

Economic repercussions of Russia's war on Ukraine – Weekly Digest

This paper provides a summary of recent economic, financial and budgetary decisions and developments following President Vladimir Putin's decision of 24 February to start a military attack against Ukraine. It includes recent information relating to the EU sanctions regime, recent economic estimates, and policies supporting economic and financial resilience, including the coordination of national economic and fiscal measures. It also highlights policy recommendations made in the public domain to mitigate any adverse economic, financial and social effects and to support economic recovery in the EU and the Euro Area.



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For a list of previous Weekly Digest on the economic repercussions of Russia's war on Ukraine see [here](#).

1) Reduction of gas consumption

EU MS commit to reducing gas demand by 15%

In an effort to increase EU security of energy supply, Member States agreed on 26 July to **voluntarily** reduce their gas demand by at least 15% (compared to their average consumption in the past five years, between 1 August 2022 and 31 March 2023), with measures of their own choice. The targeted reduction shall become **mandatory** in case of a “**Union alert**”, activated by a Council implementing decision in case of a substantial risk of a severe gas shortage or an exceptionally high gas demand in the EU. The Council formally adopted a [Regulation](#) to this end. Comparing the agreed act to the Commission's proposal, the Council essentially followed the Commission regarding the voluntary reductions. It however modified the procedure leading to mandatory reductions. While the Commission envisaged triggering mandatory reductions on its own, the Council reserved this decision for itself, subject to qualified majority.

While the Council's Regulation leaves both voluntary and eventual mandatory measures for individual Member States to choose, the **International Energy Agency** (IEA) proposed **5 concrete measures** to prevent a major gas crunch in Europe; underlining the need to take a more coordinated, EU-wide approach to prepare for the coming winter, and reiterating a message presented at the end of June at the G7 Summit in Elmau and in a meeting with all EU Commissioners, the Executive Director of the IEA, Fatih Birol, issued a [commentary](#) with the **stark warning** that without such measures, Europe would end up in an extremely vulnerable position:



- Introduce auction platforms to incentivise EU industrial gas users to reduce demand.
- Minimise gas use in the power sector.
- Enhance coordination among gas and electricity operators across Europe, including on peak-shaving mechanisms [i.e. measures to reduce industrial electricity and gas demand in peak hours].
- Bring down household electricity demand by setting cooling standards and controls.
- Harmonise emergency planning across the EU at the national and European level.

As to the last point - harmonised emergency planning - the Council's Regulation does require Member States to cooperate. Specific obligations in this context are however limited to mutual consultations before national emergency plans have to be updated by end of October. Meanwhile, gas storage fill levels continue to increase and are currently around 75%.¹

Some measures at national level to reduce fossil fuel consumption

On 13 August, Robert Habeck, heading **Germany's** Federal Ministry for Economic Affairs and Climate Action, issued a [press release](#) calling for "**a national effort to reduce gas consumption by 20%** in order to avert a gas shortage in winter. Germany has been particularly dependent on Russian gas in the past. In a draft decree (complementing the Energy Security Act), the Ministry pins down concrete energy-saving measures, including lowering the **minimum heating temperature** in working spaces of both the public administration and companies to 19 degrees. In addition, gas suppliers and landlords must inform their customers and tenants in advance about their expected gas consumption and the associated costs and potential savings. A [background paper](#) to the press statement lists additional **concrete measures to save energy**, for example that private swimming pools must no longer be heated, that the illumination of buildings with purely representative or aesthetic function shall be switched off, and that high street shops shall switch off illuminated advertising during the night.

