

the demand for cargo capacity and for energy was adversely affected due to the negative outlook of the global economy.

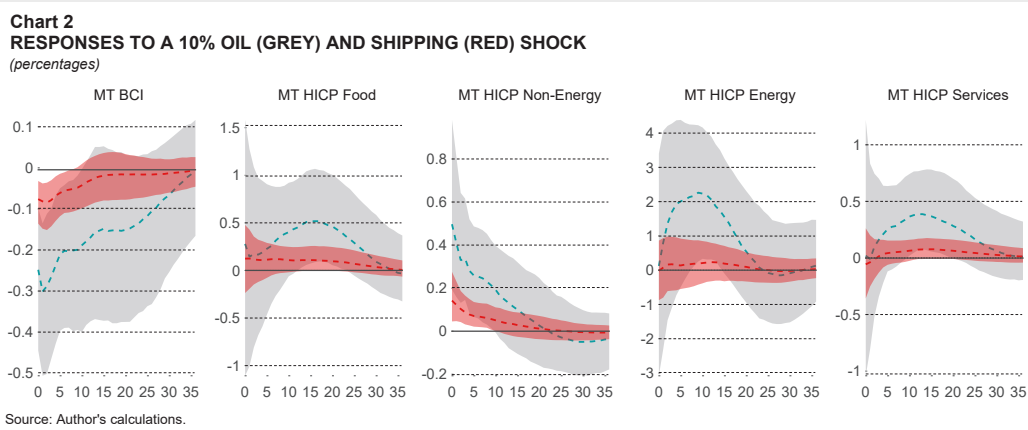
The effect of oil and shipping disruption shocks on the Maltese economy

The insularity of the Maltese economy, together with its high degree of openness and heavy reliance on shipping services and on petroleum products, raises the need to quantify the macroeconomic effect of changes in oil prices, and disruptions in the shipping industry.

The empirical analysis is based on a structural vector autoregressive model featuring two blocks: a Maltese block and a world block representing the dynamics taking place at the global level. The world block includes the growth rates of industrial production and consumer price inflation of the 38 OECD countries that serves as a proxy to global economic activity and prices, respectively. It also features the growth rates of the real price of Brent oil and the BDI, as well as the ratio between these two indicators, to help in the identification strategy aiming at separating the two disturbances. The Maltese block is highly stylised and contains the BCI developed in Ellul (2016) as a measure of economic activity, and the four main HICP components – food, NEIG, energy, and services.³ The data are collected at monthly frequency and cover the period between January 2000 and March 2022. The identification strategy, which helps disentangling the two shocks, is based on sign restrictions.⁴

The responses to the two identified disturbances are shown in Chart 2. The grey and the red shaded areas, represent the dynamic responses to an oil and to a shipping disruption shock, respectively. The responses are normalised to increase oil or BDI by 10%, in order to better link them with the effect that the recent swings on the global market are bringing about. The model captures the median responses over the entire sample, which runs from 2000 until March 2022, and not just that relating to a specific point in time.

Following an oil disturbance, the full effect on Maltese energy prices is experienced after about ten months, with a peak response of slightly more than 2%. This refers to the case



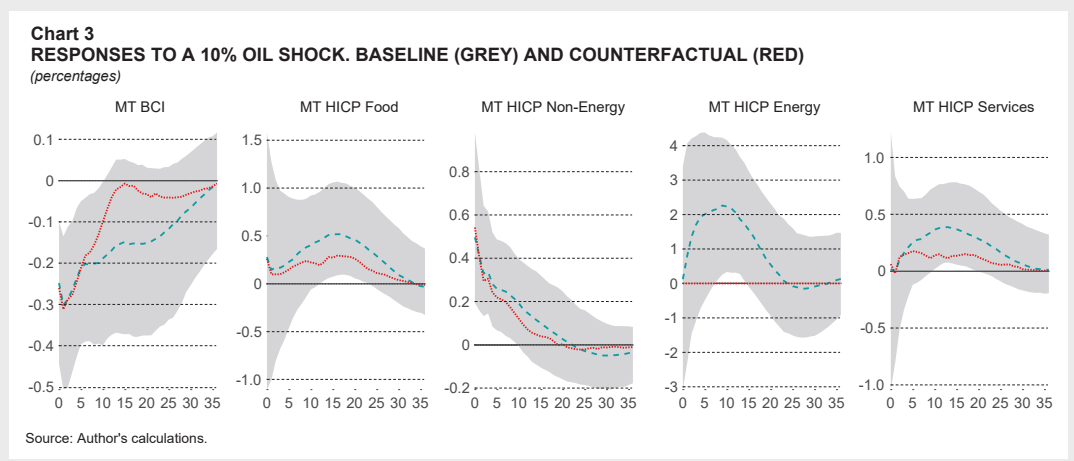
³ For more details on the BCI please refer to Ellul, R. (2016) "[A real-time measure of business conditions in Malta](#)", Central Bank of Malta Working Paper WP/04/2016.

⁴ More details on the identification strategy are presented in the [Policy Note](#).

when energy prices in Malta are allowed to fluctuate due to market forces. Interestingly, in the case of disruptions in the shipping industry, energy prices do not significantly respond at any horizon.

