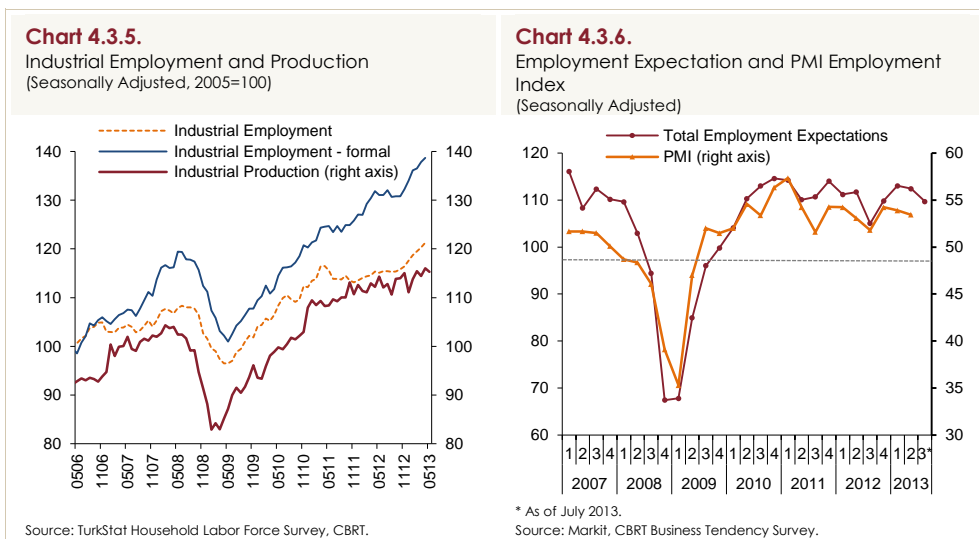
As of April 2013, the contribution of the employment in the services sector to overall employment has registered a decline (Charts 4.3.3 and 4.3.4). Across

² Box 4.3 analyzes the relationship between total employment and average hours worked in Turkey during the 2004-2011 period by using micro-based data in TurkStat Household Labor Force Survey.

sub-sectors, trade, restaurants and hotels as well as financial institutions, real estate leasing and business services contributed to the increase in services employment. The uptrend in the construction sector employment, which has been ongoing since early 2012, was interrupted in late 2012. The data pertaining to the first quarter of 2013 confirmed this interruption; however, construction sector employment continued to increase, albeit at a slower pace. In April 2013, registered construction sector employment posted a notable quarter-on-quarter increase (Chart 4.3.3).

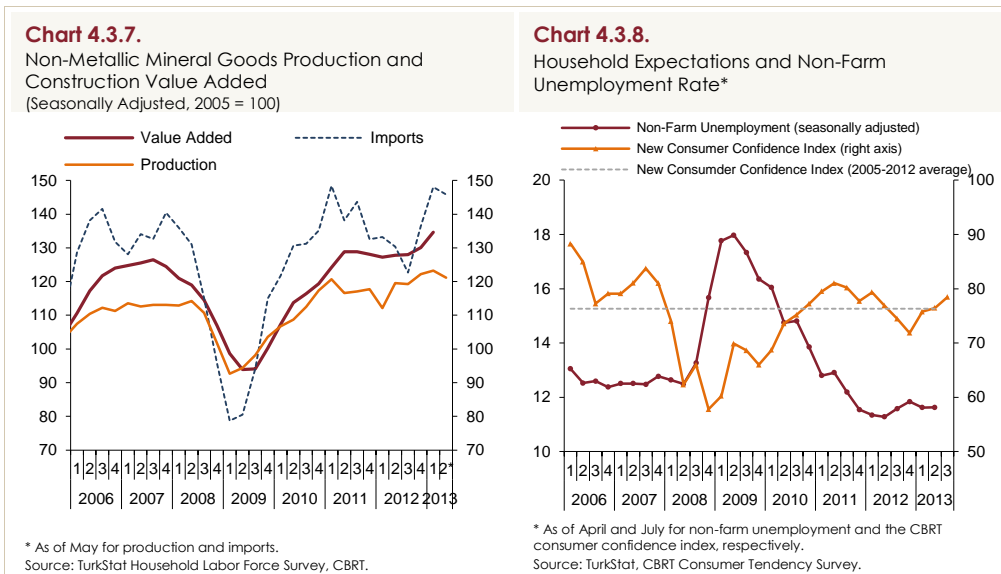


Following the last quarter of 2012, industrial employment registered increases both in the first quarter of 2013 and in the March-April period. The surge in industrial employment in these periods played a key role in the rising non-farm employment. Unlike the volatile course of recovery in industrial production, industrial employment displayed a robust and sharp increase (Chart 4.3.5).

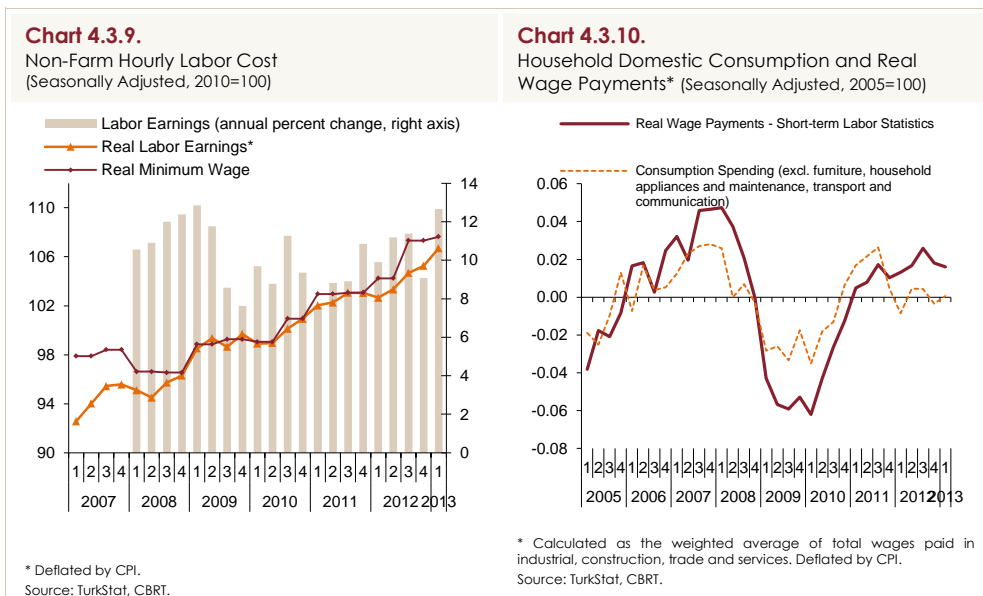


Leading indicators signal a probable slowdown in the growth of employment in the second quarter of 2013. Firstly, despite being limited, industrial production posted a quarter-on-quarter decline in May, and has followed a fluctuating course since March (Chart 4.3.5). Although trending upwards, the growth in industrial production falls short of employment, 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 June (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 and import 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 second quarter (Chart 4.3.7).