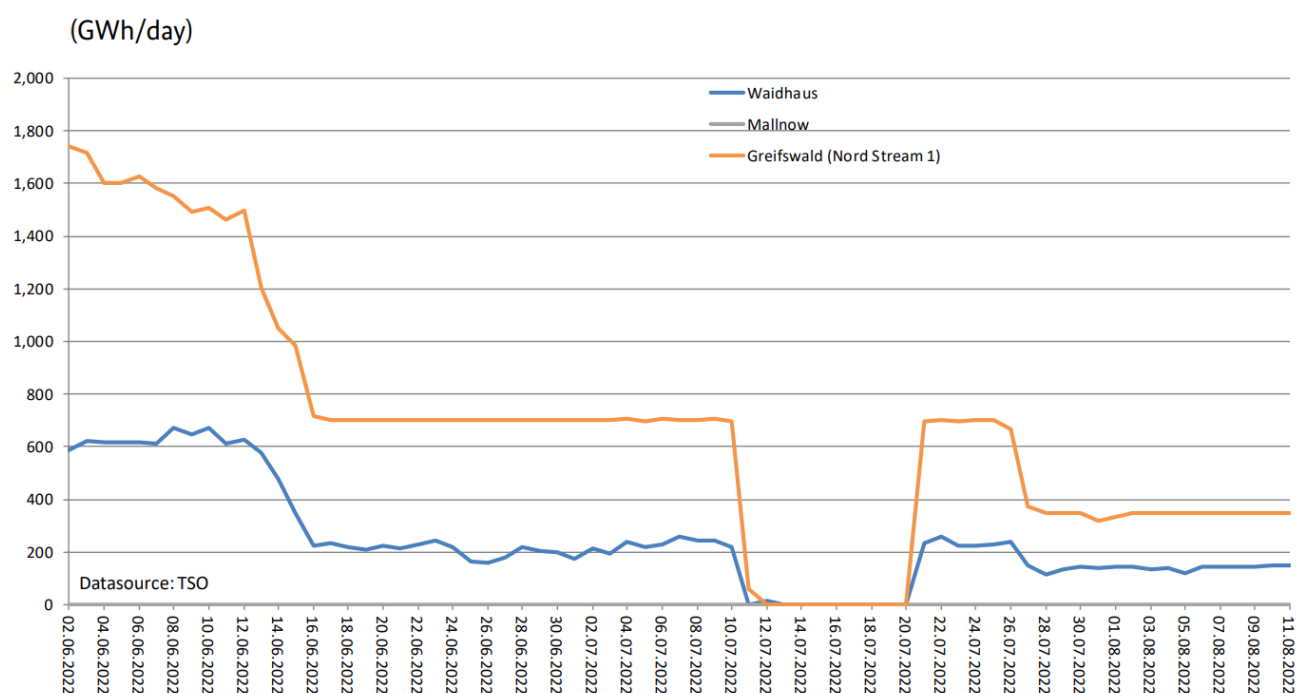
In the same vein, Klaus Müller, head of Germany's **Bundesnetzagentur** (the Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railway), explained in an [interview with the Financial Times](#) (FT) that Germany must cut its gas use by a fifth "*to avoid a crippling shortage this winter*".

Müller said that Germany would in addition need to procure about 10 gigawatts of extra gas supply from other sources to make up for the missing volumes from Russia – largely liquefied natural gas from countries such as the US, and have to import gas from other European countries. The main conduit for delivery of Russian gas to Europe – the Nord Stream 1 pipeline – is currently **operating at just 20 per cent capacity** (see figure 1). The decline in deliveries has pushed up gas prices considerably. The European price benchmark for gas has more than tripled since the start of the year, with severe consequences for both commercial and retail customers.

The most recent [Status Report](#) about gas supplies to Germany, published by the Bundesnetzagentur on 12 August, mentions that gas flows from Nord Stream 1 are currently at about 20% of maximum capacity, that the situation is tense, even though gas supply is currently stable, but that a further worsening of the situation cannot be ruled out. At the same time, replenishment of gas storages is going to plan and appears to have reached the 75% fill level intended for 1 September, but press quotes the federal regulator saying that further planned increases are challenging to achieve.²

¹ <https://agsi.gie.eu/>

² See for instance <https://www.straitstimes.com/business/economy/germany-has-enough-gas-for-less-than-3-months-on-russia-cutoff>

Figure 1: Gas flows from Russia to Germany

Source: [Bundesnetzagentur, Gas supply status report of 12 August 2022](#)

The FT article mentions that in case of gas shortages, **private households** in Germany are protected from a reduction of supply, but Müller was optimistic that people would implement recommended savings in such a scenario, even if the authorities had no means to enforce compliance (also see annex for recent studies that point to the economic effects of household protection).

According to public media (see e.g. [FT](#)³) Chancellor Olaf Scholz **announced the cut in value added tax on gas sales from 19 per cent to 7 per cent** on Thursday (18/08/2022), telling reporters that more measures would be announced in the coming weeks to deal with Germany's mounting energy crisis. Please see next section for a summary on recent policy advice relating to fiscal supporting measures.

In terms of absolute volume, **Italy** is the second-largest consumer of natural gas among EU Member States⁴, behind Germany, even exceeding the per-capita consumption of Germany. Eurostat reports that in 2020, 43% of Italy's gas imports originated from Russia, compared to 66% for Germany.⁵ As to Italy's strategy to reducing dependence on Russia, in late June, Prime Minister Draghi in particular emphasised efforts to diversify sourcing of natural gas and pointed to a recent reduction of imports from Russia from 40% to 25% of total imports. He also referred to accelerated renewables investments, not further specified contingency plans and increasing storage levels.⁶ However, Italy already [enacted](#) certain measures in May, including some related to temperatures in public buildings.

