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Box E:

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Risks to Irish Inflation from elevated global oil supply uncertainty

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On the range of upward risks to present inflation, energy prices – and particularly oil prices – stand out among the most significant threats to the current path of inflation back to target. This is due to its direct and indirect effects on goods and services consumed by households, as illustrated by the recent surge in inflation, triggered by rising energy prices. Considering the link between oil prices and inflation, as revealed by recent events, a large volume of research has focused on the effects of an unexpected shortfall in global oil supply on energy prices and inflation. Recent research shows that periods of heightened Global Oil Supply Uncertainty (OSU) are linked to geopolitical developments and changes in the trajectory of global oil supply, with quantifiable effects on real oil prices arising and an important response of global oil inventories.¹ Using this estimated measure for Global Oil Supply Uncertainty, we estimate the effects of periods of increased OSU on the Irish economy. This Box summarises the findings of this recent research and outlines the potential implications for the inflation forecasts in this *Bulletin*.

¹ Arce Alfaro, Gabriel, 2024. “Oil Supply Uncertainty in the Global Oil Market”. *Manuscript*.

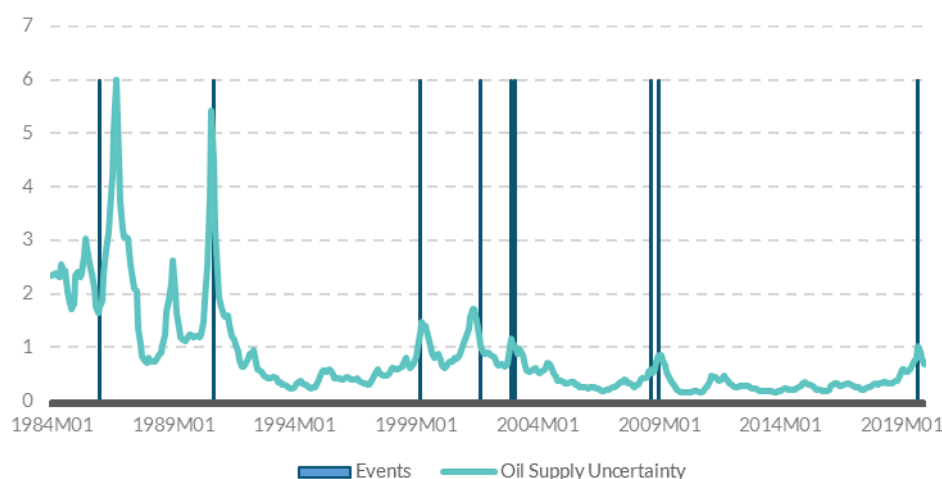


Methodology

Global oil supply uncertainty is measured as the volatility in that part of global oil production that is not explained by a standard model of the global oil market. Implicitly, this suggests that oil supply uncertainty peaks during periods where the determinants of oil production – namely, a change in aggregate demand, inventories or global oil prices – are insufficient to explain changes in the current level production (Figure 1). We proceed to use this measure of oil supply uncertainty in a Structural Vector Autoregressive (SVAR) model of the Irish economy. Using monthly data consider the Business Cycle Indicator (BCI)² as a monthly measure of economic activity, HICP index, Irish energy prices and the oil supply uncertainty from (Arce Alfaro, 2024) in the model. To interpret the effects as percentage changes, HICP and Irish energy prices are included in log-levels. We identified the shocks using sign restrictions and employ Bayesian methods to estimate the model.

Global oil supply uncertainty

Figure 1: Estimated oil supply uncertainty measure and global oil market events



Source: Arce Alfaro, 2024.

Note: Events are taken from the U.S. Energy Information Administration.

²Conefrey, Thomas & Walsh, Graeme, 2018. "[A Monthly Indicator of Economic Activity for Ireland](#)". *Economic Letters* 14/EL/18, Central Bank of Ireland.



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What are the effects of elevated oil supply uncertainty on the Irish economy?

Figure 2 illustrates the responses of the variables to an unexpected increase in OSU. An increase in OSU, measured as a one standard deviation shock comparable to the increase observed during the Global Financial Crisis (2008 – 2010), raises Irish energy prices by 1 per cent. This effect peaks within 3 months and persists for half a year after the shock. Heightened OSU also leads to higher Irish inflation, increasing it by 0.2 per cent, with a peak effect after 3 months and a persistent response lasting 8 months.

