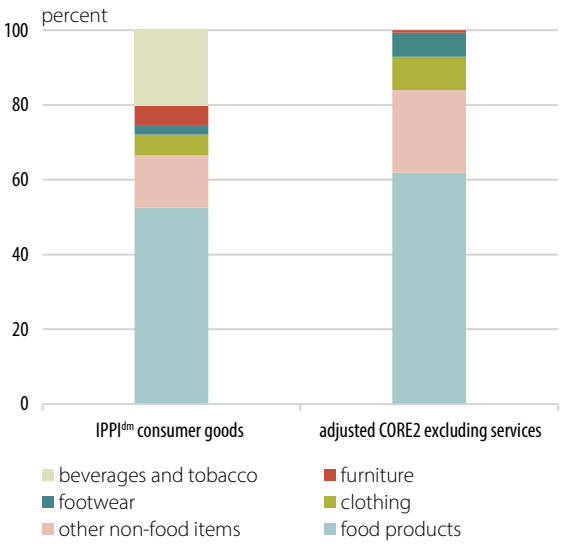
Box 1. The pass-through of industrial producer prices on the domestic market to consumer prices

Ensuring and maintaining price stability is the National Bank of Romania's primary objective, hence, the way final consumer prices are set and changed is of particular importance for the research and analysis of the monetary policy transmission mechanism. Looking at the consumer price structure, the most significant component is the purchase price of goods, with an estimated share of 70-80 percent. At an aggregate level, domestic producers remain the main providers of consumer goods, although, over the last years, their market share came down from about 60 percent in 2013 to almost 50 percent at present, affected by the competition from imports; consequently, the build-up of cost-related inflationary pressures becomes increasingly relevant at the current juncture, with the external environment playing a less offsetting part, once the disinflationary influences via this channel have faded. Thus, this box aims at assessing to what extent changes in the industrial producer prices on the domestic market (IPPI^{dm}) feed through into consumer price changes.

Ex ante, the pass-through is anticipated to be less than one, as the purchase price is only a component of the final price. Besides, prices are changed with a certain frequency, with the pricing policy being set at the company level, and therefore the transmission is also expected to occur with a certain time lag[1].

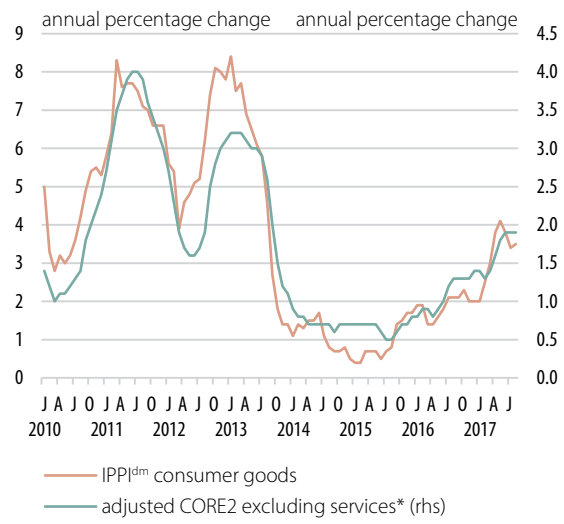
In assessing the pass-through of industrial producer prices to consumer prices, heed should be taken of the differences between the structures of the two price indices (the consumer price index – CPI and the industrial producer price index on the domestic market – IPPI^{dm}). Thus, there are goods the prices of which are included in the calculation of the CPI, but not in that of the IPPI^{dm} – for instance, unprocessed food (vegetables, fruits) or services. At the same time, the IPPI^{dm} shows the developments in all the categories of industrial goods, whereas relevant to the transmission under review are the producer

