

## Economic Summary

The Russian invasion of Ukraine is a first-order economic shock. While the direct fiscal implications of taking care of refugees, increasing military spending and strengthening energy

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on inflation. The first effect suggests tightening, the second suggests loosening. For the time being, the two indeed roughly cancel each other out, which suggests that monetary policy could roughly remain for the moment on its intended pre-war track, but should be ready to adjust one way or the other.

There is, in the current context, an important, and unusual, interaction between fiscal and monetary policy. The more fiscal policy protects the real income of workers, the weaker the demand for wage increases is likely to be in further rounds. The more a decrease in inflation becomes credible, the less the European Central Bank (ECB) will have to tighten to achieve lower inflation. In effect, larger deficits can lead to a smaller output cost of fighting inflation.

A final and interesting question is whether this dampening role of fiscal support could be explicitly taken into account in wage negotiations. During the pandemic, government-financed furlough- and business-support schemes socialised income losses and proved a very potent and cost-effective way to minimise economic and social disruption. There is a case for a tripartite dialogue between governments, employers and employees and, ideally, for a *quid pro quo* of wage and price moderation in exchange for significant fiscal support.

We start in section 1 by looking at the channels through which the war will affect the EU economy. We review in section 2 the factors likely to determine the evolution of energy prices.

In section 3 we discuss the implications for both output and inflation in the European Union, and in section 4 the implications for EU fiscal and monetary policy. We draw conclusions in section 5.

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# 1 The economic impact of the war

## Nature of the shocks

Our working assumption is that the conflict, which began with Russia's invasion of Ukraine on 24 February 2022, will not be resolved in the short term. Over the next 12 months or so, we envision a stand-off, or a Russian occupation with Ukrainian resistance, or a ceasefire followed by acrimonious negotiations. We posit that reaching a permanent settlement will take longer.

In this context we assume the following:

- The breach of Union treaties following the invasion of Ukraine.

within the EU on the appropriateness of sanctions, especially in the field of energy. Decisions on sanctions are part of foreign policy, where individual EU member states have veto power. Energy policy is largely a national prerogative and the EU does not have the legal means to settle differences by putting decisions to a qualified majority vote. Our working assumption is nevertheless that the crisis will eventually trigger common responses and strengthen solidarity among its members.

**Table 1: Main assumptions on the implications of the Russia-Ukraine war for the EU**



Table 1 summarises our assumptions, distinguishing between short-term and longer-term effects. In this Policy Contribution we focus on short-term implications.

We intend to return to the long-term implications in another brief. Most of the assumptions are straightforward. Some hypotheses deserve deeper examination:

### Exports, foreign direct investment, and financial linkages

Exports to Russia have dropped substantially and are likely to decrease further as a result of the combination of EU sanctions, restrictions imposed by the Russian government and delivery problems. Anecdotal evidence indicates that, even in the absence of legal restrictions, European firms are already reluctant to trade with Russia, fearing legal and payment problems.

According to EU trade statistics<sup>1</sup>, exports of goods to Russia amounted to €89 billion in 2021; if they were to stop – a maximalist assumption – this would lead, other things being equal, to a decrease in aggregate demand for EU goods of 0.6 percent of 2019 GDP<sup>2</sup>. A 50 percent reduction in goods exports to Russia would cut 0.3 percent of GDP or aggregate demand.

The European Union also accounts for three-fourths of foreign direct investment (FDI) in Russia, for a total of more than €300 billion at end-2019<sup>3</sup>. Assuming half of the value of this investment will be lost, this would represent about 1 percent of EU GDP and less than 2 per-

<sup>1</sup> See [https://webgate.ec.europa.eu/isdb\\_results/factsheets/country/details\\_russia\\_en.pdf](https://webgate.ec.europa.eu/isdb_results/factsheets/country/details_russia_en.pdf)

<sup>2</sup> Nominal GDP of the EU27 was €14,017 billion in 2019 (Source: Eurostat).

