

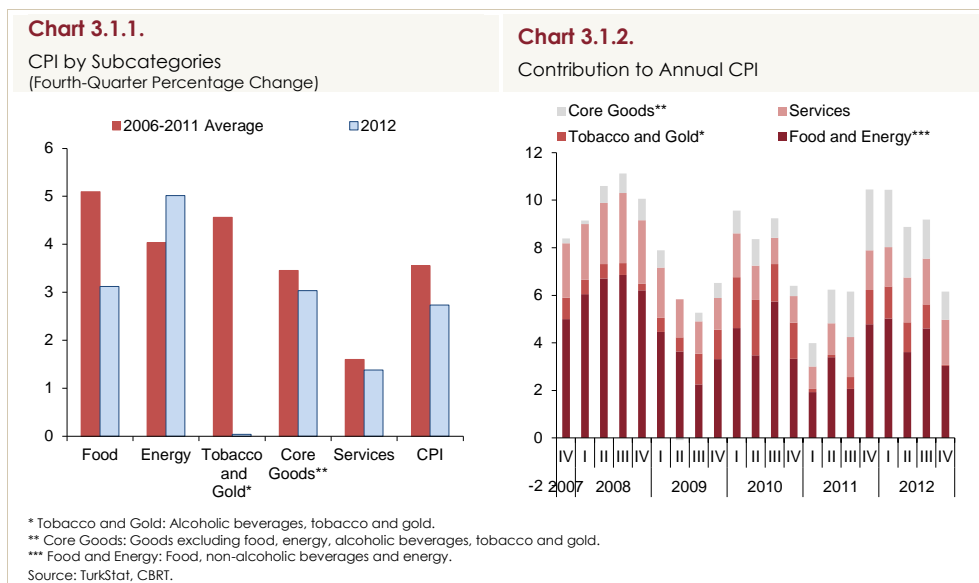
3. Inflation Developments

3.1. Inflation

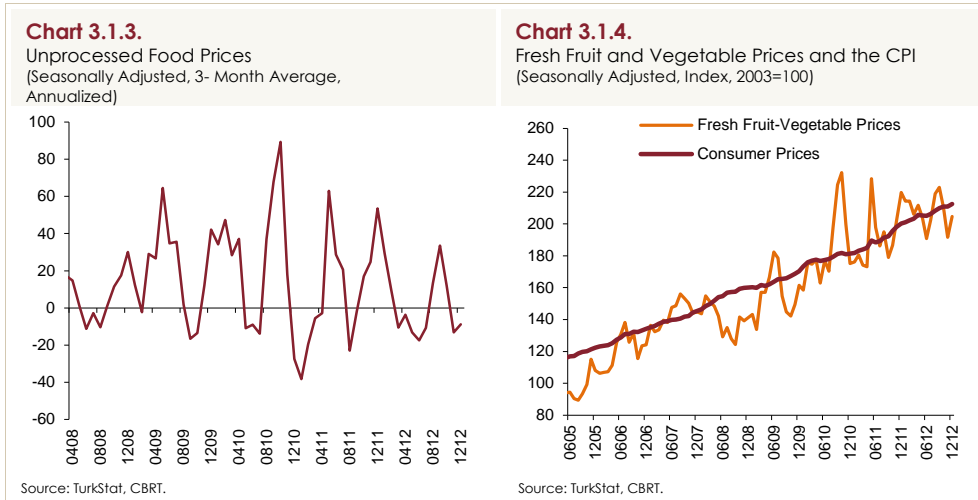
Consumer inflation posted a year-on-year decline by 4.3 percentage points to 6.16 percent, hitting the lowest level of the last 44 years in 2012. The cumulative effects of the TL depreciation in 2011 on inflation mostly ended, particularly in durable goods. Thus, annual inflation in core goods displayed a gradual downtrend across the year. The relatively favorable course of unprocessed food prices, which went beyond the levels of 2011 at end-2012, was the major determinant of the fall in inflation. Mild course of the prices of international commodities excluding agricultural products throughout the year, the stable course of the foreign exchange rates and slowing economic activity contributed positively to the inflation outlook. Although services inflation edged up in this period, alleviated cost and demand pressures led the core inflation indicators to trend downwards across the year. On the other hand, public price hikes and tax adjustments, especially in energy, proved to be the leading factor to worsen inflation. Accordingly, consumer inflation exceeded the 5 percent inflation target by 1.16 percentage points in 2012, yet remained within the uncertainty band.

In the last quarter of 2012, annual consumer inflation recorded a quarter-on-quarter decline by 3 percentage points. Across subcategories, the rise in unprocessed food prices, which remained far below seasonal averages, was the main driver of this decline (Chart 3.1.1). Having increased by an average 8.5 percent in the final quarter of the past years (2006-2011), unprocessed food prices went up by 2.82 percent in the same period of 2012. Accordingly, the contribution of the food group to inflation fell by 1.7 percentage points compared to the end of the third quarter (Chart 3.1.2). Due to import prices coupled with the sluggish economic outlook, the contribution of core good group to inflation fell by 0.46 percentage points, while the contribution of services remained almost unchanged. Moreover, annual inflation in alcoholic beverages and tobacco plummeted in the last quarter as envisaged, fuelling the disinflation process. Meanwhile, the contribution of the energy prices to inflation edged up amid tax increases and adjustments in administered energy items.