Chart A. Price index structure



Source: NIS, Eurostat, NBR calculations and estimates

Chart B. Developments in consumer goods prices



*) net of the direct effects of VAT rate changes

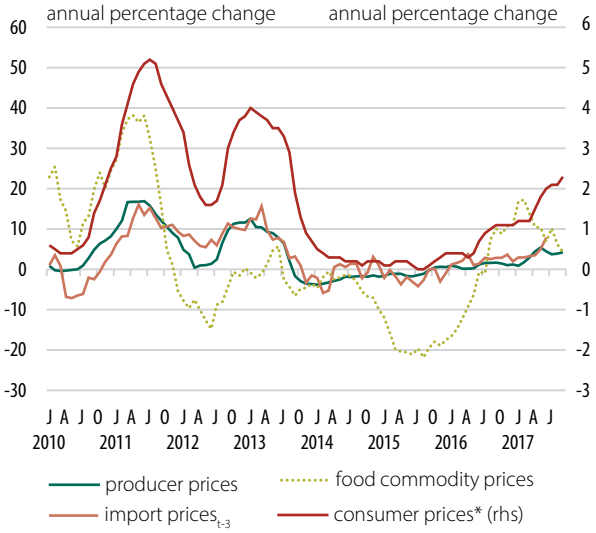
Source: NIS, Eurostat, NBR calculations and estimates

[1] According to a survey on the price-setting mechanism, conducted by the NBR in 2014, over 50 percent of companies regularly reassess prices (time-dependent policy), but prices are actually changed only when new information emerges concerning the economic environment (details in *Occasional Papers* No. 10/2015).

prices of consumer goods, that already incorporate the evolution of the costs entailed by other components (intermediate goods, capital goods, energy). Furthermore, the CPI uses an annually updated weighting scheme, based on the structure of households' purchases of consumer goods and services two years before, while for the industrial producer price index weights are much less frequently updated (those currently used reflect the structure of production back in 2010). In addition, the changes in indirect taxes and in distribution costs affect consumer prices only, without influencing producer prices.

Considering the differences in methodology and coverage, the quantitative analysis focused on those sub-indices that ensure the best possible matching between the structure of industrial sub-sectors and that of the consumer basket: $IPPI^{dm}$ for consumer goods and adjusted CORE2 (net of services and first-round effects of VAT rate changes), as their evolution over time is visibly correlated (Charts A and B). Moreover, given the different characteristics of the two market segments – food and non-food –, the pass-through was analysed also separately for these two categories of goods; the energy segment was not covered, as the transmission of crude oil prices was assessed in a dedicated box in the February 2015 *Inflation Report*, while such an approach is not feasible for electricity and natural gas prices owing to their regulated nature.

