Box

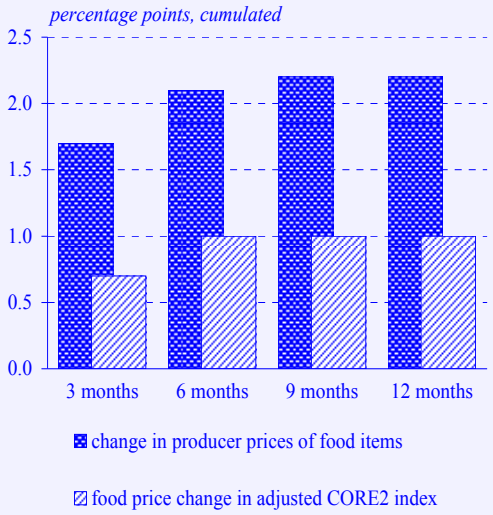
The assessment of the impact of a shock in global food prices on domestic macroeconomic variables

This box describes the results of a quantitative analysis focusing on the assessment of the impact of higher global food prices[53] on domestic macroeconomic indicators. The analysis includes both econometric estimations and simulations conducted using the macroeconomic model used by the NBR.

First, the pass-through of global food price dynamics to the domestic inflation rate was assessed on the basis of econometric models that take into account the supply chain approach: two separate equations were estimated, linking the dynamics of international food prices and those of the domestic producer prices, on the one hand, and the dynamics of producer prices and those of domestic prices of food items included in the adjusted CORE2 index, on the other hand (the methodology is similar to that employed by Bukeviciute et al., 2009[54]).

According to the results, about 10 percent of a shock in international food commodity prices feed through to the core inflation of domestic food prices in the course of one year, with the strongest impact occurring in the first quarter (see the adjoining chart). Given the share in the CPI basket of the food items included in the adjusted CORE2 index (nearly 30 percent), a shock of the aforementioned magnitude would add at least 0.3 percentage points to headline inflation should potential second-round effects be left out of account. Moreover, the analysis highlighted an asymmetry in the transmission of international prices to domestic food prices in that only price increases (unlike price decreases) have a statistically significant impact on domestic producer and consumer prices.

Pass-through of a 10 percent increase in global food prices



Source: NBR estimates

Impact of higher external prices is stronger on producer prices than on consumer prices. The explanation may lie with the producers' changes to the production cost structure or with the competition in the retail trade sector, which puts downward pressure on profit margins.

The methodology described above has also been applied to the sub-components of the CORE2 index for food prices. The results show that the pass-through of the external price movements to domestic prices varies considerably across food item groups. Thus, prices of bakery and milling products, edible oils and fats, and sugar and confectionery prove sensitive to the change in international commodity prices, while the prices of other food items such as meat and dairy products react more strongly to the fluctuations in local agricultural commodity prices.

[53] The assessment is based on the international food price indices computed by the ECB and the IMF respectively.

[54] See Bukeviciute L., Dierx A. and Ilzkovitz F. (2009), "The functioning of the food supply chain and its effect on food prices in the EU", *European Commission*, *Occasional Paper* No. 47.

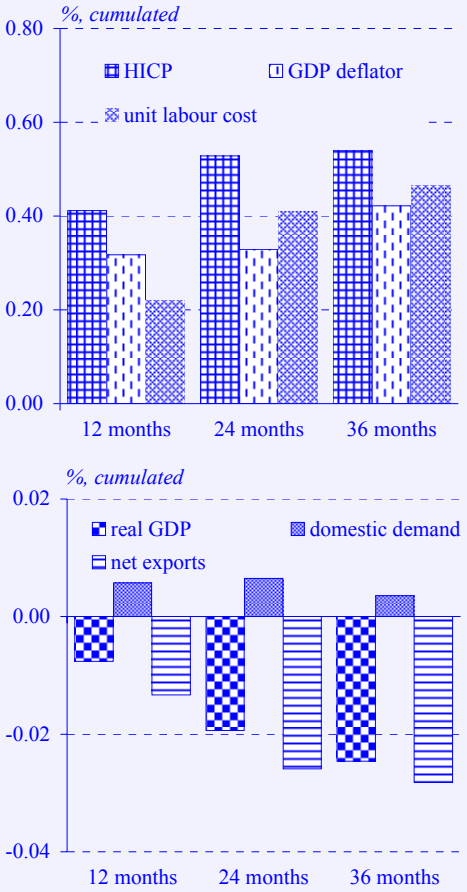
These preliminary econometric estimates have been incorporated in the NBR's macroeconomic model used for analysis and forecasting, which allows for quantifying the impact of a shock in global food prices on a larger range of indicators. The simulations were conducted under the following constraints: (i) an unchanged path of the monetary policy rate, (ii) an unchanged path of the nominal effective exchange rate (weighted basket made up of the euro and the US dollar), and (iii) no discretionary reaction[55] from fiscal policy. It should be stressed that the assumptions have a technical nature, aiming not to distort the size of the inflationary impact induced by the considered shock, by having the macroeconomic policies counteract the impact of the shocks. Hence, they should not be interpreted as expectations of fiscal and monetary policy stances.

The adjoining charts set out the responses of other relevant macroeconomic indicators following an adverse shock equivalent to a 10 percent increase in global food commodity prices. The figures are deviations from the initial equilibrium after 12 months, 24 months and 36 months respectively.

A 10 percent increase in global food commodity prices feeds swiftly through to import prices[56], entailing an almost 0.4 percent rise in consumer prices after 12 months. The hike in the general price level brings about, especially during periods of labour productivity increases, higher wage claims that push up wage costs, thereby depressing external competitiveness and, ultimately, the net exports. Private consumption does not undergo significant adjustments[57], but investment picks up under the impact of real monetary conditions turning slightly stimulative if no offsetting reaction from monetary policy (which is one of the assumptions the analysis hinges upon) occurs. Thus, real GDP growth slows down due primarily to net exports, contracting by a cumulated 0.02 percent after three years.

Note: It should be pointed out that the considered shock is a global one and the levels given herein exclude the impact that the higher food prices could have on Romania's trade partners, effects which could enhance the initial shock on domestic macroeconomic variables (net exports, real GDP, CPI inflation, etc.).

Effects of a 10 percent increase in global food prices



Source: NBR estimates

[55] Some changes will definitely affect the consolidated general government budget, following the action of automatic stabilisers.

[56] Food items account for 6 percent of total imports.

[57] A main feature of food items is price inelasticity, i.e. a given change in prices translates into a smaller change in consumption.