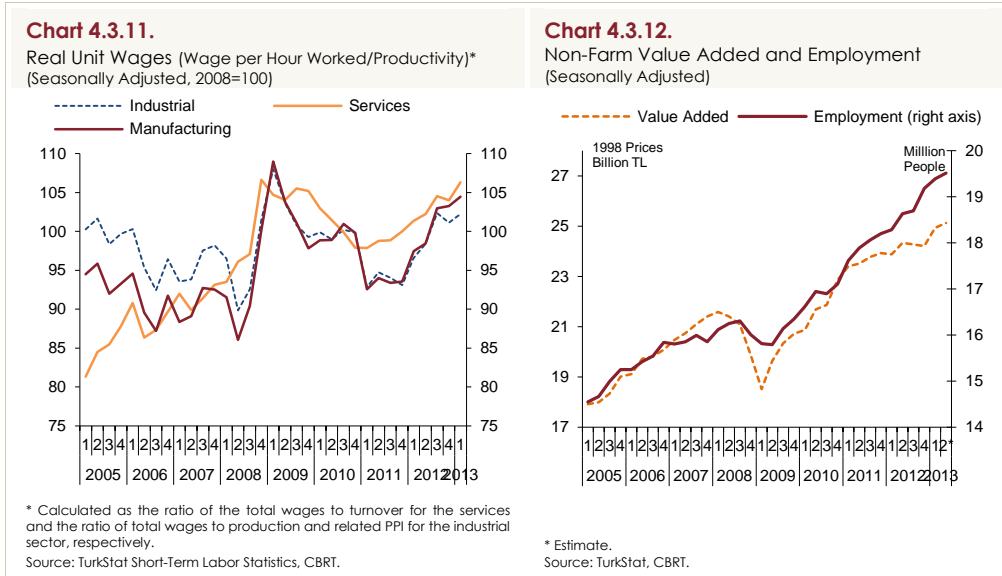
Following the flat course in the second quarter of 2013, the CBRT's consumer confidence index, which reflects households' sentiments across Turkey, recorded an increase compared to the previous period, and went slightly above its long-term average in July (Chart 4.3.8). Parallel to the flat course of other leading indicators on employment, the Consumer Confidence Index also continues to hover around its long-term average.



An 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, provided support to domestic consumption in the first quarter of 2013. The non-farm hourly earnings index released under Labor Cost Indices continued to increase in real terms in the first 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). Real wage payments, which also reflect employment dynamics, continue with an upward trend in line with wages, and hover above its long-term trend. Concurrently, household domestic consumption spending excluding durable goods recorded a limited rise, and remains on track with its long-term trend in the first quarter of 2013 (Chart 4.3.10).



An analysis of wage developments as a cost factor suggests that real unit wages in the industrial and services sectors increased further in the first quarter of 2013 (Chart 4.3.11). The weak course of average productivity as well as the surge in hourly wages fueled the rise in real unit wages (Chart 4.3.11). The rise in real unit wages, which is considered to be a risk factor especially for the services sector with high labor intensity, points to the likelihood of a narrowing in profit margins and elevated cost pressure induced by wages. However, since this conjecture, observed via average values at a macro scale, also entails compositional effects, the conclusion is not certain.



In sum, non-farm sectors saw reasonable increases in employment in April 2013. However, the simultaneous increase in the labor force participation rate created a flat course in unemployment. Leading indicators in the second quarter of 2013 and April 2013 data on the labor market suggest that non-farm employment will increase further in the second quarter (Chart 4.3.12). Meanwhile, uncertainties regarding the global economic outlook may restrain the improvement in employment conditions, especially in the industrial sector.

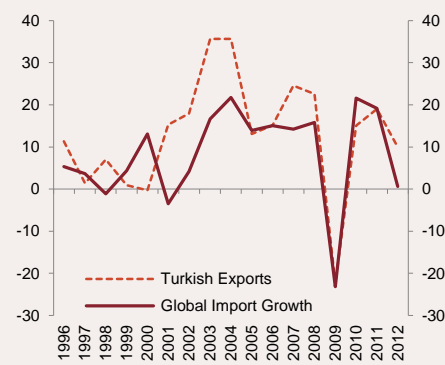
Box
4.1

Global Import Growth and Turkey's Exports

A major determinant of exports is market growth in export destinations. As Turkish exports constitute a small share of our trading partners' imports relative to their total imports, the total import demand in these markets may be treated as an exogenous variable with respect to Turkish exports.³ This box presents an analysis of growth in Turkey's export destinations, and discusses the relation of growth in these markets to Turkey's export growth.

During times of strong global import growth, Turkish exports also surged (Chart 1). However, countries or sectors, in which Turkish exports are concentrated, may see stronger or weaker import demand growth than total world imports. For example, the weak post-crisis recovery in European countries, Turkey's major export destination, affected Turkish exports adversely. On the other hand, the US economy and the Asian countries displayed a relatively stronger recovery and have a major weight in the world trade; yet these countries have only a small share in Turkish exports. In order to properly account for such country-specific or sector-specific differences in Turkey's export destinations, an "export-weighted global import growth" series is constructed by weighing the share of each export market in Turkish exports both on country and sectoral bases. Chart 2 shows that this global import measure is a key determinant of Turkey's exports.⁴

Chart 1. Turkey's Export Growth and Global Import Growth
(Current USD, Annual Percent Change)



Source: UNCTAD, CBRT calculations.