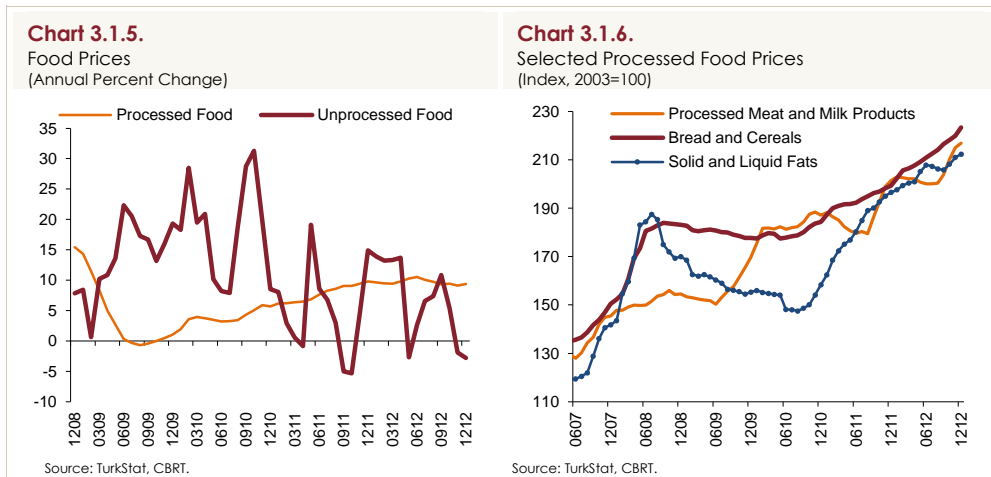
Annual inflation in processed food and energy is estimated to decline across 2013. Similarly, core goods inflation is expected to remain on a downward track due to clothing and other core goods prices excluding durables, while annual services inflation is estimated to follow a milder course in 2013 subsequent to the slight increase in the last couple of years. As projected in the October Inflation Report, amid the contribution of the tax adjustment on tobacco products by 0.75 percentage points, inflation is envisaged to rise in January and settle on a gradual downtrend afterwards.



Seasonally adjusted unprocessed food prices plummeted in the last quarter (Chart 3.1.3). Thus, having decreased by 2.78 percent, unprocessed food prices exhibited a better outlook in 2012 compared to projections. This was attributed to the developments in fresh fruits and vegetables, prices of which were below the general consumer price level (Chart 3.1.4). Average temperatures saw figures beyond seasonal normals all around Turkey in the autumn of 2012. Thus, especially vegetable prices posted notable decreases in seasonally adjusted terms in October and November. Although prices trended upwards again in December, vegetable prices went down by 15 percent in 2012. In the last quarter, being mainly driven by meat prices, unprocessed food prices excluding fruits and vegetables declined, causing the price increase in this subgroup to remain by only 0.30 percent in 2012. On the other hand, the upward trend in milk prices continued in the last quarter, albeit having waned in the late part of the quarter.



Processed food prices surged by 3.35 percent in the last quarter, going above past years' averages (Table 3.1.1). Annual inflation in this group remained relatively flat in the last quarter, reaching as high as 9.37 percent at year-end (Chart 3.1.5). The most striking sub-item driving the course of processed food prices across the year was the prices of bread and cereals (Chart 3.1.6). Particularly, bread prices surged by 15.43 percent in 2012. Initially, arrangements regarding weight in grams laid down in the Communique on Bread and Varieties of the Turkish Food Codex were influential in this surge. However, domestic wheat prices also trended upwards later on, recording an increase by 15.6 percent since May. This was also reflected on the prices of pasta and other cereals as well as bread prices. Moreover, parallel to the developments in milk prices, prices of cheese and other dairy products rose by 6.82 percent in the last quarter. In this period, price increases were seen not only in processed meat products, but also in fats and oils, implying that price hikes spilled over into processed food prices as a whole (Chart 3.1.6).



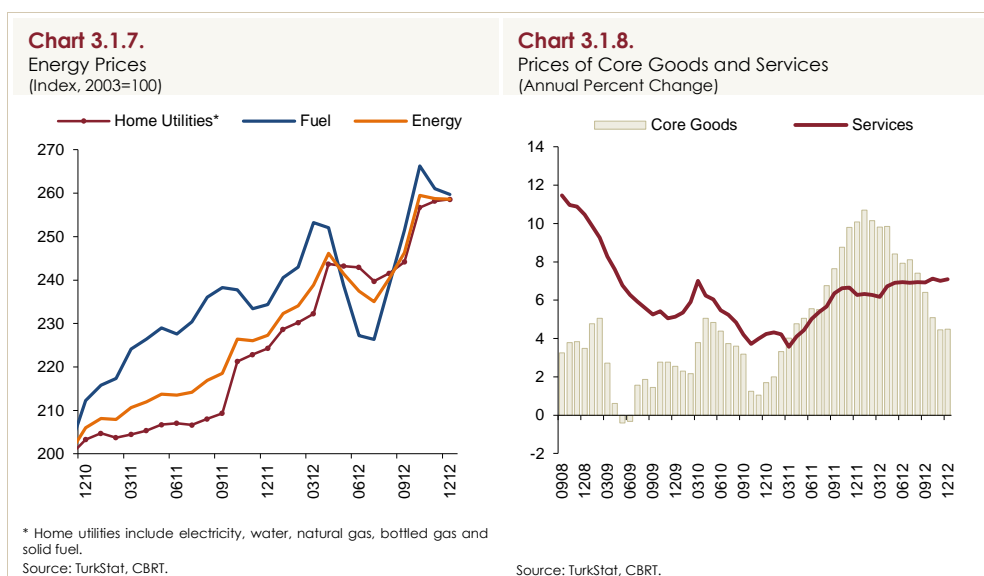
Consequently, despite the relatively negative course of the processed food prices, annual food inflation decreased approximately by 6.5 percentage points to 3.90 percent in this quarter due to developments in unprocessed food prices. Thus, food inflation lagged far behind the October Inflation Report forecasts.