In the case of the oil shock, the median response for all the other price series appears to be positively affected. Food and services sub-indices gradually increase and reach peak responses of 0.5% and 0.45% after about 12 to 16 months, respectively. The increase in prices experienced by NEIG is more abrupt and is felt on impact. The different responsiveness of the sub-indices, with the NEIG on the one hand, and food and services on the other, might be explained by the observation that a non-negligible portion of food items and services that are locally produced requires the utilisation of energy provided domestically. As such, the slower increase in food and services inflation might be due to the time necessary for the transmission of shocks in the global energy markets to domestic energy prices. NEIG are mostly imported and, therefore, tend to be more responsive to developments in the world economy. Finally, the responses of food, NEIG and services for a shipping disruption shock are qualitatively similar to the oil price shock although, quantitatively, the magnitude is remarkably smaller. This highlights the higher responsiveness of the Maltese economy to developments on the global energy markets than those in the shipping industry.

Chart 3 illustrates a scenario that helps to identify the effect of the energy subsidies by the Maltese government. The scenario focuses on what would happen if energy prices were kept unchanged in response to a global oil shock. By doing so, this simulation proxies the fact that energy prices in Malta are fully administered and, as such, the HICP energy sub-index did not respond to the oil shock. This scenario is investigated by imposing that the HICP energy response is bound to be equal to zero throughout the whole response horizon, despite the disturbance to global oil prices.⁵ Chart 3 compares the baseline responses (grey shaded areas) with the counterfactual ones (red dotted lines).



⁵ The counterfactual responses are computed by means of the technique outlined in Kilian and Lewis (2011) "Does the Fed respond to oil price shocks?" *The Economic Journal*, 121(555), pp. 1047–1072. The credible bands are not reported due to their erratic behaviour. Therefore, the economic intuition is drawn only from the median responses.

The figure clarifies how sheltering the Maltese energy prices from price fluctuations on the global oil market has beneficial effects on both domestic economic activity and prices. The BCI experiences a much less persistent negative effect. Turning to the inflation sub-indices, the responses of the food and services HICPs are at least halved compared to the baseline case. More precisely, food and services would respectively rise by 0.25% and 0.2% after, respectively, 18 and 12 months, as opposed to 0.5% and 0.45% in the case of no government intervention. No remarkable difference is found in relation to NEIG prices. A possible explanation could be related to the fact that, as already mentioned, most of the NEIG are imported, so domestic energy prices would not play any role, at least, upon impact.

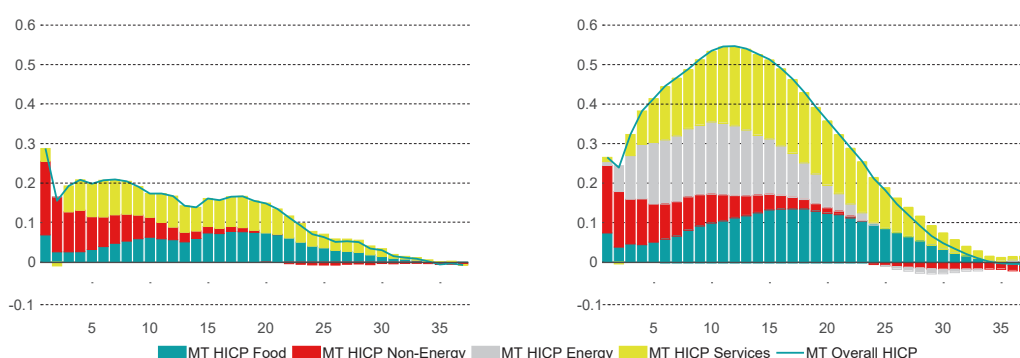
Effects on headline inflation

Chart 4 shows the response of headline inflation following an oil shock that raises oil prices by 12.16% in the scenario of government intervention to shelter the Maltese economy from increases in energy prices (left), and in the baseline case (right). The choice of this normalisation is based on the observation that 12.16% is the average monthly oil price increase during the last three months available in the sample, i.e., January to March 2022. By doing so, it is easier to compare the estimated responses with the experience obtained during the very recent past.

Chart 4 illustrates how sheltering energy prices from the fluctuations in the global oil market helped to lower the upward pressure on HICP inflation. More precisely, the peak response reaches about 0.2%, instead of more than 0.5%. In addition, by looking at the various components, this lower pressure is not only driven by the absence of energy price increases but also by lower growth in the other inflation sub-indices. This is especially evident for food and services.

Chart 5 depicts the effect of a shock in the shipping industry normalised to raise the BDI by 27.44%.⁶ The full effect is reached after roughly 12 to 16 months. Initially, the impact

Chart 4
RESPONSE OF HEADLINE HICP AND ITS SUB-INDICES TO AN OIL SHOCK UNDER THE ASSUMPTION OF UNCHANGED ENERGY PRICES (LEFT) AND UNDER THE BASELINE SCENARIO (RIGHT)
(percentages)



Source: Author's calculations.
Note: The shock is normalised to increase the real oil price by 12.16%.

⁶ In a similar way to the case of oil, the chosen percentage increase reflects the average monthly growth rate experienced by the BDI over the last three months of available observations.

is due to a prompt reaction of NEIG and food prices, while the impact on services is felt with a lag.

Conclusions

This study finds that both global oil price swings and disruptions in the shipping industry appear to exert recessionary effects on the Maltese economy, while putting upward pressure on headline inflation and its sub-indices. That said,

the study demonstrates that the responsiveness of the Maltese economy to developments on the global energy markets is relatively much stronger than to developments in the shipping industry. The evidence provided in this study also shows that the energy subsidies provided by the Maltese government helped to reduce the negative consequences on economic activity, and to dampen the inflationary pressures, both directly via the energy sub-component and, indirectly, due to the absence of spillover effects from domestic energy prices onto other categories of the consumption basket, especially food and services.