Chart 2. Turkey's Export Growth and Export-Weighted Global Import Growth
(Current USD, Annual Percent Change)



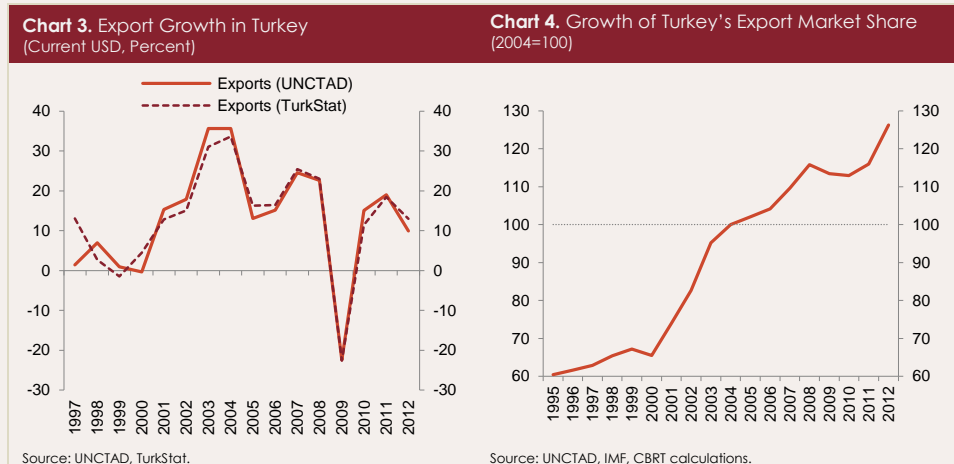
Source: UNCTAD, CBRT calculations.

³ Turkey's exports constitute about 1 percent of global imports.

⁴ UNCTAD provides data on global exports of goods disaggregated by sectors and countries. The analysis includes 100 countries, which are Turkey's leading export partners, utilizing data decomposed to 10 sectors at SITC 1-digit level. The average growth in 1000 (100 countries x 10 sectors) export markets is calculated by weighing import growth for each market by the share of each market in Turkish exports in the past year. As of 2012, these 100 countries account for 95 and 97 percent of total world imports and Turkey's exports, respectively.

The new growth indicator in Chart 2 yields quite different results for some years than the unweighted global import growth measure in Chart 1. For example, Chart 1 gives the impression that Turkey's export performance lags behind the global import growth in 2010 and 2011, whereas Chart 2 shows that this is not the case. The growth indicator in Chart 2, which accounts for the high share of European countries in Turkish exports, demonstrates that Turkey's post-crisis export growth was comparable or even stronger than the growth of Turkish export markets.

It should be noted that in order to provide internal consistency of the analysis, the export series in Charts 1 and 2 are taken from UNCTAD, instead of TurkStat, which is calculated as the sum of import quantities reported by 100 countries. Nevertheless, growth rates of these two series are quite comparable (Chart 3). An interesting finding regarding 2012, the last observation in Chart 3, is that according to the import figures from our trading partners, growth of Turkish exports excluding gold is higher than the growth of exports measured by the TurkStat data.



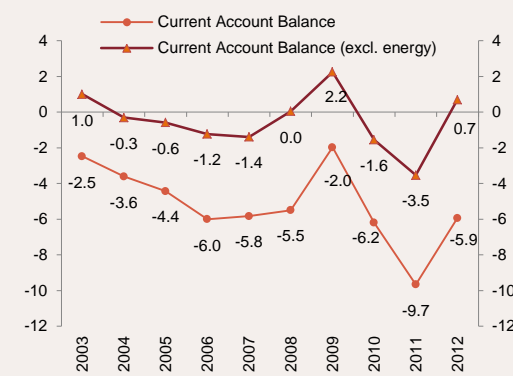
In sum, the measure of global import demand growth shown in Chart 2 leads to the following conclusions: Turkish exports recorded a remarkably higher growth than import markets during the sample period (1995-2012). The increase in market share implied by this growth differential is displayed as an index in Chart 4. The increase is especially strong in the post-2001 crisis period (2001-2003) and remained strong after 2004. The market share increases paused in 2009 and 2010, during times when debates on excessive appreciation of the TL occasionally occupied the agenda. However, growth of the market share accelerated in 2011 and 2012. Lastly, the slowdown of export growth after 2004 in Chart 2 reflects the downward course of growth in export markets, rather than a decline in the export performance.

Box
4.2

Cyclically Adjusted Current Account Deficit in Turkey

The current account balance has recently been quite volatile in Turkey. In particular, the strong recovery driven by domestic demand under the weak external demand outlook in the aftermath of the global crisis has led to rapid widening of the current account deficit. Nearing 10 percent, the ratio of the current account deficit to GDP reached recent historical highs in 2011 (Chart 1). Accordingly, starting from end-2010, the CBRT has diversified its set of tools and implemented a new policy framework that also observes financial stability as a supplementary objective. Measures taken by the CBRT to restrain the current account deficit led to a remarkable correction in the current account balance in 2012.

Chart 1. Current Account Balance to GDP (Percent)

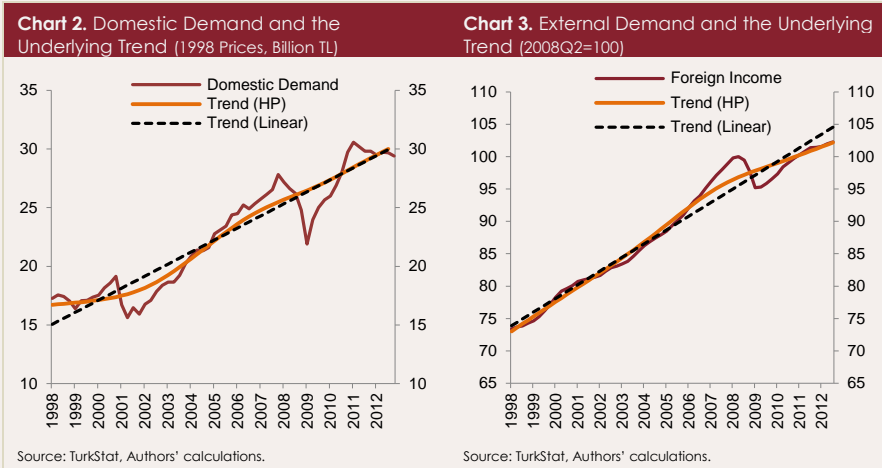


Source: TurkStat, CBRT.