Table 3.1.1.
Prices of Goods and Services
(Quarterly and Annual Percent Change)

	2011		2012				
	IV	Annual	I	II	III	IV	Annual
CPI	5.66	10.45	1.55	0.39	1.36	2.74	6.16
1. Goods	7.29	11.97	1.54	-0.19	1.12	3.25	5.82
Energy	4.03	10.36	5.08	-0.57	3.70	5.02	13.79
Food and Non-Alcoholic Beverages	9.57	12.21	2.89	-5.85	4.01	3.12	3.90
Unprocessed Food	17.23	14.89	3.66	-14.76	7.01	2.82	-2.78
Processed Food	3.30	9.82	2.25	1.55	1.92	3.35	9.37
Goods (excl. energy and food)	6.93	12.51	-1.14	4.78	-2.24	2.50	3.78
Core Goods	4.92	10.09	-1.32	5.88	-2.93	3.03	4.49
Durable Goods (excl. gold)	1.90	12.19	1.41	-0.05	-0.69	-0.48	0.17
Alcoholic Beverages, Tobacco and Gold	14.46	21.70	-0.33	-0.17	1.03	0.04	0.57
2. Services	1.22	6.27	1.57	1.96	2.00	1.38	7.09
Rent	1.21	4.71	0.89	1.27	1.59	1.61	5.46
Restaurants and Hotels	2.14	8.20	1.99	2.62	2.66	1.74	9.31
Transport	1.73	9.49	2.12	1.79	3.21	0.81	8.16
Communication	0.47	1.04	0.06	2.07	1.79	3.00	7.08
Other Services*	0.65	7.12	2.24	2.00	1.27	0.41	6.04

* Services excluding rents, restaurants, hotels, transport and communication.
Source: TurkStat, CBRT.

Energy prices went up by 5.02 percent in the last quarter (Table 3.1.1). Energy prices in this period were mostly influenced by the decisions of the public sector. As per the arrangement on tax changes in some products subject to the SCT Law published on the Official Gazette of 22 September 2012, SCT rates imposed on fuel oil were raised. Furthermore, electricity and natural gas prices were also increased by 9.78 and 9.84 percent, respectively, which is to be effective from October, 1. These public price adjustments had a direct effect of 1 percentage point on the consumer inflation. As results of these adjustments, energy prices went up by around 8 percent in September and October; and edged down in the last two months of the year due to the reverberations of the fall in international oil prices on domestic fuel oil prices (Chart 3.1.7). As a result, annual energy inflation recorded a quarter-on-quarter increase by 1.07 percentage points, and closed the year with 13.79 percent. In the last 18-month period, high-rated cumulative increases in electricity and natural gas prices bear a risk to pose upside cost pressure on future consumer prices; yet the course of aggregate demand conditions may curtail the said pressures.



The downtrend in the annual inflation in core goods continued in the last quarter, and inflation went down to 4.5 percent at the year-end (Chart 3.1.8). Despite a limited quarter-on-quarter increase in seasonally adjusted prices of core goods in this period, the mild course of the underlying trend was maintained (Chart 3.1.9). The decline in TL-denominated import prices and the slowdown in economic activity put a cap on upside pressure on prices. The main driver of the slowdown in the core goods prices was durable goods; and core inflation stood at 0.17 percent in 2012 (Chart 3.1.10). Across subcategories, automobiles besides electrical and non-electrical appliances saw falling prices on an annual basis (Table 3.1.2). As per the fiscal measures taken in September 2012, relative SCT rate was raised for those automobiles with engine volumes up to 1600 cc, yet leaving the prices of automobile and core goods virtually unchanged. In contrast to the favorable course of durable goods, inflation in the clothing group increased in the last quarter as well, and closed the year with 8.2 percent, which is above the headline inflation. This is attributed to the increases in customs duties introduced under the protection measures on textiles and ready-wear imports in 2011. Lastly, the lingering slowdown in the quarterly inflation in core goods excluding clothing and durables pulled annual core inflation down in the last quarter as well (Chart 3.1.10 and Table 3.1.2).