<sup>3</sup> European Commission, Russia fact sheet; see [https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/countries-and-regions/russia\\_en](https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/countries-and-regions/russia_en).

cent of its stock of outward FDI. Although significant for several banks and companies, such a loss cannot be considered to be of major macroeconomic relevance.

During the 2008 global financial crisis, links between financial institutions played a major role as default by one institution triggered default by some of its creditors. Although Russia has made visible efforts to meet its external commitments and stabilise the economy, a default of the Russian government remains a distinct possibility. The evidence suggests, however, that this is unlikely to lead to major problems for the EU financial system. Subsidiaries of Russian banks have already been closed and liquidated without putting the financial system in danger.

Non-energy and non-food imports from Russia and Ukraine are of minor economic significance. Their interruption may, however, add to the broader disruption of supply chains due to the pandemic.

## Refugees

The flow of refugees from Ukraine has reached 4.6 million people (not counting 7.1 million displaced persons in Ukraine) at the time of writing, mostly women and children (UNHCR, 2022). The outflow continues (though at a slower pace), so that 5 million – and maybe more – is a plausible number. This is a human drama of gigantic proportions and poses major problems of organisation and allocation across countries. Yet the likely macroeconomic costs appear relatively limited.

Estimates of the annual fiscal cost of providing shelter, food, healthcare and education to refugees vary from €9,000 to €25,000 per person per year<sup>4</sup>. On the assumption of a cost of €10,000 per refugee (per year), the cost of financing 5 million refugees for one year is €50 billion, or 0.35 percent of EU GDP. Even this number overestimates the cost, because within a

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## 2 The energy conundrum

Much of the economic interdependence between Russia and the European Union results from the fact that Russia is Europe's main supplier of fossil fuels. So far, both sides have mostly refrained from using energy as a vehicle for pressuring the other. But on 8 April, the EU decided to ban imports of Russian coal, starting 22 August (Bown, 2022). Some EU countries have already gone further. On 30 March, for example, Poland announced its decision to stop importing any Russian energy by the end of 2022.

On 27 April, Russia discontinued gas shipments to Poland and Bulgaria, arguing that these two countries had failed to comply with the requirement that gas be paid for in rubles. This move triggered an immediate increase in the price for LNG.

In thinking about what may happen to energy prices, as a function of both Russian decisions and potential sanctions, it is important to distinguish between oil (and coal) and gas.

### Oil and gas

Energy data are easily confusing because of the heterogeneity of measurement units, so a short summary of the situation is a useful starting point. The supply of energy in the EU27 (excluding the United Kingdom) essentially relies on oil (33 percent, virtually all imported), gas (24 percent, primarily imported) and coal (12 percent, primarily imported) (Figure 1). Other sources include renewables (domestic), nuclear (essentially domestic, as the fuel itself is a small part of the total cost) and imported electricity. Russia is a major supplier of oil, gas, and coal.

Figure 1: Primary energy sources, EU27, 2019

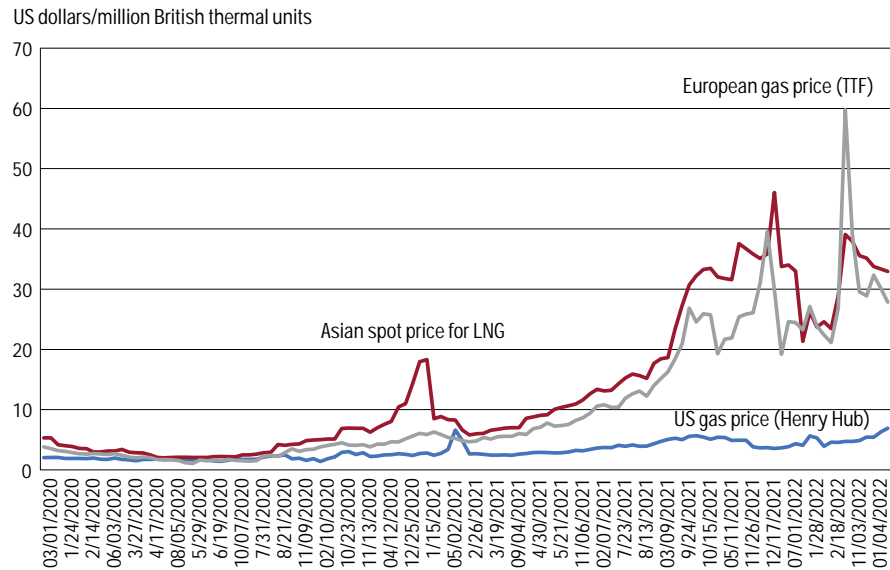
Source: Authors' calculation based on Eurostat energy balances. Proportions are based on the energy content (Terajoules) of the various sources.