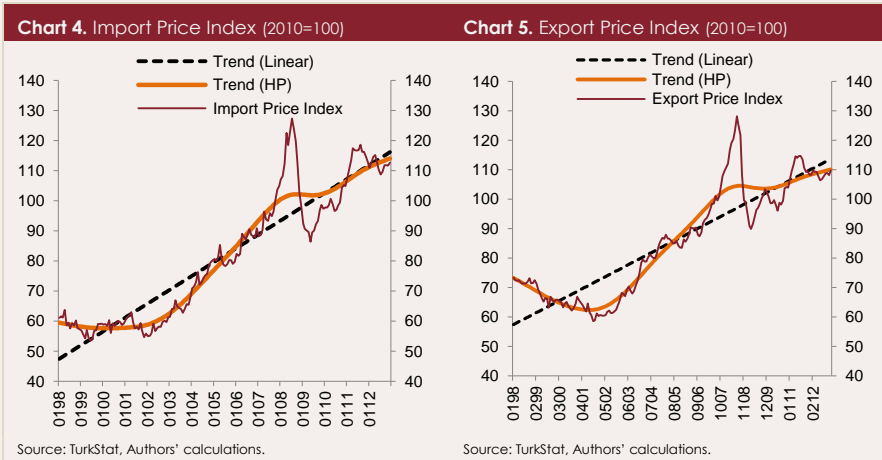
The current account balance is an important indicator for macro financial risks in Turkey. Therefore, a better understanding of the current account balance dynamics is crucial to design appropriate policies. For example, the decomposition of the (cyclical) effects of the domestic and external demand or the terms of trade on the current account balance is critical both to the assessment of the structural component of the current account deficit and to policies implemented against the current account deficit problem. This box summarizes the findings of Kara and Sarıkaya (2013), which formulate a simple methodology for cyclically adjusting the current account balance in Turkey.

To comprehend the effects of cyclical factors on the current account deficit, one should first analyze the level of domestic and external demand, the main drivers of imports and exports, relative to their long-term trends. Domestic (external) demand being above its long-term trend implies an “above-normal” level of imports (exports). For example, domestic demand hovered above its long-term trend during strong recovery periods such as 2005-2008 and 2011. Global demand moved similarly to domestic demand in 2005-2008, whereas it displayed a weak outlook in the post-crisis period, remaining below its long-term trend (Charts 2 and 3). In other words, while domestic demand conditions were

similar, the external demand conditions varied remarkably across the two sub-periods, thus providing a useful example to observe the role of cyclical factors on the current account balance. In fact, during the 2005-2008 period, which was dominated by strong domestic and external demand conditions, the ratio of the current account deficit to national income stood around 5.5 to 6 percent, whereas this ratio reached almost 10 percent in the 2010-2011 period, which was marked by strong domestic demand and weak external demand conditions (Chart 1).



The concept of a cyclically-adjusted current account balance can be best described by the answer to the following question: What would the level of the current account be, if domestic and external demand did not deviate from their long-term trends? By answering this question, one can also roughly determine the lower bound of the current account deficit that can be achieved via countercyclical policies without inducing an excessive slowdown in the economy.



However, correcting for the domestic and external demand “gaps” fails to remove cyclical factors completely. This is because the USD-denominated current account balance does not only depend on domestic and external demand, but is also affected by terms of trade. As will be explained below, in the 2007-2008 period, temporary price movements due to cycles in global growth and liquidity had significant effects on the current account balance, which may have reached as high as 1 percent of national income (Charts 4, 5 and 7). This observation indicates the need for an additional correction in import and export prices. Hence, similar to domestic and external demand, the deviation of external trade prices from their long-term trends is also adjusted via cyclical adjustment.

$$\hat{X} = X[1 - \varepsilon^{X,Y_f}(Y_f - Y_f^*) - (P_X - P_X^*)]$$

$$\hat{M} = M[1 - \varepsilon^{M,D}(D - D^*) - (P_M - P_M^*)]$$

In the above equations, X and M denote exports and imports of goods and services, respectively; while D and Y_f represent the domestic and global demand, in turn. P_X and P_M show export and import prices, while ε^{X,Y_f} and $\varepsilon^{M,D}$ show the demand elasticity of exports and imports, respectively. $(Y_f - Y_f^*)$, $(D - D^*)$, $(P_X - P_X^*)$ and $(P_M - P_M^*)$ denote deviations of the relevant variables from their long-term trends.⁵ \hat{X} and \hat{M} are exports and imports adjusted for the cyclical fluctuations in domestic and external demand as well as prices.

Chart 6. Cyclical Adjusted Current Account Balance to National Income (Percent)

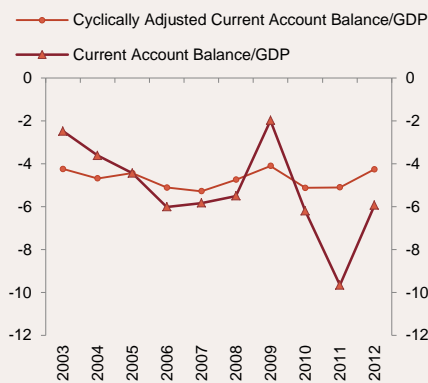
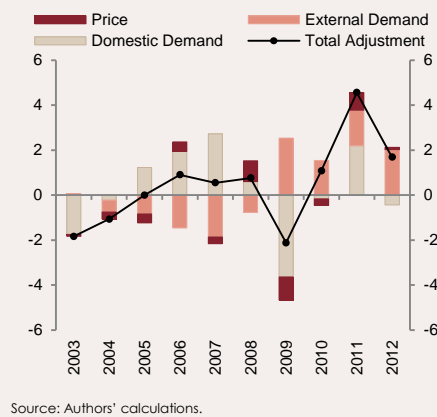


Chart 7. Contributions to Cyclical Adjustment (Percent Point)



According to calculations by Kara and Sarıkaya (2013), which are based on this framework, cyclically-adjusted current account balance to GDP hovered around 4.5 to 5 percent in the last decade (Chart 6). In 2009 and 2011, the effects of

⁵ For further details on filters and elasticities, see Kara and Sarıkaya (2013).

cyclical factors on the current account balance were very significant. The improvement in the current account balance to GDP ratio, which dropped to 2 percent in 2009 with a 3.5 percentage point decline, was mainly due to cyclical factors during the crisis period, and hence proved temporary. Conversely, cyclical factors led to a significant deterioration in the current account balance in 2011.

