

**POSSIBLE CHANNELS THROUGH WHICH THE WAR IN UKRAINE MAY IMPACT THE EURO AREA ECONOMY**

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Apart from unleashing a severe humanitarian crisis, the Russian invasion of Ukraine in late February has severely disrupted the economic recovery path in Europe. In particular, in the coming quarters the conflict may affect the future of the euro area economy through three main channels: the (energy and non-energy) commodities channel, the trade channel, and the confidence channel, associated with the heightened economic uncertainty that generally accompanies geopolitical instability.<sup>1</sup>

The commodities markets have borne the most immediate economic impact of the war, as both Russia and Ukraine (albeit to a lesser extent) are among the world's main producers and exporters of several of these inputs, some of which are essential for global supply chains. Specifically, the Russian extractive (natural gas and oil), refined oil products and basic metals industries are among the ten most systemic sectors worldwide (see Chart 1). Moreover, Russia is the euro area's main supplier of natural gas and oil: in 2019, 36% of all the natural gas consumed in the euro area came from Russia, and 22% of all the oil consumed (see Chart 2).

The Russian invasion of Ukraine has triggered sharp surges in prices and volatility on these commodities markets. Specifically between 23 February (the day before the start of the conflict) and 31 March (the cut-off date for this report), oil and natural gas prices on the European market rose by 11% and 42%, respectively (see Chart 3).<sup>2</sup> This has sharply reduced the international purchasing power of the euro area economies and could have a highly adverse impact on their economic momentum. Specifically, simulations made using the NiGEM<sup>3</sup> model

show that a 10% increase in oil prices over one year would reduce euro area GDP by approximately 0.06% in the year in which the shock occurs. The impact on economic activity would still be considerable 12 months later, when euro area GDP would still be 0.04% below the level it would have reached had the shock not occurred (see Chart 4).<sup>4</sup> A shock of the same scale to gas prices would also affect euro area GDP, albeit to a lesser extent because oil accounts for a larger share of the euro area's energy mix than gas does. Economic activity in the euro area would also be significantly impacted if, in addition to these price effects, there were to be cuts in commodity supplies from Russia, i.e. not only price but also quantity effects.<sup>5</sup>

Aside from the impact of the conflict through the commodities markets, disruptions to trade flows of other goods and services are also likely. In particular, a sharp fall in Russia's external demand can be expected, as a consequence of the direct impact of the conflict on the Russian economy (for example, through heightened uncertainty and worsening financial conditions at the domestic level) and the broad range of sanctions imposed by many countries on Russia. Although it is still too soon to quantify the possible impact of these sanctions on bilateral trade, historical evidence suggests that broad-based sanctions can have a significant impact on trade.<sup>6</sup> Moreover, the complexity of global supply chains could amplify some of these effects, even though Russia's direct trade links with the euro area are quite limited.<sup>7</sup> In any event, the simulations made using the NiGEM model suggest that a drop of 10% in Russia's purchases

1 Such uncertainty also tends to trigger higher global risk aversion among investors. Indeed, over the last few weeks, financial market volatility has risen and financing conditions have tightened and this could also influence the economic outlook for the euro area.

2 This box focuses on energy commodities, in view of their importance, although prices of other non-energy commodities, such as nickel, aluminium and wheat, have also risen very sharply. The higher increase in the price of natural gas is due to the greater difficulty finding alternative suppliers, because of the low penetration of liquefied natural gas (LNG), compared with oil, which is much easier to substitute in the international markets.

3 The NiGEM model allows us to simulate the impact of various shocks on the main global economies taking into account the existing interdependencies between economies (see <https://nimodel.niesr.ac.uk/>).

4 These results are consistent with the evidence available in the literature. See, for example, L. J. Álvarez, S. Hurtado, I. Sánchez and C. Thomas (2011), "The impact of oil price changes on Spanish and euro area consumer price inflation", *Economic Modelling*, Vol. 28, pp. 422-431. Also, for a detailed analysis of the effects on prices, see Box 2, "An analysis of the global economic impact of the recent increase in energy commodity prices", "Quarterly report on the Spanish economy", *Economic Bulletin 4/2021*, Banco de España.

5 In this setting, the European Commission has formally announced its intention to reduce its energy dependence on Russia, under the REPowerEU plan (see [https://ec.europa.eu/commission/presscorner/detail/es/ip\\_22\\_1511](https://ec.europa.eu/commission/presscorner/detail/es/ip_22_1511)).