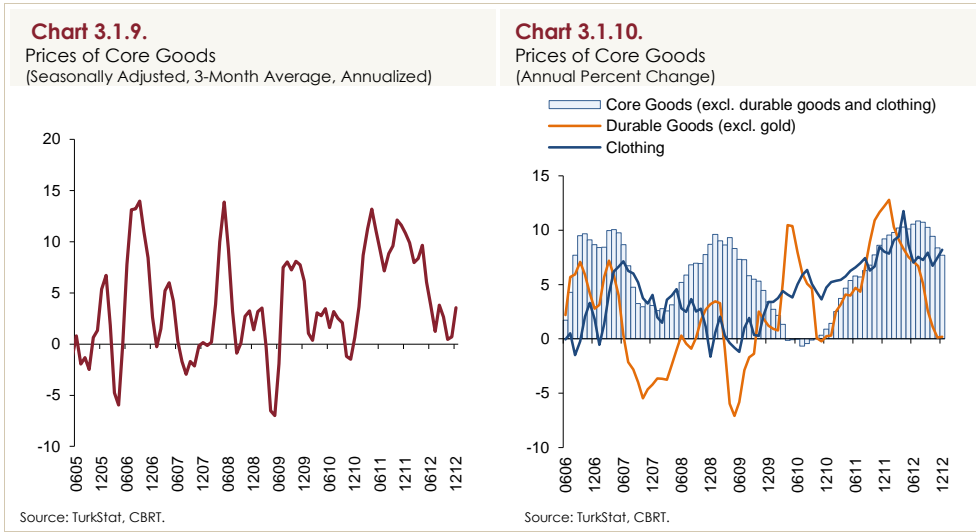


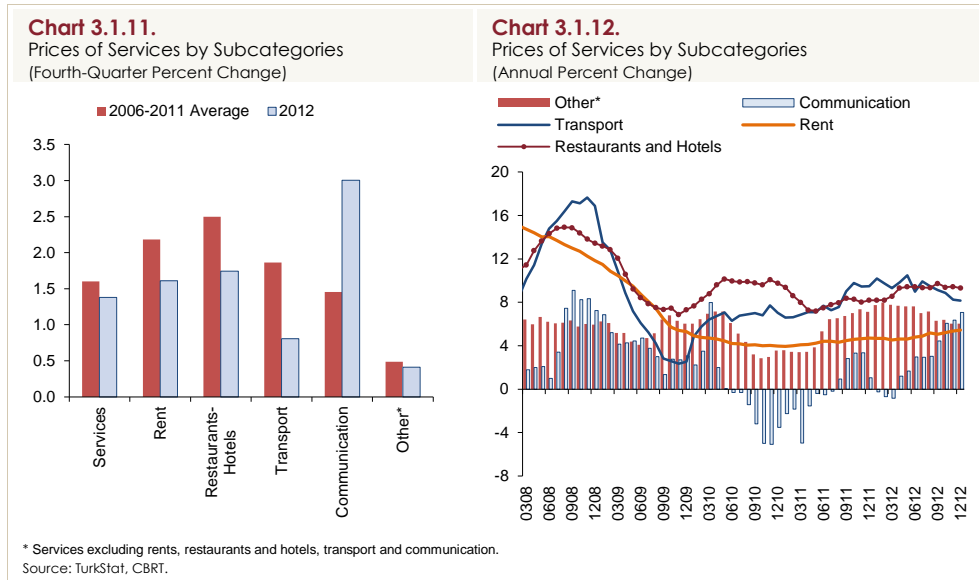
Table 3.1.2.
Prices of Core Goods
(Quarterly and Annual Percent Change)

	2011		2012				
	IV	Annual	I	II	III	IV	Annual
Core Goods	4.92	10.09	-1.32	5.88	-2.93	3.03	4.49
Clothing and Shoes	11.72	8.01	-10.90	22.34	-11.37	12.00	8.20
Durable Goods (excl. gold)	1.90	12.19	1.41	-0.05	-0.69	-0.48	0.17
Furniture	4.01	13.25	3.19	1.76	-0.58	1.84	6.33
Electrical and Non-Electrical Appliances	3.29	5.27	0.94	-2.75	-0.65	-0.96	-3.41
Automobile	0.52	15.52	1.09	0.42	-0.82	-1.07	-0.40
Other Durable Goods	3.00	10.06	1.22	3.13	0.69	0.54	5.68
Other	3.44	9.18	2.76	2.42	1.28	1.05	7.71

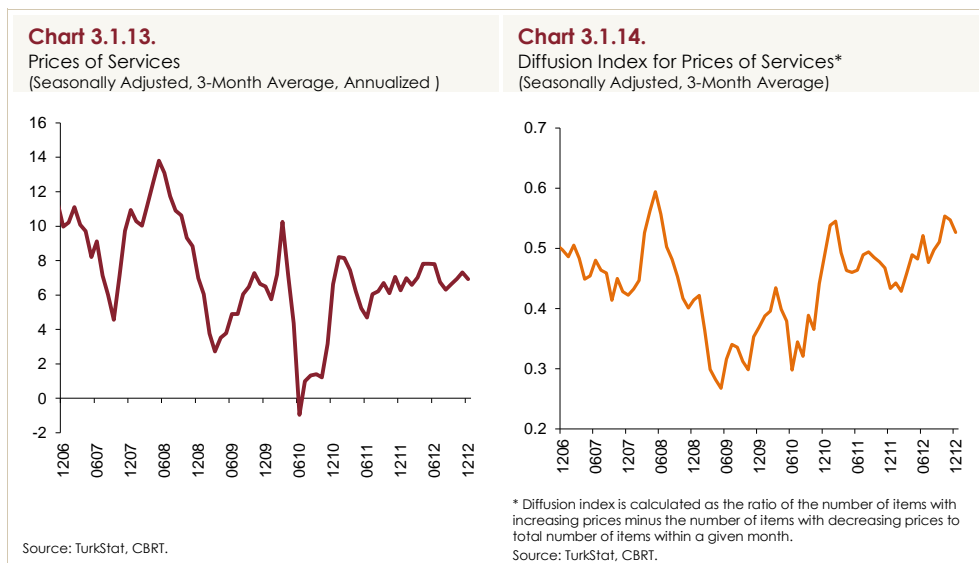
Source: TurkStat, CBRT.

