The effect of import prices on inflation in Spain

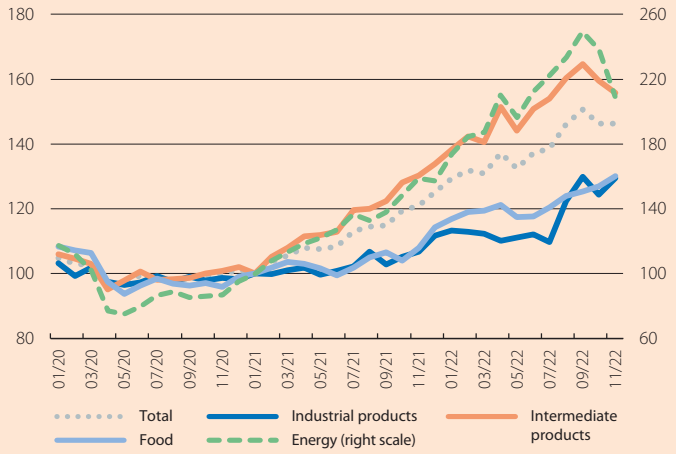
The import prices have consequences for the consumer price index: they can be transmitted relatively directly, as is the case with imported energy, or indirectly, through an increase in the costs of intermediate goods used in the domestic production of consumer goods or services. In this article, we seek to identify the degree to which import prices are transmitted to the CPI, how much is due to energy and with what lag period this transmission is observed.

The evolution of import prices

The prices of imported goods have increased dramatically in the last two years. According to data from the Ministry of Economy on import unit value indices, import prices rose by an average of 26% last year (based on the data available up to November) and amassed a cumulative growth of 68% between January 2021 and November 2022. By component, in 2022 as a whole the increases were concentrated in the prices of energy products, which grew by 66%, although the rest of the categories also saw significant price increases: industrial goods, 14%; intermediate goods, 31%; and food, 18%. As shown in the first chart, although the latest data show modest signs of moderation in the prices of energy and intermediate goods, import prices remain very high.

Import prices by product type

Index (100 = January 2021) *Energy index (100 = January 2021)*



Source: *CaixaBank Research, based on data from MINETAD.*

How are import prices transmitted to domestic inflation?

To analyse the impact of the rise in import prices on inflation in Spain, we must take into account the two main channels through which this rise is transmitted. On the one hand is the direct impact of energy prices on the energy component of the CPI which, in light of the latest data, is contributing to the moderation in headline inflation. On the other hand, there is a more indirect impact through the increase in intermediate costs used in the domestic production of consumer goods and services. For 2023, this second channel will likely be the most relevant. To try to estimate its importance, we used advanced statistical techniques that allow us to quantify the impact which shocks in the import prices of both energy and non-energy goods have on the core CPI over time.[1]

The results indicate that the transmission of shocks in the import prices of non-energy goods to the core CPI is significant, direct – a large and persistent impact is observed in the beginning of the first quarter after the shock. According to our estimates, in the event of a 5-pp shock in the quarter-on-quarter growth of non-energy import prices (similar to that observed in Q2 2022), the rate of change in the core CPI would go up during the first four quarters following the shock, accumulating an increase of 1.7 pps.[2]

On the energy price side, the transmission of the shocks we observe is somewhat less intense than in the previous case. In addition, the impact occurs with a longer delay, although it does show signs of significant persistence. For instance, according to our estimates, a 20-pp increase in the quarter-on-quarter growth rate of energy import prices (similar to that observed in Q2 2022) would affect the rate of change of the core CPI two quarters later, although its effect would persist for up to five quarters after the shock, generating a cumulative increase in the core CPI in that period of 0.6 pps greater.

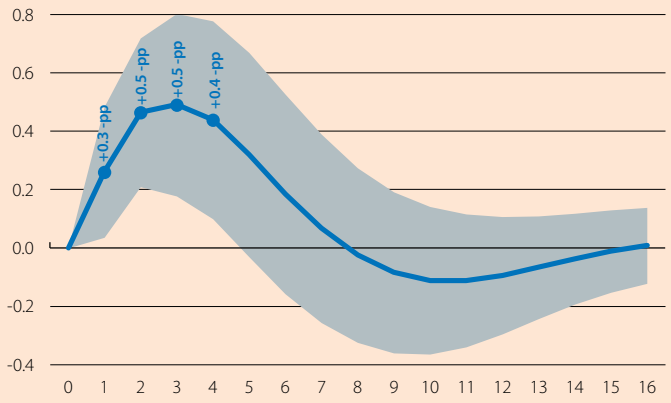
Inflation imported in 2022 and what awaits us in 2023

Thanks to these estimated sensitivities, we can calculate which factors explain the trend observed in core inflation, distinguishing between the contribution of shocks in domestic prices and in import prices.[3] This breakdown reveals that, in 2022, 55% of the