The gap between the cyclically-unadjusted and adjusted ratios corresponds to the cyclical component of the current account deficit, and is shown by the line in Chart 7. In order to provide guidance for the policy design, the cyclical factor is divided into three components: Domestic demand, external demand and foreign trade prices. Some important results can be inferred via this division. Firstly, the effect of cyclical factors on the ratio of the current account balance to GDP has reached as high as 4 percent, which is mostly driven by fluctuations in imports and domestic demand. Hence, domestic policies have a large room to maneuver in terms of containing fluctuations in the current account balance. In fact, the year-on-year reduction in the cyclical contribution of domestic demand to current account deficit in 2012 constitutes a case in point.

Secondly, results demonstrate that the weak external demand outlook adversely affected the current account balance in the aftermath of the global crisis period. The additional current account deficit, which is driven by the subdued external demand from 2009 onwards, hovers around 2 percent of the GDP. Therefore, the likelihood of a prolonged period of weak demand outlook across the globe, and especially in the Euro Area, our leading trading partner, should be taken into account in the current account projections.

To sum up, the analysis of cyclically-adjusted current account balance is crucial to the comprehension of the limitations of the monetary policy as well as other cyclical (non-structural) policy measures. During periods of rapid economic growth and intensive capital inflows like 2011, domestic demand oriented policies targeting the current account deficit may have a large room to maneuver. Nevertheless, the findings show that without a structural improvement in production, reducing the current account deficit to GDP below 5 percent is quite difficult in the short term without sacrificing economic growth. Therefore, given the weak global economic outlook, the level of the current account balance is likely to remain as an important issue in the upcoming period with respect to macroeconomic and financial stability.

REFERENCES

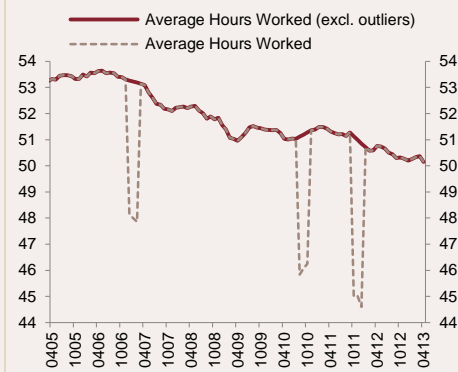
Kara, H. and Ç. Sankaya, 2013, Konjonktürel Etkilerden Arındırılmış Cari Açık (in Turkish), CBT Research Notes in Economics No. 13/18.

Box
4.3

Average Hours Worked in the Non-Farm Sector

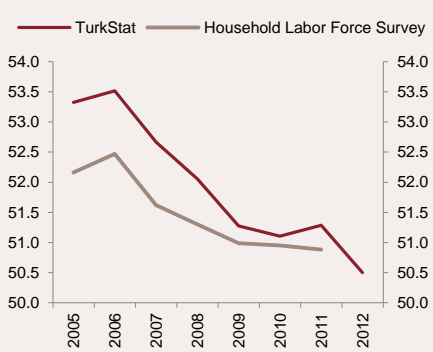
Economic activity based on labor force data is reflected by total hours worked rather than the level of employment. Even though these series exhibit a co-movement in general, they may occasionally move independently from each other. Total hours worked and employment figures based on the TurkStat dataset imply that average hours worked declined over time (Chart 1). Excluding outliers that may arise from time to time, average hours worked declined by 3 hours from the early-2005 to end-2012. This decline may reflect a change in the composition of employment as well as a behavioral change at a micro level. The objective of this box is to determine the effect of compositional as well as behavioral changes on the decline in the average hours worked.

Chart 1. Average Hours Worked (Monthly, Excluding Workers Currently Not on the Job, Seasonally Adjusted)⁶



Source: TurkStat, CBRT.

Chart 2. Average Hours Worked (Annual, Excluding Outliers and Workers Currently Not on the Job)



Source: TurkStat, Turkstat Household Labor Force Survey, CBRT.

Accordingly, an analysis is conducted using micro-level data obtained from the Household Labor Force Survey. The dataset covers the 2004-2011 period, and includes only non-farm wage earners. Workers with wages below 100 TL according to the base year 2004 are treated as outliers and excluded from the sample. Although there is a difference in levels, the average hours worked series calculated using the micro-level data and the TurkStat data follow a similar trend over time (Chart 2). After confirming the consistency of the data set, it is possible to estimate average hours worked by controlling for the

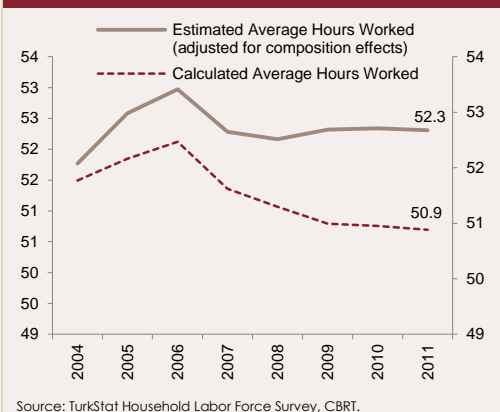
⁶ TurkStat publishes employment data based on effective hours worked. Time intervals are 0, 1-16, 17-35, 36-39, 40, 41-49, 50-59, 60-71 and 72+hours. The mid-points of time intervals are taken as hours worked for that group. Total hours worked is calculated by weighing employment share with hours worked, and average hours worked is calculated by dividing total hours worked by employment. Workers reported as having worked more than 72 hours are assumed to work for 72 hours.

composition of employment. Therefore, average hours worked is estimated by regressing weekly hours of work on year dummies, several control variables capturing the employment structure, and the relevant interaction terms.⁷ Control variables include gender, informality, age groups, marital status, education, occupation⁸, NUTS1 level region, urban living, full-time job, permanent job, school

attendance, literacy, tenure in last job, and firm size. After controlling for the change in employment composition using these variables, a new path was estimated for average hours worked based on the marginal effects for the corresponding years. As Chart 3 illustrates, the tendency to decline in the average hours worked fades away if the employment composition remains unchanged given the abovementioned variables. Average hours worked calculated using raw micro-level data declined by 1.3 hours from 2005 to 2011. The estimated decline becomes 0.3 hours after controlling for the compositional effects. Hence, the decline in average hours worked is mainly attributed to the change in the composition of employment.