Having increased by 0.17 percentage points on a quarterly basis, services inflation registered an annual rate of increase by 7.09 percent (Chart 3.1.8). In the last quarter, price increases remained below the averages of the past years across the services group and all subgroups excluding communication (Chart 3.1.11). Especially, prices in transport and restaurant-hotel services recorded the lowest quarterly increase of the recent years. Rent inflation remained sluggish, and annual rent inflation went up by 0.4 percentage points to 5.46 percent in this period. Nevertheless, the most noteworthy development regarding the prices of services in the last quarter occurred in communication services. Prices of communication services in this period went up by 3 percent particularly upon the price developments in the internet fee item. After a remarkable acceleration, annual inflation in this group stood at 7.08 percent at the year-end (Chart 3.1.12). The course of services prices across the year suggested that in this period marked by consumer inflation of two digits, slowing

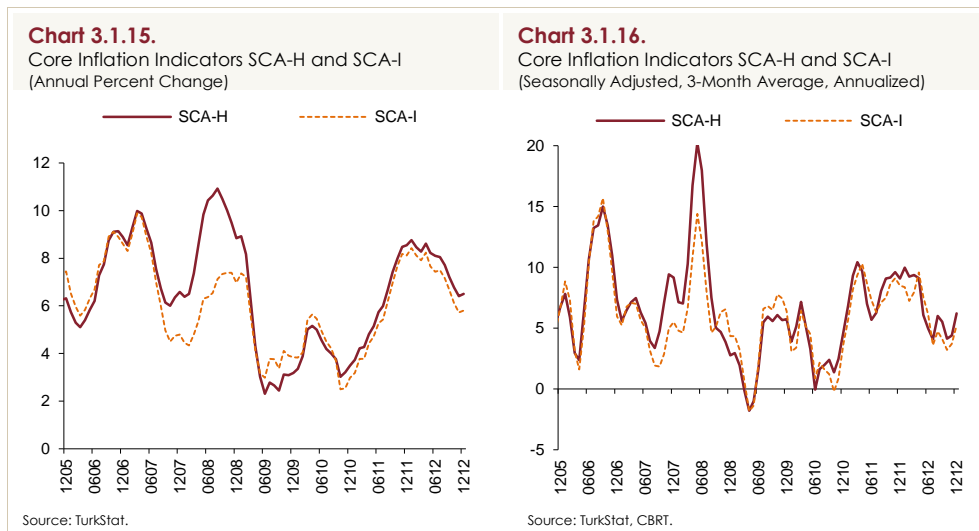
economic activity besides the stable course of external prices and foreign exchange rates put a lid on the possible increase in the services inflation.



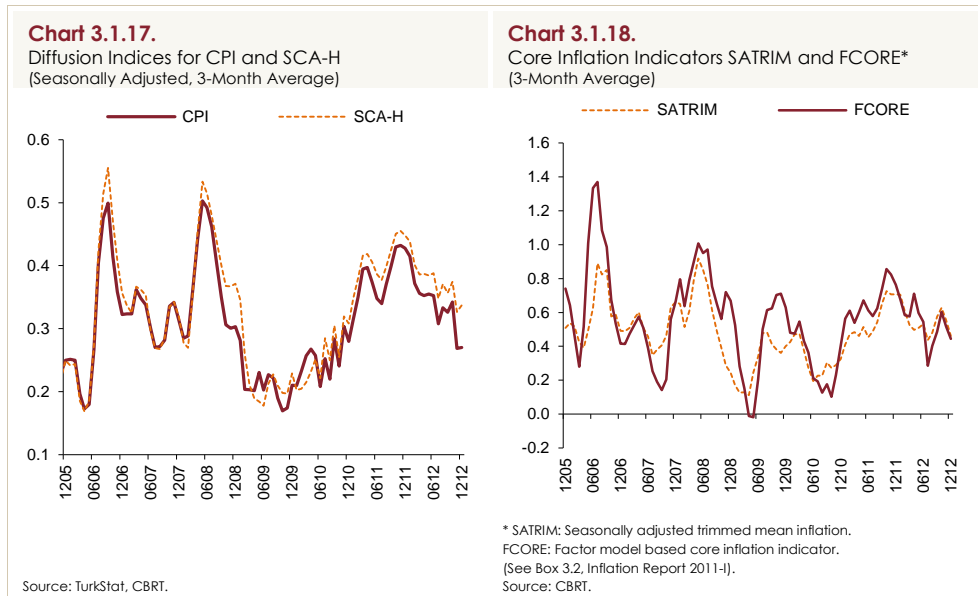
Annual services inflation has been following a flat course at 7 percent since May. Seasonally adjusted data indicate that this mild outlook is also seen in the underlying trend of services inflation (Chart 3.1.13). However, diffusion of the price-raising trend in the services group recorded an increase in 2012 (Chart 3.1.14). A flat course in the upward trend of prices in a period of increased diffusion index points that the size of price increases remains below past figures.