Looking at further Member States, **France**, which is less dependent for gas supplies on Russia than Germany or Italy are, has announced on 8 July a plan for "energetics sobriety", which is to lead to energy savings of

³ Access to the article may need registration.

⁴ <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2022-full-report.pdf>

⁵ https://ec.europa.eu/eurostat/cache/infographs/energy_trade/entrade.html?lang=en&lang=en&lang=en

⁶ <https://www.governo.it/en/articolo/q7-summit-el-mau-prime-minister-draghi-s-closing-press-conference/20162>

10% over 2 years (compared to 2019). **Spain**, with an even lower dependency on Russian supplies, adopted already a range of measures such as restricting cooling and heating temperatures and electric lighting in public spaces, including those in commercial use. This is complemented with a program to promote investment in renewables and energy savings.⁷ The responsible minister is quoted in the press as expecting 7% general energy savings by March 2023 from these steps.⁸ It appears that the remainder of the Member States is yet to formulate plans for energy savings.

2) Fiscal support measures and high energy prices

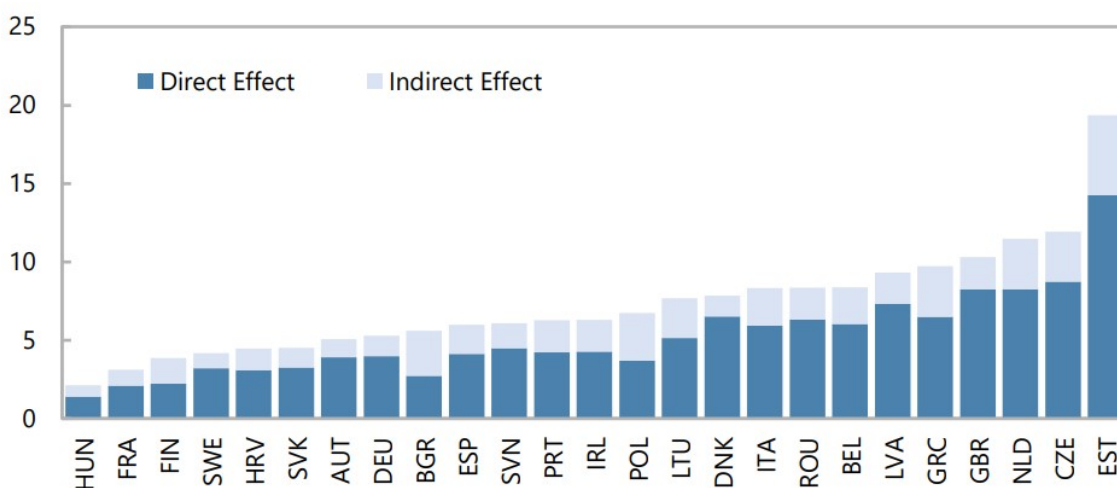
Effects on households

According to a recent [working paper by the IMF](#)⁹, **designing fiscal support policies in a cost-effective manner remains a key challenge for policy makers**, notably if the pressures on energy prices are persistent.

The authors note that the frequency and magnitude of adjustments in retail electricity and natural gas prices are determined by many factors (e.g. regulations, contracting practices, and government interventions), which **vary significantly across countries**. Eventually, however, suppliers are likely to pass cost increases on to consumers. For a given household, the impact of higher energy prices depends on the shares of its spending on energy products (direct effects) and on other products or services whose prices increase when energy prices go up (indirect effects).

The effect (additional burden) is estimated in the IMF WP based on the hypothetical assumption of a pass-through in 2022 at the maximum level of what has been observed over the last 12 months, and based on estimated retail price increases for electricity, natural gas, and gasoline, which are expected to increase on average by 73, 122, and 36 percent, respectively. The estimated increases, however, vary significantly across countries; for Hungary, for example, the price for natural gas is expected to increase by only 2.4%, whereas in Bulgaria, it is expected to increase by 262.2%.