Estimation results show that average hours worked differs remarkably by gender and informality. Average hours worked is characteristically high in the informal sector and for male workers (Chart 4). Hence, average hours worked is estimated separately for these categories and adjusted for compositional effects using the same control variables (Chart 4). Controlling for the employment composition is particularly effective for female workers, leading to an increase in the average hours worked. On the other hand, average hours worked decreases over time for informal male workers. Meanwhile, average hours worked remains unchanged for formal workers; whereas, it increases over time for informal female workers.

Chart 3. Average Hours Worked Adjusted for Composition Effects



⁷ Equations are omitted due to space limitations. The analysis is conducted solely for descriptive purposes and should not be attributed causal meanings.

⁸ TurkStat releases sectoral data by Nace Rev1 classification for 2004-2009 period and by Nace Rev2 classification from 2010 onwards. Thus, sectoral data is unavailable for the entire sample period. Hence, instead of using industry dummies, occupation dummies are included in regressions.

Table 1 presents the trends in employment shares over time by gender and informality as well as the path for estimated average hours worked adjusted for marginal effects in the estimation year. Figures show that the declining share of informal employment is particularly effective on the decrease in the average hours worked. Furthermore, the decline in the average hours worked for informal male workers also contributes to the decline in the average hours worked. To sum up, the fall in average hours worked is mostly attributed to compositional rather than behavioral factors.

Chart 4. Average Hours Worked by Gender and Informality Adjusted for Composition Effects

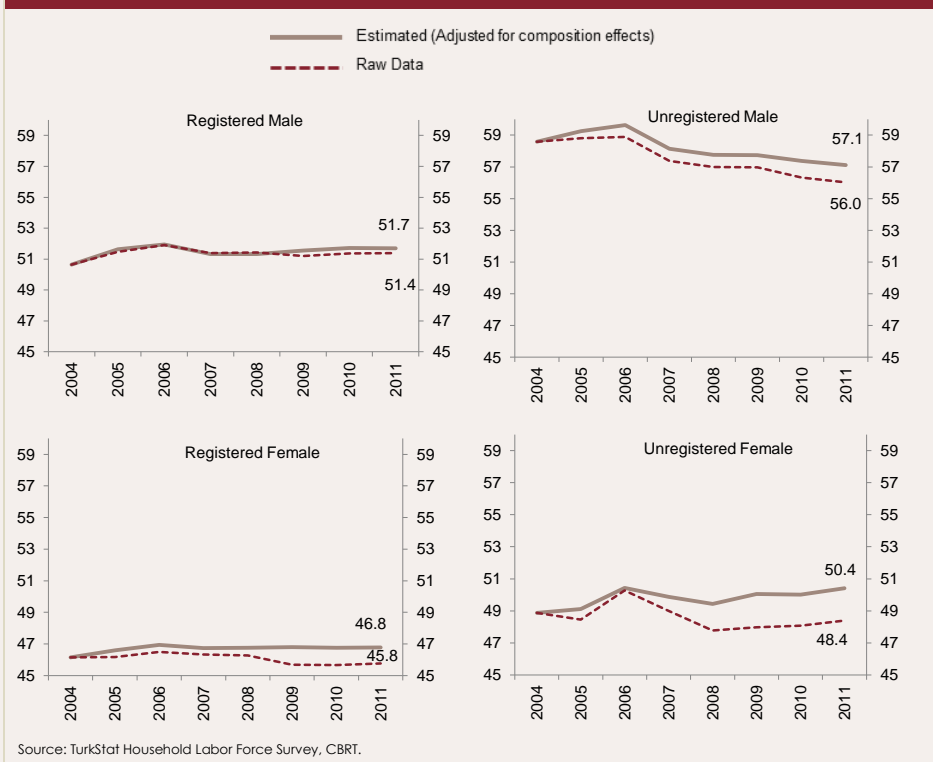


Table 1. Employment Share by Gender and Informality and Estimated Average Hours Worked

	Employment Share				Estimated Average Hours Worked (Adjusted for Composition Effects)			
	Male		Female		Male		Female	
	Formal	Informal	Formal	Informal	Formal	Informal	Formal	Informal
2005	56.2	22.9	15.1	5.8	51.6	59.3	46.6	49.1
2011	60.8	15.5	19.0	4.7	51.7	57.1	46.8	50.4
<i>Contribution to Change in the Average Hours Worked</i>								
2005-2011	2.37	-4.38	1.82	-0.54	0.03	-0.49	0.03	0.07

Source: TurkStat Household Labor Force Survey, CBRT.

Box
4.4

Relative Housing Price Deflator in Turkey

Introduction

The possibility to use houses as collateral, the major share of housing loans in the credit market, the opportunity to derive mortgage-backed financial instruments, and changes in housing prices to influence consumption and savings via wealth effect cause housing prices to affect the economy through various channels. Therefore, obtaining a reliable housing price index is crucial to detailed analysis of the housing sector dynamics and its interaction with other economic variables. Due to lack of a long-term housing price index in Turkey, this box shows that the GDP-based housing price deflator is a reliable indicator for housing prices in some countries and therefore, calculates the relative housing price deflator for Turkey⁹.

The expenditure method, one of the methods for the measurement of the GDP, contains two housing sector related items. The first item is the rent expenditures under the consumption spending; the second one is the housing investment expenditures under the investment spending. The housing investment item includes newly-built houses, which were constructed during the measurement period of the GDP. Thus, the housing price deflator when measured by the housing investment item is expected to reflect prices of the newly-built houses. This deflator can be accepted as a proxy for overall housing prices.¹⁰ In the first section of the box, the assumption that the housing price deflator can be a reliable indicator for housing prices is analyzed for the case of US, Spain, South Korea and Germany, which have various housing price dynamics. Accordingly, the box shows that the housing price deflator in these countries has similar dynamics to housing prices. Given this finding, the housing price deflator for Turkey is analyzed in the second section of the box. Results indicate that the housing price deflator followed a relatively fluctuating course in the post-1998 period, without exhibiting an upward or a downward trend. It was also noted that the housing price deflator grows faster than the GDP price deflator in times of economic growth, whereas it grows slower than the overall deflator during times of recession.