Annual inflation in SCA-H and SCA-I, one of the core inflation indicators, went down to 6.5 and 5.81 percent, respectively in the last quarter of the year (Chart 3.1.15). This development was mainly attributed to the quarter-on-quarter decline in core goods inflation. The waning adverse effects of the depreciation in the Turkish lira led to a deceleration in the annual inflation of core indicators throughout the year, thereby causing a year-on-year decline by more than 2 percent in both indicators at the year-end. In seasonally adjusted terms, SCA-H and SCA-I hovered around 5 and 4 percent, respectively in the second half of the year.



Diffusion indices of the CPI and SCA-H went down in the last quarter (Chart 3.1.17). Diffusion indices plummeted across the year, converging past averages. Given that diffusion of the prices of services increases throughout the year, price-raising trend in the goods group lost momentum. Alternative core inflation indicators monitored by the CBRT diverged from the SCA-H and SCA-I indicators, and trended downwards in the last couple months following the increase in the third quarter (Chart 3.1.18). As a result, when core inflation indicators are analyzed alongside diffusion indices and alternative core indicators, the underlying trend of inflation proves to remain on a mild track.

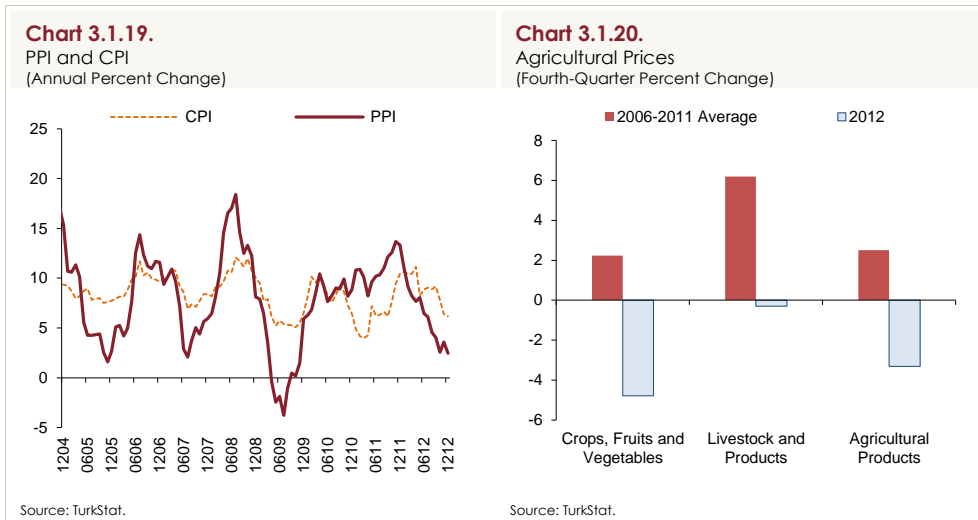


Annual inflation in producer prices, which trended downwards throughout 2012, hit a historically low year-end level with 2.45 percent; and curtailed cost-side pressures on consumer prices across the year (Chart 3.1.19). Being mainly fuelled by energy prices, producer prices rose by 1.72 percent in the last quarter (Table 3.1.3). Prices in the agriculture group, which recorded increases compared to historical averages, decreased in this period amid the fall in the prices of fruits-vegetables and livestock (Chart 3.1.20). Meanwhile, price increases in the cereals group continued in this quarter as well. Particularly, domestic wheat prices remained on an upward track in this period, albeit at a slower pace, which had negative repercussions on prices of the bread-cereal group. Additionally, tobacco, cotton and milk prices surged in the last quarter by 35.7, 8.8 and 7.4 percent, respectively.

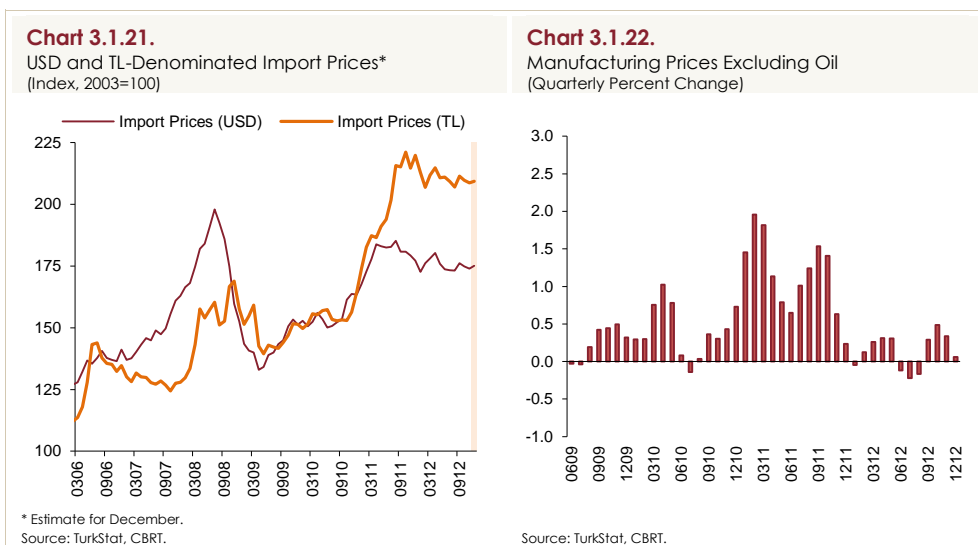
Table 3.1.3.
PPI and Subcategories
(Quarterly and Annual Percent Change)