Figure 2: Additional burden of higher energy prices on households (% of total household consumption)

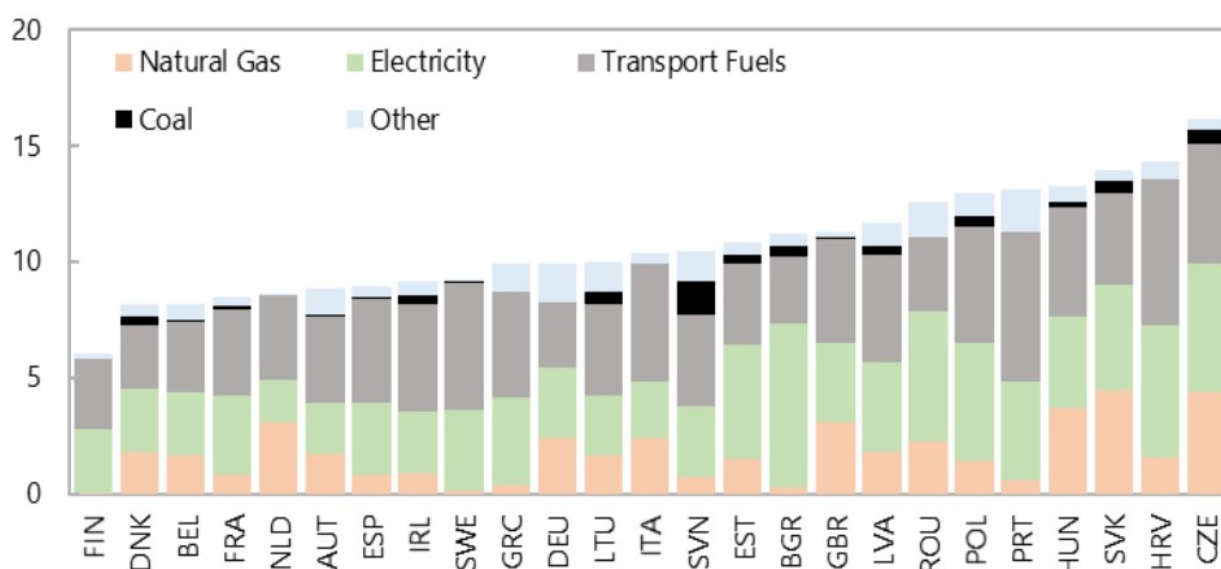


Source: [IMF WP/221/152](#)

⁷ <https://www.miteco.gob.es/en/prensa/ultimas-noticias/e-l-gobierno-aprueba-un-plan-de-ahorro-y-gestion-energetica-en-climatizacion-para-reducir-el-consumo-en-el-contexto-de-la-guerra-en-ucrania/tcm:38-543621>

⁸ <https://www.elmundo.es/espana/2022/08/01/62e827e721efa0de098b45b4.html>

⁹ IMF Working Paper: *Surging Energy Prices in Europe in the Aftermath of the War: How to Support the Vulnerable and Speed up the Transition Away from Fossil Fuels*, July 29, 2022.

Figure 3: Direct spending on energy products (% of total household consumption)

Source: [IMF WP/221/152](#)

Fiscal measures taken

In the context of decreased supply of fossil fuels and the related increase in wholesale energy prices in Europe, governments put measures in place to **shield consumers** from the direct impact of rising prices.

The above mentioned working paper by **IMF** staff also finds that European countries have implemented a **wide range of support measures** (see **Figure 4**), and that only some measures preserve the **price signal**, while most are in the form of tax or fee reductions or outright natural gas and electricity price controls, especially in Central and Eastern Europe.