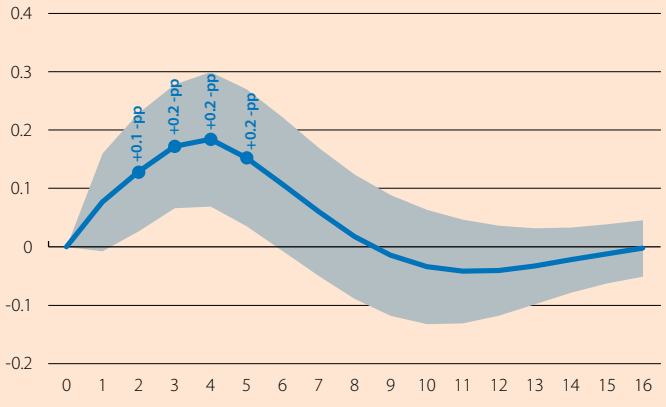
1. Specifically, we used a vector autoregression (VAR) model, with data from the core CPI, which excludes energy and fresh food, the GDP deflator as an approximation of domestic inflation pressures, and two indicators of import prices: non-energy goods (non-energy IPRIM index) and energy (energy IPRIM index).
2. This implies that a quarter-on-quarter increase in non-energy import prices that is 5 pps greater than expected (e.g. growing by 6% instead of an expected rate of 1%) would cause the core CPI to grow over the next four quarters by 1.7 pps more than it would have done in the absence of the shock (e.g. it would grow by 3.7% instead of 2%).
3. The historical breakdown of the VAR measures the contributions of the idiosyncratic shocks in the model's variables (core CPI, GDP deflator, non-energy IPRIM index, and energy IPRIM index) to the variability of CPI. In the absence of shocks, the model estimates that core CPI grows by 0.4% quarter-on-quarter (1.6% in annualised terms).

*Response of the core CPI to a 5-pp shock in the quarter-on-quarter change of the non-energy IPRIM index (left) and a 20-pp shock in the energy IPRIM index (right) **

Impact on the quarter-on-quarter rate of change (pps)



Impact on the quarter-on-quarter rate of change (pps)



Notes: ** The charts show the response over time of the impact on the quarter-on-quarter rate of change of the core CPI to a 5-pp increase in the rate of change of non-energy import prices (left) and to a 20-pp increase in energy import prices (right). Both are similar to the shocks observed in Q2 2022, such that the exercise is illustrative of what has happened in the last year. The shaded area denotes a 95% confidence interval and the labels show the magnitude of the statistically significant impacts under that confidence level.*
Source: *CaixaBank Research, based on data from Eurostat.*

change in the core CPI was due to shocks in import prices; 30% was due to the impact of non-energy import prices; and 25%, due to energy import prices. This demonstrates the key role that the increase in import prices is playing in the inflationary episode we are currently experiencing.

Thus, we can expect that the indirect effects generated by rising import prices will continue to push inflation upwards this year. As a benchmark, if import prices were to remain stable throughout the year, then the core CPI would grow by just over 5% in 2023 – still a high figure and similar to the 5.2% observed in 2022.[4]

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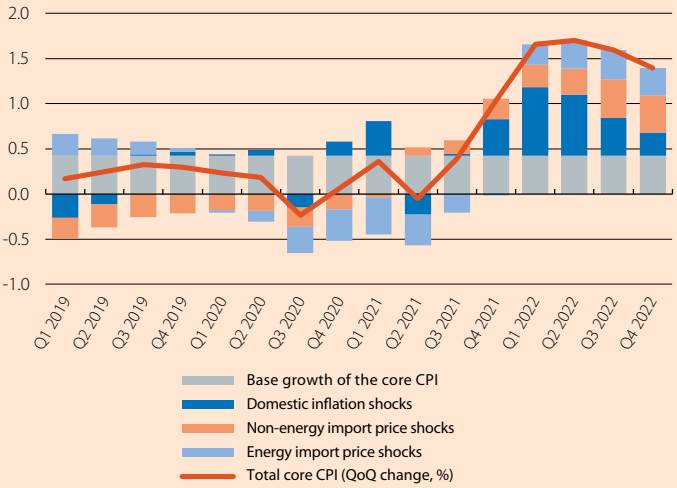
Historical breakdown of the quarter-on-quarter change in the core CPI

(pps)



Note: *The chart shows the contribution to the quarter-on-quarter change in the core CPI of domestic inflation shocks (in the core CPI and in the GDP deflator) and shocks in non-energy and energy import prices (in the non-energy and energy IPRIM indices).*
Source: *CaixaBank Research, based on data from the National Statistics Institute.*

4. Our forecast for core inflation, taking into account other factors affecting prices, is 5.8%.