Before the war, Russia's export price closely followed the global market price for Brent, an indication of high substitutability. Because Russia is one among many suppliers of oil to the European Union, we assume that lower EU imports from Russia can be replaced by imports from elsewhere. And lower Russian exports to the West can be partly offset by purchases by India and China.

Unlike oil, the market for gas is regional. There are, broadly speaking, three markets glob-

(gas-generated electricity can be replaced by electricity generated from other sources), much less so for some others (a gas-powered heating system cannot burn oil or coal). On average, Russian gas accounts for 8.4 percent of primary energy supply in the European Union, but there are wide variations across member states. For example, Portugal does not import any gas from Russia, but in Hungary, Russian gas accounts for 28.5 percent of the supply of primary energy (Pisani-Ferry 2022). Although not entirely interconnected (Spain and Portugal, for example, have limited pipeline connections to Northern Europe), price differences in the European Union can be largely arbitrated away through internal transactions on imports from the rest of the world, provided – which is not a given – there is political agreement to do it<sup>6</sup>. In what follows, we treat the EU market as one.

**Figure 2: Gas prices in Europe, Asia and the United States, January 2020 to April 2022**



Source: Bloomberg. Note: TTF = Dutch TTF natural gas hub price. Henry Hub refers to pricing of natural gas futures on the New York Mercantile Exchange.

## Thinking about the determination of energy prices

Even in the absence of sanctions, Russia may want to behave strategically in determining its oil and gas export policy.

In the case of oil, it may want to increase revenues to finance the additional spending associated with the war. This would lead to an increase in the world supply of oil and thus a decrease in the world price. Russia, however, faces a series of constraints. Additional supply is currently limited by the difficulty of placing cargoes on the international market (which is reflected in the discount between the prices of Ural and Brent oil). Moreover, Russia is part of the OPEC+ coalition, which constrains its capacity to increase exports.

In the case of gas, a more subtle effect is relevant. The EU is scrambling to reduce its dependence on Russian natural gas, but its commitment to lowering imports by two-thirds by the end of 2022 is optimistic<sup>7</sup>. On the supply side, some Russian gas can be replaced by gas from Norway, Algeria and Azerbaijan, but these countries have limited capacity. The rest must be delivered by ships as LNG, but in the short run the number of LNG ships is fixed and additional supply can come only from diverting shipments destined to Asia. On the demand side, the abil-

<sup>6</sup> For example, LNG imports from the rest of the world can be directed to countries where excess demand is the highest.

<sup>7</sup> See the European Commission (2022) communication of 8 March 2022.

ity to replace gas by alternative sources of energy is also constrained by existing equipment.

Recent research (IEA, 2022a; McWilliams *et al*, 2022) concludes that the European Union cannot, over this year and next, fully replace imports of Russian natural gas<sup>8</sup>. In the short run, then, the EU demand for gas is relatively inelastic and, under plausible assumptions, the price elasticity of EU demand for Russian gas (total demand less imports from the rest of the world) may well be less than one.

Under standard monopoly assumptions, such a low elasticity would lead Russia to set a very high price, even in the absence of war<sup>9</sup>. The reason Russia did not do so in the past is that the long-run elasticity is surely greater than one, and so it faces an intertemporal trade-off: a very high price raises revenues in the short run but decreases them in the long run. The war, however, has two effects on this computation. The first is an even greater need for higher revenues today, leading to an increase in the price. The second is that the anticipation of future sanctions, and the clear decision of the European Union to wean itself off Russian gas exports, reduces the effects of an increase in the price on future revenues, again leading Russia to increase the price while the demand is still there.