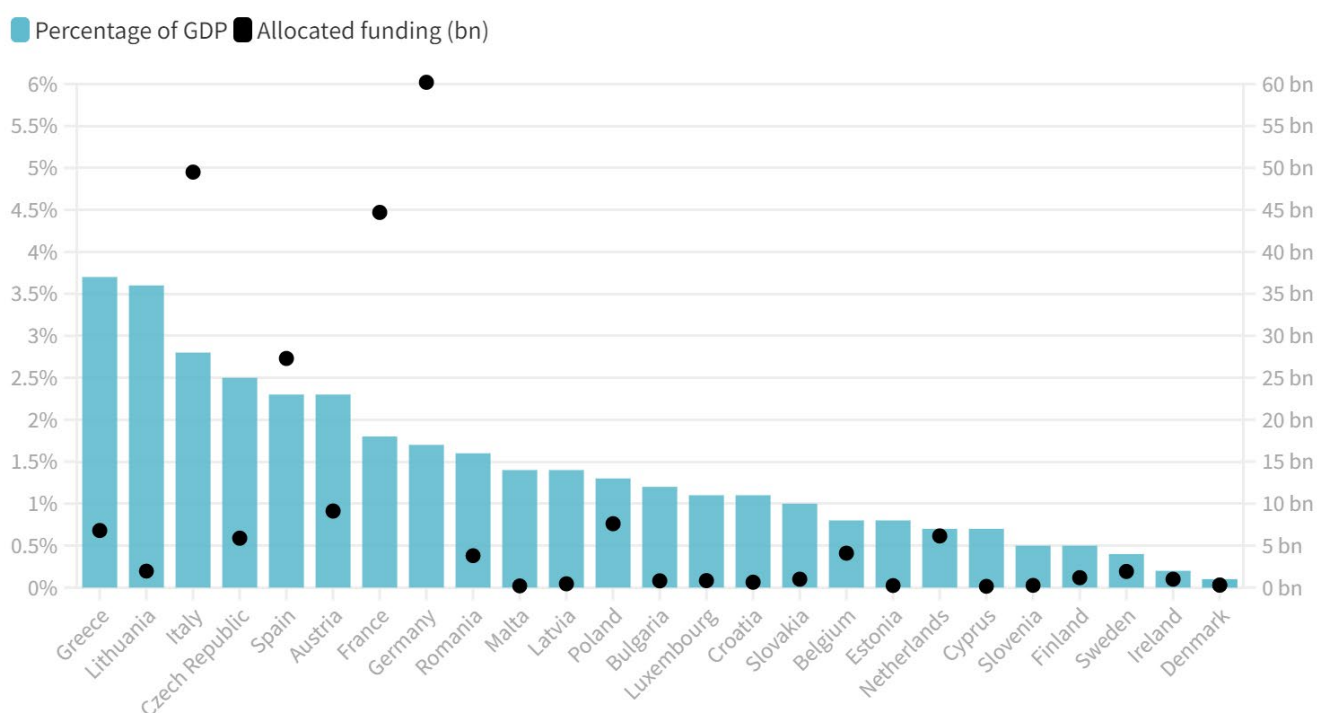
According to the IMF's estimates, the fiscal costs of support measures are growing. In some countries, the fiscal costs of measures introduced in response to energy price increases since the summer of 2021 are estimated to exceed 1.5 percent of GDP by end-2022, not even counting the cost of loan guarantees for companies that are difficult to estimate *ex ante*.

Figure 4: Fiscal measures implemented to cushion the impact of high energy prices

	Measures that impede price pass-through					Targeted support for households		Partially-targeted or uniform support for households			Support for firms			Other		
	Price freezes and subsidies	Energy bill discounts (i.e. reduction in renewable energy surcharges, fees and social tariffs)	Cuts to excises taxes on fuel	Cuts to VAT / sales taxes for energy products	Cuts to overall or other non-energy VAT / sales tax	Tax credit on energy bills	Other taxes (i.e. tariffs and customs duties)	Targeted cash transfers	Vouchers	Other subsidies (i.e. for heating)	PIT reliefs	Energy efficiency grants and subsidies	Subsidies / grants / loans to firms / specific industries		Energy efficiency grants and subsidies	Short-term work / temporary unemployment benefits
DEU		√					√			√					√	√
FRA	√		√				√	√		√			√		√	
GBR	√	√					√			√			√			
ESP	√		√		√		√			√			√			
ITA		√		√		√							√			√
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MDA							√						√			
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POL	√		√		√		√									
ROU	√			√				√					√			
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MNE			√		√								√			
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SMR		√		√						√						
BLR	√															
NLD			√	√			√	√			√					

Source: [IMF WP/221/152](#)

In addition, a recent **publication by Bruegel** shows that the amounts spent vary considerably, not only in absolute terms, but also relative to the GDP of Member States. The collected information covers funding allocated by selected EU countries to shield households and firms from the rising energy prices and their consequences on the cost of living in the period September 2021 to July 2022 (see **Figure 5**).

Figure 5: Government funding (Sep '21 - Jul '22) to shield households and businesses from the energy crisis

Source: [Bruegel dataset "National policies to shield consumers from rising energy prices"](#), updated on 8.8.2022

The design of fiscal support measures

According to the authors of the IMF WP, the **design of fiscal support measures needs to balance several objectives**, notably the following:

- 1) Any relief policies should preserve strong incentives for conserving energy and transitioning away from fossil fuel,
- 2) And that any relief measures should be cost-effective, which calls for providing time-bound and targeted (rather than broad-based) support.

This is due to the fact that an increase in global fuel prices is a negative terms-of-trade shock for fuel-importing economies, which causes a decline in real income to which households and companies need to adjust to. Governments cannot, and should not, aim to offset the loss of real income. Instead, they should aim to protect the poor and vulnerable households.