⁹ For a detailed analysis, see Kiliç and Tunç (2013).

¹⁰ It is possible that the housing price index varies significantly from the housing price deflator. The housing price deflator contains information on the newly-built house prices, while the housing price index includes information on prices of the already available houses in the market. This difference may cause two series to diverge. Moreover, coverage of the housing price index and the housing price deflator may also differ. More specifically, the housing price deflator covers all regions in the economy, while the housing price index may be restricted to certain regions. Even though these differences may cause two series to differ remarkably, the series are expected to follow a parallel course and be good proxies for each other since both contain information regarding housing prices.

Housing Price Deflator and Housing Prices in the US

Chart 1 displays the Case-Shiller housing price index, the Housing Price Index constructed by the US Federal Housing Finance Agency, and the housing price deflator measured by the housing investment spending. The correlation between the housing price index and the housing price deflator is 96.3 percent; the correlation between their annual percent changes is 89.3 percent. The correlation between the Case-Shiller index and the housing price deflator as well as the correlation between their annual percent changes is 87.8 and 86.1 percent, respectively. Both the housing price deflator and its annual percent change move largely in line with the housing price index, thus implying that the housing price deflator has informative value regarding the housing price index.

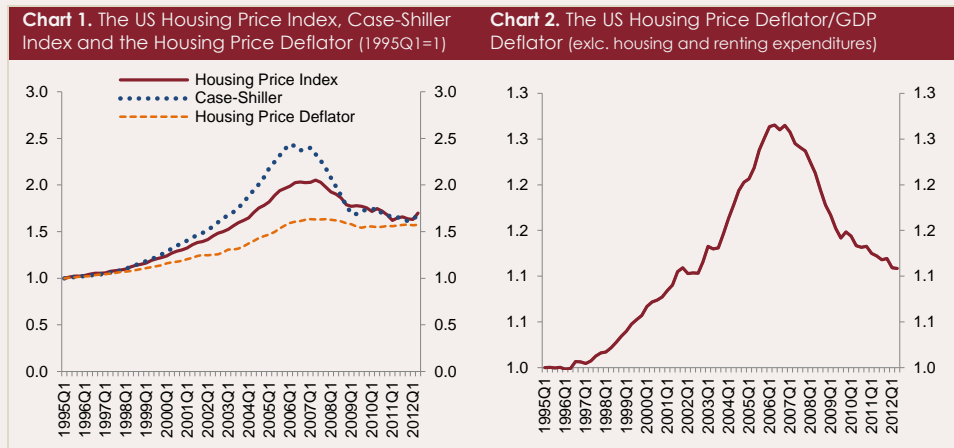


Chart 2 depicts relative housing prices as the ratio of the housing price deflator to GDP deflator excluding housing and renting expenditures. Accordingly, the relative housing prices increased by about 30 percent during the 1997-2007 period and declined by around 15 percent in the post-2008 crisis period. These findings indicate that the relative housing price deflator largely captures the housing price bubble and the following correction in the US.

Housing Price Deflator and Housing Prices in Spain, South Korea and Germany

Spain is one of the countries that experienced a notable housing price hike before the crisis, which was followed by a housing price plunge, in turn. Chart 3 shows the GDP deflator, housing price deflator and the housing price index for Spain. As depicted in the chart, housing prices increased by 145 percent

between 2000 and 2007, and decreased by 25 percent from early 2008 to 2012Q3. The fluctuating course of housing prices can also be observed via the housing price deflator. More specifically, the housing price deflator went up by 60 percent between 2000 and 2007, and declined by 18 percent from 2008 to 2012Q3. Chart 4 shows the annual percent change in housing prices and the housing price deflator, illustrating that changes in the housing price deflator and the housing price index are very similar. Furthermore, the correlation between the housing price deflator and the housing price index and the correlation between their annual percent changes are 99.6 and 96.2 percent, respectively. On the other hand, the housing price deflator and the housing price index are significantly different from the GDP deflator. This analysis indicates that the GDP-based housing price deflator has a significant informative value regarding housing price dynamics in a country like Spain, which experienced excessive fluctuations in housing prices.

Chart 3. The GDP Deflator, The Housing Price Deflator and the Housing Price Index in Spain (2000Q1=1)

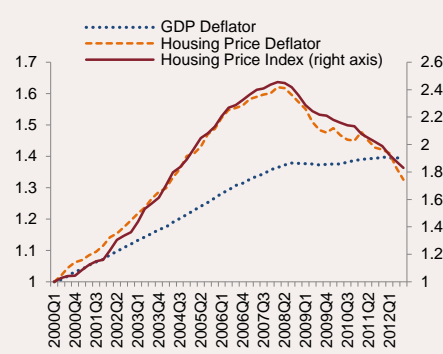


Chart 4. The GDP Deflator, The Housing Price Deflator and the Housing Price Index in Spain (Annual Percent Change)

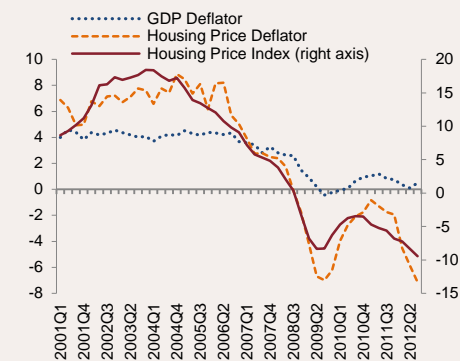


Chart 5. The GDP Deflator, The Housing Price Deflator and the Housing Price Index in South Korea (2002Q1=1)