In short, ignoring sanctions, Russia may want to increase energy export revenues. But while for oil this would imply increasing the volume of exports (given the world price), for gas it would imply increasing prices (and therefore decreasing export volumes). True, long-term gas contracts normally preclude such behaviour, as they specify the indexation of prices on the TTF (Title Transfer Facility) market price. But Russia has some flexibility to shift part of its supply from deliveries within the framework of existing contracts to over-the-counter sales. More fundamentally, contracts can, after all, be revised or broken.

Turning to sanctions, whether embargos or tariffs, the market structure is again funda-



by 6 percent and led to a price increase of 93 percent (Hamilton, 2022). Russia accounted in 2019 for about 13 percent of world production and its exports for a similar proportion of world trade, so a large decrease in Russian supply, not offset by an increase in supply elsewhere, would have dramatic effects on the price (BP 2021)<sup>10</sup>.

History may not, however, be a reliable guide. The effects of lower supply depend on the elasticity of both non-Russian oil supply and world demand for oil. And both are different from what they were in the 1970s or even 1990s.

The price elasticity of supply has increased since the episodes cited above, especially as the United States has started exploiting shale oil. But it takes time before new drills start adding to output.

The price elasticity of demand may have declined as oil is increasingly used where substitutes are lacking, however (for example, for fuelling motor vehicles and airplanes). And government measures to partly protect buyers, be they firms or consumers, from the price increases may further reduce the demand elasticity. As discussed in Section 4.0 in later 2021 (a) 09 17 18 (4.44)

to the welfare-improving tariff argument that is standard in international trade. Larger tariffs will have an adverse effect on Russian revenues, but also on EU welfare. Assuming linear demand, Daniel Gros (2022) found that a 30 percent tariff on Russian gas would actually maximise EU welfare. Beyond this rate, the tariff would decrease EU welfare but could substantially reduce Russian revenues. Gros found that a 60 percent tariff would reduce Russia's gas export revenues by three-fourths, but at some welfare cost to the European Union.

## 3 Commodity price increases, inflation and real income



## Inflation

The immediate and most visible effect is indeed the effect on inflation. The effect can be quite large. Electricity, heating fuels, and transportation fuels accounted in 2021 for 9.6 percent of personal consumption expenditures in the euro area, and food on average represented 15.7

increase in price would imply a decrease in real income for the European Union of  $5,900 \times 22 / 1.1$  (for the dollar-euro exchange rate), thus €118 billion, or 0.84 percent of 2019 GDP (oil import data from Eurostat).

Gas markets have also retreated from the elevated prices of February, but they remain high. Assume that the percentage increase in the average price of gas for the European Union is the same as for oil, about 25 percent. Imports of gas (from Russia and elsewhere) were equal to €170 billion in 2021. This implies a decrease in real income for the European Union of  $170 \times 0.25 = €42$  billion, or 0.3 percent of 2019 GDP.

Under these fairly moderate assumptions, the war-induced increase in oil and gas prices would take a little more than 1 percent of GDP off the real income of the European Union. But this would come on top of the effect of previous price hikes since 2019. Overall – and disregarding the lockdown period in 2020 during which prices and quantities collapsed – EU imports of energy, which amounted to 2.6 percent of GDP in 2019, would have exceeded 5 percent of GDP had prices remained at their early 2022 level, and would increase to more than 6 percent based on our assumptions.

### Distribution effects

Beyond the aggregate loss of real income for consumers, distribution effects are important. Consumption of gas, utilities, and food (as a share of total consumption) is higher for low-income than for high-income households – although there are clear differences across countries: based on Eurostat data, the difference is small in Scandinavian countries, for example, 26 percent for the bottom income quintile versus 25 percent for the top quintile in Denmark. It is larger for France and Germany, 25 percent versus 21 percent in France, 26 percent versus 21 percent in Germany. It is even larger for poorer countries, for example, 31 percent versus 23 percent in Spain, and 50 percent versus 37 percent for Bulgaria<sup>12, 13</sup>.