Many European governments have taken measures to delay the pass-through of wholesale to retail energy prices through tax reductions or price controls (see above), however, according to the IMF policy **measures that mute the price signal should be avoided or be wound down**. Temporary measures that suppress price increases could be an acceptable response to a short lived shock in countries with ample fiscal space.

However, measures that target prices are:

- a) Inefficient to protect the economically vulnerable,
- b) Fiscally costly,
- c) Mute the demand adjustment to the price shock (including energy-conserving behaviour and energy efficiency investments),
- d) Politically difficult to withdraw,
- e) Generate adverse spillovers, since preventing demand adjustments keeps global energy prices high, prolonging the burden on energy-importing, lower-income economies. In addition, as more countries

take broad measures, others feel pressure to take similar measures, creating another negative externality.

According to their estimates, **targeting government support to those that need it the most helps contain fiscal costs**. As an example, fully compensating the bottom 20 percent of households for the 2021–22 price surge is estimated to cost, on average, 0.4 percent of GDP, though with substantial differences across countries.

Box: Latest EU fiscal policy guidance

ECOFIN July 2022: [Fiscal guidance for 2023](#)

*Member States should ensure that the growth of nationally-financed current expenditure is in line with an overall neutral policy stance, taking into account **continued temporary and targeted support to households and firms most vulnerable to energy price hikes** and to people fleeing Ukraine.*

In addition, the [Eurogroup adopted](#) in July the following fiscal guidance:

*Broad-based fiscal measures, such as general reductions of taxes and excise duties, were aimed to mitigate the impact of rapidly rising energy prices at the national level, but these should be temporary and increasingly adjusted towards targeting the most vulnerable. As we prepare our national budgets for 2023, policy adjustments should preserve incentives for the energy transition. **In this respect, income measures are, in principle, preferable to price measures.** We will continue to coordinate our measures in this respect and take stock of our progress in the context of our Draft Budgetary Plan exercise towards the end of the year. We recognise that the negative effect on incomes due to high energy prices cannot be durably addressed through compensatory fiscal measures but will require investments over the medium term in energy efficiency and the development of environmentally sustainable local sources of energy.*

3) Some sanctions related issues

Impact on Russian oil output and exports

On 11 August, the **International Energy Agency** (IAE) published its flagship “[Oil Market Report](#)”, which highlights that soaring oil use for power generation and gas-to-oil switching are boosting oil demand. World oil supply hit a post-pandemic high in July. The IAE revised upward the outlook for world oil supply, with more limited declines in Russian supply than previously forecast. While Russia’s exports of crude and oil products to Europe, the US, Japan and Korea have fallen since the start of the war, the rerouting of flows to India, China, Türkiye and others, along with seasonally higher Russian domestic demand, has mitigated upstream losses. By July, Russian oil production was only 3% below pre-war levels, and Russian oil exports are down by less than 2%. In July, Russian oil export revenues fell to USD 19bn, from USD 21bn in June, on both reduced volumes and lower oil prices (in comparison, according to Russian customs data,¹⁰ total revenues for the full year 2021 amounted to USD 111bn).

Against that backdrop, the IAE is [cited](#) to have said that Western **sanctions** so far have only had a “**limited impact**” on Russian oil output. The [sixth package](#) of sanctions includes an embargo on seaborne imports of Russian crude oil – which represent approximately 90% of the EU’s oil imports from Russia – and a ban of petroleum product imports; pipeline imports are exempted. As spot market transactions and the execution of existing contracts were still permitted for a transitional period – for six months in case of seaborne crude oil, and eight months in case of petroleum products – the full effect will presumably only unfold in December 2022, and February 2023, respectively.

¹⁰ https://www.trademap.org/Country_SelProductCountry_TS.aspx?nvpm=1%7c643%7c%7c%7c2709%7c%7c%7c4%7c1%7c2-%7c2%7c1%7c2%7c1%7c%7c1

The EU embargo on Russian imports does not come into full effect before February 2023, by which time according to the IAE 1.3 million barrels per day (some 18%) of Russian oil exports would have to “find new homes”.

Looking forward, some researchers argue that the combined **long-term effects** of the various Western sanctions on Russia's production capacity will be substantial (see in this context for example the study by Sonnenfeld and colleagues, summarised in the box below; note, however, also some [critical remarks](#) made by other parties on the methodical approach of that study¹¹).