6 For example, between 2006 and 2012 the sanctions on Iran included a ban on access to central bank reserves, an oil embargo and disconnecting the country's banks from the Swift system. This led to an estimated drop of 55% in trade between Iran and the countries applying the sanctions, according to the methodology used by R. Campos, J. Timini and E. Vidal (2021), "Structural gravity and trade agreements: Does the measurement of domestic trade matter?", *Economics Letters*, Vol. 208.

7 Of all euro area exports to and imports from non-euro area countries in 2019, Russia accounted for 3% of goods exports and 5% of goods imports.

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worldwide would reduce euro area GDP by around 0.1%, although this impact would be quite uneven across countries (see Chart 5).

The war in Ukraine could also influence the economic outlook for the euro area through a third channel: confidence. Against a backdrop of high uncertainty,

households and firms find it more difficult to foresee future income developments. This can affect their consumption and investment decisions, and in consequence GDP growth. In this respect, a tentative analytical exercise, exploiting the historical relationship between uncertainty levels – proxied by uncertainty indicators on the future course of economic policy<sup>8</sup> – and economic activity,

Chart 1  
TEN MOST SYSTEMIC SECTORS IN GLOBAL SUPPLY CHAINS (a)

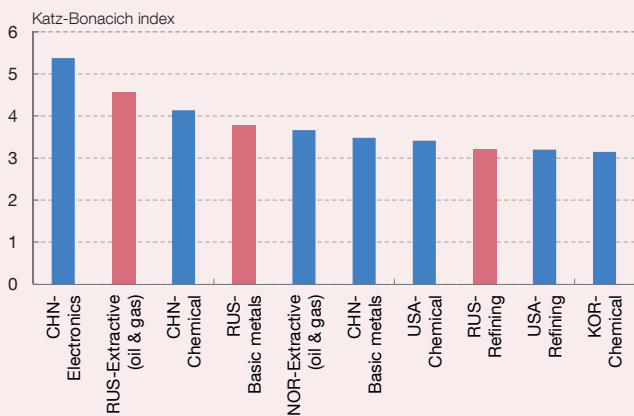


Chart 2  
SOURCE OF NATURAL GAS AND OIL CONSUMED IN EURO AREA

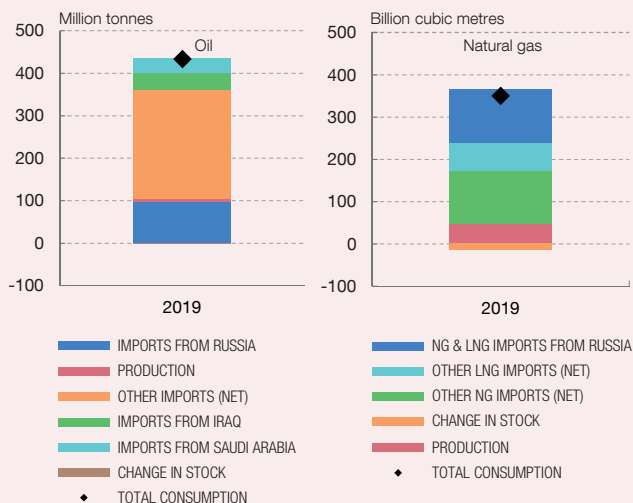


Chart 3  
OIL AND NATURAL GAS PRICES IN EUROPE

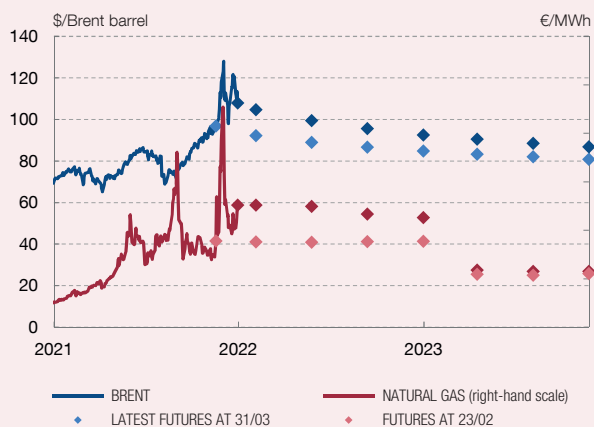
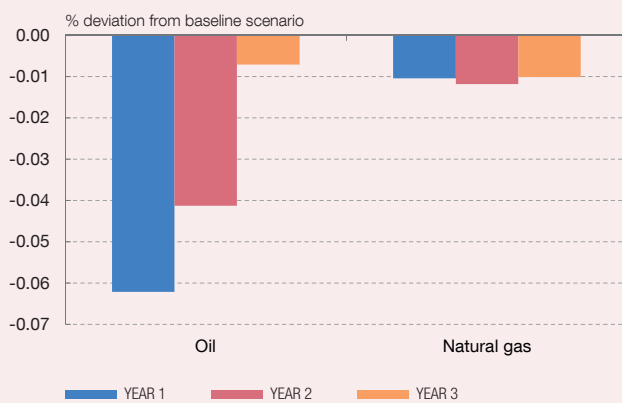