Moreover, the consumption patterns of lower-income households are often more rigid, as a larger part of their income is pre-allocated to rents and other monthly payments they cannot easily modify. Thus, apart from the aggregate effects on output and inflation, one must take into account that poor households suffer more than richer ones from an increase in

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## 4 Implications for policy

We finally turn to the fiscal and monetary policy responses. In the short run, the main issue, and the source of potentially large spending, is whether and how to protect consumers from the commodity price increases.

### Tax and transfer measures

Under our moderate price increase assumptions, the median increase in the price of the consumption basket, given wages, is about 2 percent<sup>14</sup>. But the decrease in real income for the lowest income quintile in the most affected countries (eg Slovakia) is twice as high, 4 percent.

It is a very large number, knowing that the dispersion of income effects among households even within an income bracket can be very large, depending on living conditions, and recognizing that the increases in commodity prices may be larger than in our assumptions<sup>15</sup>.

The question, then, is how much and how best to protect households. Since energy prices started to ratchet up in late 2021, EU member states have been busy introducing a series of schemes intended to soften the shock. These schemes can be grouped under three headings<sup>16</sup>.

### Temporarily lower energy taxes

A first possibility is direct across-the-board subsidies, for example, in the form of cuts or rebates on energy taxes, which are high in most EU countries. France, for instance, introduced in February a 1-year cut in electricity taxes (at a cost of €8 billion or 0.3 percent of GDP) and on April 1 a reduction of gasoline taxes of 15 cents per liter for a period of 4 months, at an estimated cost of €2.2 billion, about 0.1 percent of GDP<sup>17</sup>. This subsidy is presented as an emergency stopgap until a more targeted system is introduced in early summer. It is highly visible, a political advantage. Similar temporary cuts to excise taxes have been introduced elsewhere, notably in Germany where, on 23 March 2022, the gasoline tax was lowered by 30 cents per litre<sup>18</sup>.

### Lump-sum transfers

An alternative approach is to provide transfers that are independent of the consumption of food, oil, and gas. Germany, for example, introduced on 23 March 2022 a universal lump-sum transfer (*Energiepreis-Pauschale*) of €300 per person plus supplements for children. France introduced last year an *indemnité in* of €100, given automatically to people with an income no higher than €2,000 a month, at a cost of €3.8 billion, or about 0.2 percent of GDP<sup>19</sup>. Such measures are unlikely to affect market prices for food, oil, and gas substantially (only to the extent that the additional income is spent on these goods), and thus have the effect that the transfers go mostly to consumers rather than commodity producers.

There may be feasible schemes to target transfers more accurately to better protect those

14 Building on the previous discussion of inflation, to the extent that final goods producers do not fully reflect the increase in commodity prices and accept a decrease in their markup, the effect in the initial round will be smaller than the number in the text. But, if they re-establish markups over time, the number in the text is the relevant one.

15 In the French case, Douenne (2019) provided evidence of the vertical and horizontal dispersions of the effects of a carbon tax.

16 In October 2021 the European Commission introduced a toolbox of measures to tackle the energy situation, as feasible options for member states to consider. See [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_21\\_5204](https://ec.europa.eu/commission/presscorner/detail/en/IP_21_5204).

17 For details about the French measures, called bouclier tarifaire, see Gouvernement français (2022).

18 See the 23 March German government measures (see <https://www.bundeskanzlerin.de/Content/DE/Downloads/2022-03-23-massnahmenpaket-bund-hohe-energiekosten.pdf>). Another set of measures in support of affected business was introduced 8 April (see <https://www.bundeskanzlerin.de/Content/DE/Downloads/schutzschild-fuer-vom-krieg-betroffene-Unternehmen-massnahmenueberblick.pdf>).