Box: A Study by Yale researchers

Business Retreats and Sanctions Are Crippling the Russian Economy: Jeffrey Sonnenfeld et al (2 August 2022):

Our team of experts, using private Russian language and unconventional data sources including high frequency consumer data, cross-channel checks, releases from Russia's international trade partners, and data mining of complex shipping data, have released one of the first comprehensive economic analyses measuring Russian current economic activity five months into the invasion, and assessing Russia's economic outlook.

From our analysis, it becomes clear: business retreats and sanctions are catastrophically crippling the Russian economy. We tackle a wide range of common misperceptions – and shed light on what is actually going on inside Russia, including:

- Russia's strategic positioning as a commodities exporter has irrevocably deteriorated, as it now deals from a position of weakness with the loss of its erstwhile main markets, and faces steep challenges executing a “pivot to Asia” with non-fungible exports such as piped gas*
- Despite some lingering leakiness, Russian imports have largely collapsed, and the country faces stark challenges securing crucial inputs, parts, and technology from hesitant trade partners, leading to widespread supply shortages within its domestic economy*
- Despite Putin's delusions of self-sufficiency and import substitution, Russian domestic production has come to a complete standstill with no capacity to replace lost businesses, products and talent; the hollowing out of Russia's domestic innovation and production base has led to soaring prices and consumer angst*
- As a result of the business retreat, Russia has lost companies representing ~40% of its GDP, reversing nearly all of three decades' worth of foreign investment and buttressing unprecedented simultaneous capital and population flight in a mass exodus of Russia's economic base*
- Putin is resorting to patently unsustainable, dramatic fiscal and monetary intervention to smooth over these structural economic weaknesses, which has already sent his government budget into deficit for the first time in years and drained his foreign reserves even with high energy prices – and Kremlin finances are in much, much more dire straits than conventionally understood*
- Russian domestic financial markets, as an indicator of both present conditions and future outlook, are the worst performing markets in the entire world this year despite strict capital controls, and have priced in sustained, persistent weakness within the economy with liquidity and credit contracting – in addition to Russia being substantively cut off from international financial markets, limiting its ability to tap into pools of capital needed for the revitalization of its crippled economy.*

¹¹ <https://meduza.io/en/feature/2022/08/10/a-commendable-effort>

Erdoğan meeting Putin

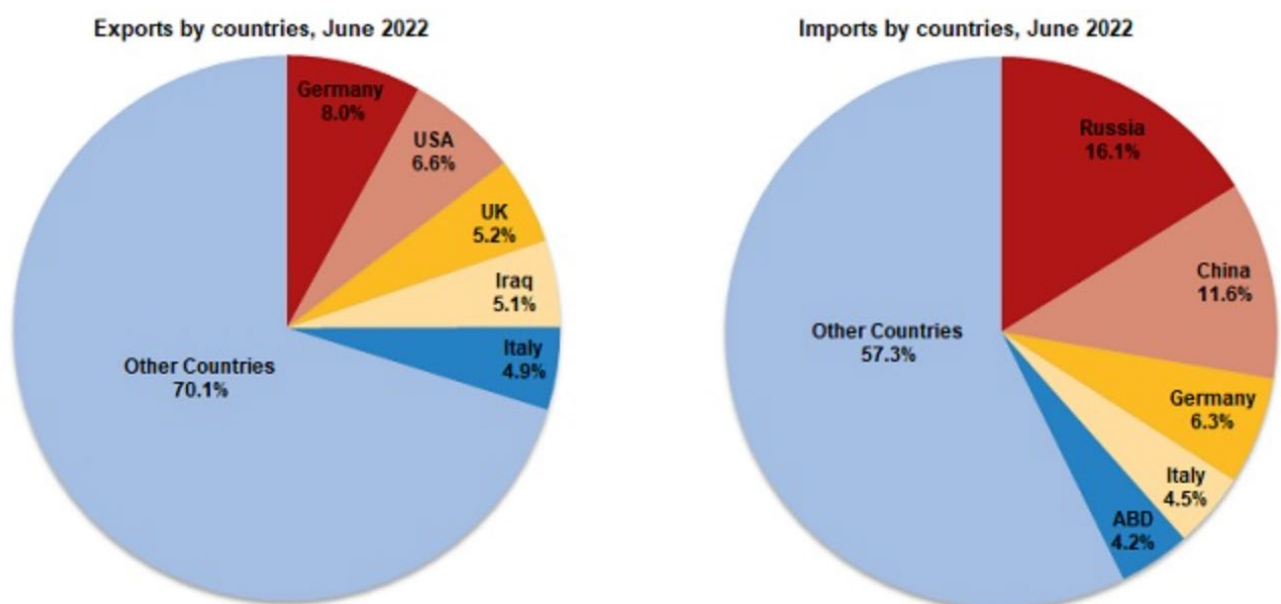
On 5 August, Türkiye’s President Recep Tayyip Erdoğan met President Vladimir Putin in Sochi, Russia. According to the [Joint Press Statement](#) published on the same day, the two Presidents agreed “to **increase the bilateral trade volume** on a balanced basis and to achieve designated targets; to meet one another’s expectations on the economy and energy; to take concrete steps to boost collaboration about issues that have been pending on the agenda of both countries for a long time, concerning sectors such as transportation, commerce, agriculture, industry, finance, tourism and construction.”