Additionally, Irish economic activity is negatively affected by this shock, as indicated by a 0.2 p.p. decrease in the Business Cycle Indicator. This decline lasts for 22 months, with the strongest response observed after 12 months.

In accordance with the literature on the effects of uncertainty shocks³, these lower economic activity by suppressing current consumption. However, in contrast with aggregate uncertainty shocks, oil supply uncertainty has an opposite effect on prices, leading to an increase in energy and headline inflation.

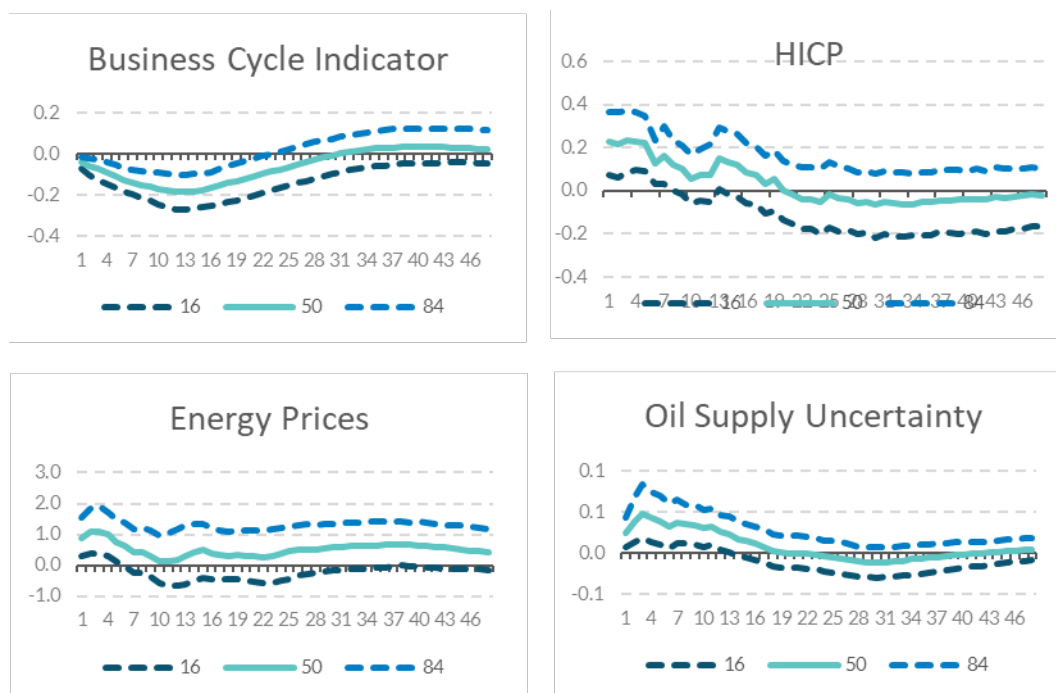
³ See for example ([Leduc, Sylvain and Zheng, Liu, 2016](#))



Effects of a global oil supply uncertainty shock in the Irish economy

Figure 2: Impulse responses to a one S.D. shock to global oil supply uncertainty

Median responses are plotted jointly with the 68% error bands



Source: Arce Alfaro, 2024.

Summary

It is well established in the economic literature that an unexpected shortfall in oil supply has marked effects on real oil prices and economic activity. However, less evidence has been presented on the effects of periods of high uncertainty in the global oil market. Building on results from (Arce Alfaro, 2024), we quantify the effects of unforeseen increases oil supply uncertainty for the Irish economy, departing from the standard analysis of level effects of a cut in oil supply.

Various factors contribute to increases in OSU, from unexpected changes in global oil production targets to geopolitical developments. We observe that these surges in OSU have notable implications for the Irish economy, reflected in an increase in energy prices and inflation, and a decrease in economic activity. While forecasts in this Bulletin foresee a fall in Irish energy prices in 2024, with a moderate rise in 2025 and 2026, it is clear that geopolitical



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and supply chain risks still exist with respect to oil supply. Should these risks materialise, based on the analysis in this Box, the outturn for inflation and economic activity in Ireland could be materially different.