19 This payment was introduced in 2021, thus before the Russia-Ukraine war, to offset the already large increase in many commodity prices in 2021.

who both have a low income and spend more of it on food, oil, and gas. For example, in the case of electricity, one might make transfers proportional to a recent utility bill and, combining it with household income information, limit it to those with income below some threshold. Or gasoline cheques – a given amount of money to be spent only on energy or gasoline – might be issued; indeed, an energy cheque exists in France and a gasoline cheque is being

marginal price of gas on the European market. They should rather rely on transfer schemes that do not affect the marginal price.

### Taxes versus debt finance

The next question is by how much fiscal measures should be financed through additional taxes versus debt finance. Tariff revenues may help, but, as we discussed earlier, tariffs are unlikely to yield much revenue for oil; they are likely to yield more in the case of gas.

Immediate discretionary fiscal spending essentially consists of defence procurements (including for the provision of weaponry to Ukraine), assistance to refugees, measures in support of households, and emergency investments to adapt the energy system. Under our price assumptions, fiscal costs range from small to manageable: In 2022 they should not exceed one-sixth of a percentage point of EU GDP for defence, one-third for assistance to refugees, and, depending on the decisions of different member states, between half and a full percentage point for measures in support of households<sup>23</sup>. A more challenging question is how much emergency energy investments may cost. We do not have a good estimate but assume that it should not exceed half a percentage point. Altogether, therefore, the discretionary fiscal cost of the war should remain within 1.5 to 2.0 percent of GDP. This would be less than half the fiscal cost of the pandemic support measures, which in Europe typically amounted to 4 percent of GDP in 2020.

Should this additional spending be financed through taxes or debt?





deficits reduce the need to tighten monetary policy to return inflation to its target.

There is therefore a clear trade-off: from an efficiency perspective as well as to ensure the effectiveness of sanctions, governments should avoid income support measures that weaken the price signal and may in fact benefit Russia.

But from an inflation control perspective, they should rely on measures that have a direct, measurable impact on consumer prices. Some measures qualify on both accounts (as indicated, this is the case of transfers based on past energy consumption, if the lower average price paid by consumers is reflected in the construction of the CPI, which in principle it is). But many of the measures introduced so far do not pass the test.

### Tripartite wage discussions

One can go a step further and make the case for tripartite discussions, if not negotiations, between firms, workers, and the state. So long as commodity prices remain higher, real wages and/or markups must be lower. As we have discussed, the state can limit the decrease in the real income of workers through subsidies, transfers, and price regulations, financed by a mix of taxes on the better off, or debt finance, shifting some of the burden to future taxpayers.

Inflation is an extremely inefficient way of reaching an outcome, relying on either workers or firms to give up and accept lower real wages or lower markups. A negotiation in which workers, firms, and the state agree on a better outcome and, by implication, smaller second and subsequent

and the weakness of aggregate demand are all uncertain. Markets have a hard time assessing what the net effect should be on monetary policy: the euro yield curve went sharply down as the war started, but is now a bit higher than before the war (see Figure 4)<sup>27</sup>. The current ECB stance of no major adjustments due to the war appears to be the right one at this point<sup>28</sup>. But the ECB will have to adjust its stance and be unusually nimble to avoid either lasting inflation or a recession.

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## 5 Conclusion

For Europe, the war in Ukraine is a first-order economic shock. While the direct fiscal impli-

some fiscal support, to weaker aggregate demand, implying a need to loosen policy.

The challenge for policymakers is to cope with these conflicting objectives. In this context, policy instruments complement each other. A combination of well-designed fiscal support to households and tripartite wage discussions may help to soften the trade-off that the central bank is facing.

In each of these three dimensions, there is considerable uncertainty as to the outcome. Energy prices may increase much more than they have so far, or instead return to pre-war levels. By implication, the loss in real income and the inflationary pressure may be much larger, or instead be less of an issue than currently forecast. This leads to our last conclusion. Fiscal and monetary policy should be nimble, consisting of measures easy to adjust as the

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