	2011		2012				
	IV	Annual	I	II	III	IV	Annual
PPI	3.28	13.33	0.65	-0.89	0.97	1.72	2.45
Agriculture	13.09	10.53	1.65	-3.36	0.91	-3.31	-4.17
Crops, Fruits and Vegetables	17.18	9.83	0.76	-3.75	2.82	-4.78	-5.05
Livestock and Animal Products	5.51	6.56	-0.28	-2.44	-0.16	-0.29	-3.15
Industry	1.48	13.92	0.45	-0.37	0.98	2.74	3.83
Mining	2.93	19.76	0.90	2.24	2.13	0.13	5.49
Manufacturing	0.72	14.59	1.06	-0.83	1.22	-0.17	1.27
Manufacturing (excl. oil)	0.70	13.42	0.79	-0.36	0.87	0.18	1.48
Manufacturing (excl. oil and base metals)	1.39	12.38	0.93	-0.09	1.15	0.48	2.50
Electricity, Gas and Water	7.91	6.38	-4.64	2.57	-1.41	28.21	23.64

Source: TurkStat, CBRT.

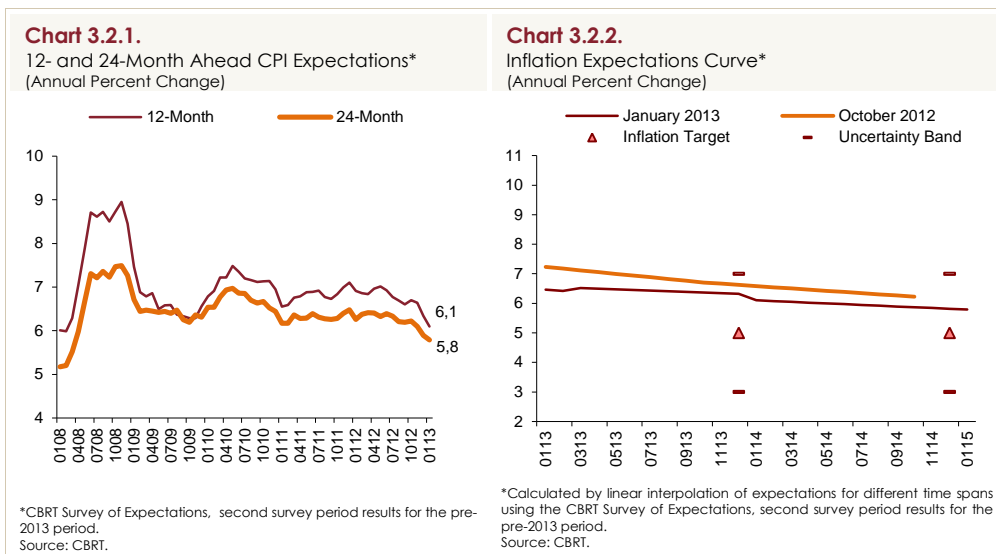


Stable course of the foreign exchange rates coupled with the fall in commodity prices in the last quarter, thereby leading to a slight decline in TL-denominated import prices (Chart 3.1.21). Consequently, manufacturing industry prices fell by 0.17 percent in the last quarter (Table 3.1.3 and Chart 3.1.22). Amid the decline in international oil prices in this period, manufacturing prices of petroleum products went down, while manufacturing prices excluding these products edged up. Across subgroups, manufacturing industry prices decreased due to developments in intermediate goods and durables in the last quarter, which are attributed to the fall in iron-steel and jewelry prices. As a result, annual inflation in the manufacturing industry, which decreased during 2012, closed the year with a historically low level like 1.27 percent.

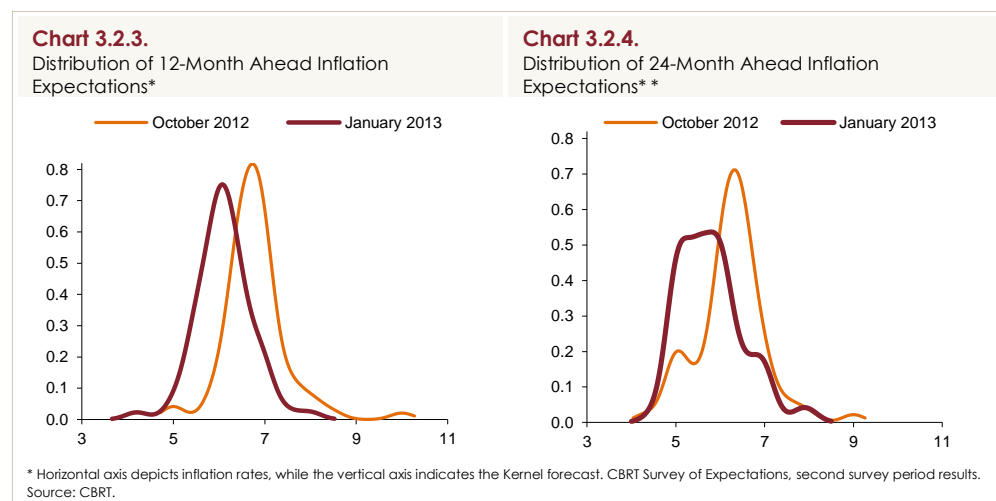


3.2. Expectations

Medium-term inflation expectations, which decreased parallel to the decline in core inflation indicators in the third quarter of 2012, remained on this favorable trend in the last quarter as well (Chart 3.2.1). Analysis by maturities shows that inflation expectations were revised downwards compared to the previous quarter both for the short and medium terms (Chart 3.2.2). The apparent fall in 24-month ahead inflation expectations after a long time is noteworthy. Currently, inflation expectations continue to hover above the inflation target of 5 percent, set for year-ends of 2013 and 2014.