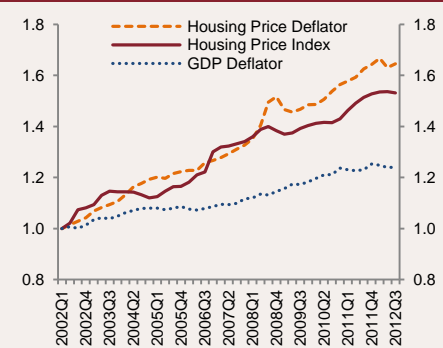


Chart 6. The GDP Deflator, The Housing Price Deflator and the Housing Price Index in Germany (2002Q1=1)

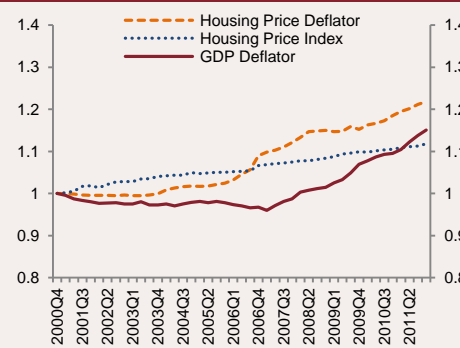


Chart 5 displays the GDP deflator, the housing price deflator and housing price index starting from 2002. Chart 5 shows that the housing price index and the housing price deflator increased by 53 percent and 65 percent, respectively during the 2002-2013Q3 period. These two indices diverged notably from the GDP deflator, which increased only by 24 percent during the same period. South Korea experienced a relatively significant housing price hike during this period; yet unlike US and Spain, it failed to exhibit a consequent fall. South Korea also stands as a good example of how the housing price deflator and the housing price index move in line with each other.

Chart 6 shows the GDP deflator, housing price deflator and the housing price index for Germany as of the beginning of 2001. The chart depicts that, unlike the US, Spain or South Korea, the GDP deflator and the housing price index do not diverge significantly. From 2001 to 2010, the housing price deflator, housing price index and the GDP deflator increased by 22, 15 and 12 percent, respectively. From 2001 to 2006, both the housing price deflator and the housing price index remained below the GDP deflator; consequently, both series accelerated and moved above the GDP deflator. Therefore, even in a country like Germany, where general prices and housing prices are relatively mild, the housing price deflator contains significant information on housing prices.

Relative Housing Price Deflator for Turkey

Turkey exhibits a mixed case for housing-related data listed under the GDP. More specifically, the GDP measurement contains differences regarding the data on housing between the GDP with the base year 1987 and the GDP with the base year 1998. In the GDP (1987=100), fixed investment expenditures include housing construction and building construction as subcategories, while the GDP (1998=100) includes only total construction. Assuming that a construction deflator is a good proxy for a housing price deflator, a housing price series for Turkey can be derived, which can contemporaneously be monitored and have informative value regarding housing price dynamics.¹¹ Chart 7 compares the construction deflator, the GDP deflator and the CBRT's housing price index. Indices are set to 1 in 2010Q1. In 2013Q1, the construction deflator, the GDP deflator and the CBRT's housing price index are equal to 1.29, 1.23 and 1.37, respectively.

¹¹ For further details on the assumptions and charts, see Kiliç and Tunç (2013).

It follows that both the construction deflator and the housing price index hover above the GDP deflator. Chart 7 displays that the construction deflator, which surpasses the GDP deflator from 2003 onwards, converges back to the GDP deflator in 2006 by a correction. After 2006, the construction deflator rapidly exceeds the GDP deflator, but drops back to the level of the GDP deflator, by a correction during 2009 crisis. A similar divergence is observed in the aftermath of 2010, where the construction deflator increases by 29 percent during 2010Q1-2013Q1, while the GDP deflator goes up by 23 percent in the same period. It is worth noting that fluctuations in the construction deflator coincide with asset-price-like cycles in the economy. In periods of growth following 2003, the construction deflator posted hikes; whereas in periods of recession, the deflator growth paused.

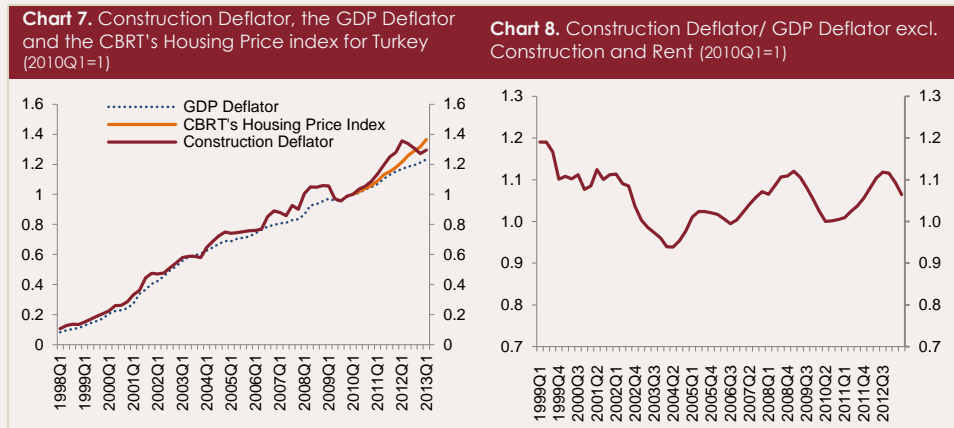


Chart 8 demonstrates the ratio of the construction deflator to the GDP deflator excluding construction and rent.¹² Starting from 1998, relative housing prices experienced a rapid fall, which accelerated further after 2001 crisis, reaching a peak at end-2003. Accordingly, relative prices fell by 20 percent during this period. As from 2004 onwards, relative construction deflator has started to pick up, but the uptrend in prices was interrupted in 2006 by the turmoil in emerging economies. Following that, the relative construction deflator recovered and reached its peak in 2008Q4, registering a 16 percent growth from 2003 to 2008. During the crisis period from 2008 to 2010Q1, relative prices for construction dropped by 11 percent. Housing prices started to soar back to the post-crisis recovery period, and posted an increase by 6 percent from 2010 to 2013Q1.

REFERENCES

Kılıncı M. and C. Tuñç, 2013, Türkiye'de Göreli Konut Fiyatları Deflatörü (in Turkish), The CBT Research Notes in Economics No. 13/14.

¹² In order to smooth out fluctuations in the series, 4-quarter moving averages of the series are plotted.