Chart 4  
EURO AREA: ECONOMIC IMPACT ON GDP OF A 10% INCREASE IN EACH COMMODITY PRICE OVER ONE YEAR (b)



**SOURCES:** Eurostat, OECD (TiVA), Thomson Reuters and simulations using the NiGEM model.

- a The Katz-Bonacich index is a network centrality measure which, in this case, measures the importance of an industry as a supplier in global supply chains. For more details, see, for example, F. Bloch, M. Jackson and P. Tebaldi (2016), Centrality Measures in Networks.
- b Simulations using the NiGEM model under the assumption that monetary policy remains exogenous and that agents' expectations are rational.

8 See <https://www.policyuncertainty.com/>.

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suggests that an increase in the uncertainty indicator equivalent to the 90<sup>th</sup> percentile of its historical distribution<sup>9</sup> would be associated with a fall of around 0.30% in euro area GDP (see Chart 6).

To conclude, this box describes the three main channels through which the war in Ukraine could affect economic growth in the euro area in the coming quarters and

presents some preliminary estimates which suggest that the conflict could have a notably adverse impact on economic activity. Nevertheless, precisely quantifying these effects is subject to extraordinary uncertainty, first because the models used may possibly not fully capture the economic effects of the conflict, and second because we do not know how long and how intense the war will prove to be.

Chart 5  
IMPACT ON GDP OF A 10% DROP IN RUSSIAN IMPORTS (a)

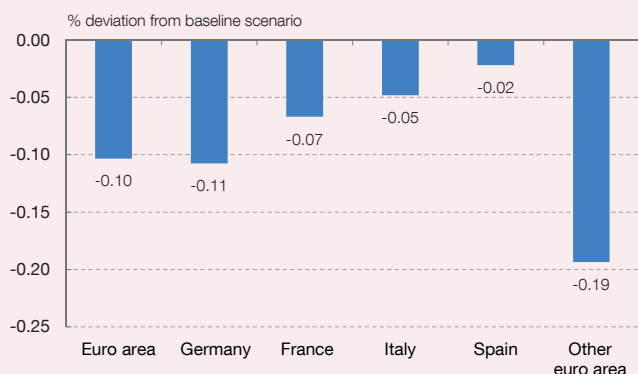
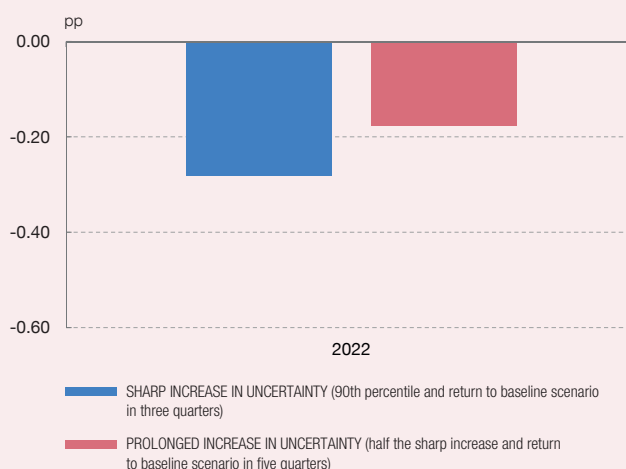


Chart 6  
CUMULATIVE EFFECTS ON REAL GDP OF HYPOTHETICAL SCENARIOS OF INCREASED UNCERTAINTY IN THE EURO AREA (b)



**SOURCES:** Eurostat, OECD (TiVA), Thomson Reuters and simulations using the NiGEM model.

- a Simulations using the NiGEM model on the assumption that agents' expectations are rational.
- b A VAR model is estimated including the following variables: an uncertainty indicator, GDP growth, sovereign spreads, euro area inflation and a geopolitical risk index. Specifically, uncertainty is proxied by uncertainty indicators on the future course of economic policy (see <https://www.policyuncertainty.com/>).

<sup>9</sup> This increase in uncertainty is equivalent to the increase in the indicator observed following the Brexit referendum in 2016 and half the increase associated with the collapse of Lehman Brothers in 2008.