The dispersion of participants' 12-month and 24-month ahead inflation expectations increased in this period compared to the October Inflation Report figures (Charts 3.2.3 and 3.2.4).



Box 3.1 Recent Changes to Taxing of Tobacco Products and the Effects of SCT Rate Hikes on Prices

The calculation methodology for the taxing of tobacco products was changed in 2012. This Box analyzes the effect of the new SCT regulation for tobacco products on prices.

Unlike other products which are subject to SCT regulation, the tax base used in the calculation of SCT on tobacco products is the final retail price for consumers. Because of this methodology, VAT is charged on the calculated SCT amount and SCT is also charged on the VAT amount, which is included in the final consumer price, thus producing a complicated taxing scheme.¹

Prior to the adjustment, SCT amount per packet of tobacco products was measured by the relative SCT amount on the final sales price, provided that this amount was no smaller than the set amount for the minimum lump sum SCT. In addition to the present procedure, the amendment to SCT regulation also enabled the collection of lump sum SCT on tobacco products.²

According to the new methodology for SCT measurement, final sales price is composed of the producer price, dealer-distributor (retail-wholesale) revenue, relative and lump sum SCT and VAT amounts. This relation can be expressed as follows:

Final Sales Price (FSP)=	Y
Producer Price=	X
Dealer-Distributor Revenue =	$Y * p$
Relative SCT Amount=	$Y * sct$
Lump sum SCT Amount per Packet=	M
Total SCT Amount =	$(Y * sct) + M$
VAT Amount=	$[X + (Y * p) + (Y * sct) + M] * vat$
$FSP = \text{Producer Price} + \text{Dealer - Distributor Revenue} + \text{SCT Amount} + \text{VAT Amount}$	
$Y = X + (Y * p) + [(Y * sct) + M] + [X + (Y * p) + (Y * sct) + M] * vat$	

¹ For further details, see Box 3.1 in Inflation Report 2011-IV.

² The SCT Law was amended by as per the Law No. 6322 Amending the Procedure Law on the Collection of Public Claims and Some Other Laws passed on 05.31.2012. Paragraph 5 of the Article 11 of the SCT Law was amended as "besides the lump sum tax to be applied on the goods listed in the section ...(B) (Tobacco products), relative tax shall apply, no less than the tax amount to be estimated according to the minimum lump sum tax amount".

According to the above identity, final sales price (Y) can be expressed in terms of the producer price (X), relative SCT rate (sct), lump sum SCT amount (M), the VAT rate (vat) and the distributor share (p):³

$$FSP = Y = \frac{(1 + vat) * (X + M)}{1 - (1 + vat) * sct - (1 + vat) * p}$$

As can be seen from the above equation, final sales price (Y) is positively related to VAT rate (vat), relative SCT rate (sct), producer price (X), dealer-distributor share (p) and the lump sum SCT (M). Given the functional form, final sales price is linearly related to producer price and the lump sum SCT. A ceteris paribus 1-unit change in these parameters causes a constant rate of change in the prices of tobacco products. However, final sales price is non-linearly related to VAT rate, SCT rate and the distributor share. Hence, the increase in the final sales price brought about by an increase in these parameters depends on the current value of the parameters. Accordingly, the effect of a unit-change in these parameters on final sales price gets larger as the current value of the parameters increase.⁴

Effects of the Recent SCT Adjustments on Prices

According to the first adjustment following the amendment to SCT regulation which was effective by the Council of Ministers' decision published in the Official Gazette dated 1 January 2013, the relative SCT rate was raised from 65 percent to 65.25 percent, while per packet minimum lump sum SCT was increased to 3.15 TL and per packet lump sum SCT amount was set as 0.09 TL. According to the above equation and assuming a constant VAT rate, producer price and distributor share, the amendment will cause the average price of cigarettes to increase by 13.7 percent. In fact, data releases in January indicate that prices of cigarettes increased by around 15 percent. As the final sales price is determined according to the pricing preferences of the producer firms, the estimated increase in prices may differ marginally from the actual increase.

In sum, a tax adjustment in relative SCT rates may cause substantial price increases given the high level of relative SCT rates for tobacco products and the determination of distributor share as a proportion of the final consumer price. Given its implications for prices, the new lump sum SCT regulation provides a more comprehensible, predictable and flexible framework for the taxing system.

³ In addition to the analysis presented in the Inflation Report 2011-IV, Box 3.1, the newly-added lump sum amount into the SCT calculation and the dealer-distributor revenue calculated as a certain percentage of the final sales price upon the information collected from the authorities in the sector was also included in the pricing structure. The share of dealer-distributor was assumed to be 7 percent in the said calculations.

⁴ For further details, see Atuk, Çebi and Özmen (2011).

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Atuk, O., C. Çebi, M.U. Özmen, 2011, Tütün Ürünlerinde Özel Tüketim Vergisi Uygulaması (in Turkish), CBRT Economic Notes No. 11/16.