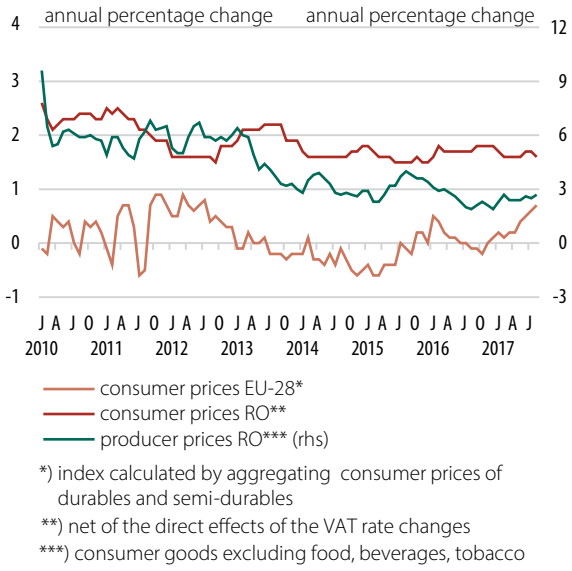
Chart C. Developments in food prices



*) net of the direct effects of the VAT rate changes

Source: NIS, Eurostat, FAO, NBR calculations and estimates

Chart D. Developments in non-food prices



*) index calculated by aggregating consumer prices of durables and semi-durables

**) net of the direct effects of the VAT rate changes

***) consumer goods excluding food, beverages, tobacco

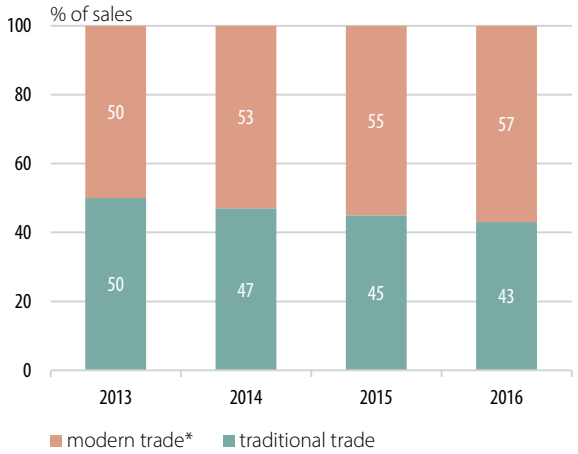
Source: NIS, Eurostat, NBR calculations and estimates

The results of the VECM-based assessments (VECM – vector error correction models) indicate a strong and relatively stable transmission over time of changes in the $IPPI^{dm}$ for consumer goods to the adjusted CORE2 dynamics (net of services and the direct effects of VAT rate changes), estimations showing a 70 percent pass-through in one year's time. The strong transmission owes essentially to the food component, with an estimated coefficient of over 80 percent. The main explanation lies with the accommodation of food consumption primarily by

domestic supply (approximately 70 percent). However, even if the direct influence of the external environment (via imports of such final goods) is lower in this case, it remains relevant to developments in raw material costs of local producers, which inherently reflect external trends, given the openness of the economy (Chart C).

By comparison, the transmission coefficient is significantly lower for non-food items – approximately 10 percent[2]. The weaker correlation of the two indices in this case (Chart D) owes mainly to the inverted ratio of forces between local production and imports on this market segment (roughly 80 percent of consumption is covered from imports). Besides, consumer prices of non-food items may show higher rigidity than those of food items[3].

Chart E. Modern trade versus traditional trade on the fast moving consumer goods



*) hypermarket, supermarket, discounter, cash & carry, proximity stores

Source: GfK – Fast Moving Consumer Trends, 2017

The increase in the relevance of the global context for explaining the dynamics of domestic prices was probably spurred by the aggressive expansion of large retailers, integrated with global distribution networks, modern trade gaining a dominant position in 2016, with a market share of approximately 57 percent of the value of sales (Chart E). Furthermore, their bargaining power relative to domestic producers and the rising competition from imports favour a more moderate upward path of producer prices on the domestic market relative to the current demand conditions. Over the last quarters, evidence was gathered in connection with the increasing relative importance of external factors in explaining the domestic consumer price dynamics. Such evidence was looked at in Box 2 in the May 2017 *Inflation Report*.

To sum up, in the period ahead, consumer prices are expected to further follow an upward path, in line with the trend seen for producer prices, reflecting, on the one hand, the build-up of domestic pressures, associated with the change in the cyclical position of the economy, and, on the other hand, with the fading out of disinflationary influences stemming from the external environment.

References

Dhyne, E., Konieczny, J., Rumler, F. and Sevestre P. – "Price Rigidity in the Euro Area – An Assessment", European Commission, *Economic Papers,* No. 380, 2009

Iordache, S. and Pandioniu, L. – "The Price-setting Behaviour of Romanian Firms", National Bank of Romania, *Occasional Papers* No. 10, 2015

2 Estimations indicate an approximately 10 percent pass-through coefficient at present, slightly lower than in 2014 (14 percent). The outcomes must be, however, cautiously construed, as they are sensitive to changes in the assessment environment. By contrast, estimations for the whole group of consumer goods and those for the food segment are robust, regardless of the chosen specification.

3 Dhyne *et al.* (2009) identify such a phenomenon across the euro area, the outcomes of the surveys conducted among companies in the Member States showing a significantly higher frequency of price changes for food items than for non-food items.