That meeting sparked concern that Russia may be seeking new avenues to circumvent sanctions. The [EI](#) reports that US deputy Treasury secretary Wally Adeyemo already met Turkish officials and Istanbul bankers in June to warn them not to become a conduit for illicit Russian money. According to the same article, Türkiye agreed to pay for Russia’s gas in roubles, and to consider accepting Russia’s Mir payment card system, as Russian tourists in Türkiye can no longer use Visa or Mastercard that have suspended operations in their home country, though the system might also allow to help **bypass sanctions**.

In the context of the agreement to increase the bilateral trade volume between Russia and Türkiye, one may take note of the official **statistics** published by [Turkstat](#). The latest information on [Foreign Trade Statistics](#) is available for the period until June 2022. In the period from January to June 2022, the main partner country for Türkiye’s exports was Germany (USD 10,6 billion) followed by the US (USD 8,7 billion), Italy (USD 6,6 billion), the United Kingdom (USD 6,5 billion), and Iraq (USD 6,4 billion). The first five countries in total accounted for 30.8% of Türkiye’s exports in the first half of 2022, and the **EU, UK and US combined for more than 50%** of those exports. In comparison, the **volume of exports to Russia** is very small, they account for less than **2,5% of Türkiye’s exports**.

For Türkiye’s **imports**, however, Russia was the most important trading partner. In the first half of 2022, Russia accounted for more than 15% of Türkiye’s imports, followed by China (11%), and Germany (6%) (also see Figure 6).

Figure 6: Türkiye’s main trading partners in June 2022



Figures in graph may not add up to totals due to rounding

Source: [Turkstat Foreign Trade Statistics, June 2022](#)

On 16 August, Eurostat released the [latest update](#) on international trade statistics. In the first six months of 2022, **EU MS' exports of goods to Russia** fell by 30.4% compared to the same period last year, yet it imports from Russia, driven by energy prices, increased by 78.9%, considerably widening the **trade balance deficit** (up to minus EUR 90.6bn, as compared to EUR 24.6bn in the same period last year; see Table 1 below).

Table 1: Main trading partners EU (EUR bn)

	EU exports to			EU imports from			Trade balance	
	Jan-Jun 21	Jan-Jun 22	Growth	Jan-Jun 21	Jan-Jun 22	Growth	Jan-Jun 21	Jan-Jun 22
China	112.6	112.2	-0.4%	210.6	301.7	43.3%	-98.0	-189.5
United States	191.3	247.0	29.1%	110.1	166.4	51.1%	81.2	80.6
United Kingdom	135.6	161.3	19.0%	67.1	106.1	58.1%	68.5	55.2
Switzerland	77.0	90.5	17.5%	60.3	73.0	21.1%	16.7	17.6
Russia	42.8	29.8	-30.4%	67.3	120.4	78.9%	-24.6	-90.6
Norway	27.5	32.4	17.8%	28.1	68.2	142.7%	-0.5	-35.8
Turkey	39.0	46.9	20.3%	37.0	49.4	33.5%	2.0	-2.4
Japan	30.1	35.4	17.6%	31.1	34.1	9.6%	-1.1	1.3
South Korea	25.3	28.7	13.4%	26.9	33.7	25.3%	-1.6	-4.9
India	19.8	22.4	13.1%	21.3	32.9	54.5%	-1.5	-10.6

Source: Eurostat euroindicators International Trade (92/2022) Of 16 August 2022

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ANNEX 1: Public monitors on the economic and other effects of the war in Ukraine

Centre for Research on Energy and Clean Air (CREA):

CREA has compiled a [detailed dataset](#) (updated 17 May 2022) **of pipeline and seaborne trade in Russian fossil fuels in order** to shed light on who purchases Russia's oil, gas and coal, and how the volume and value of imports have changed since the start of the invasion. CREA also leads a project that tracks detailed ship movements and pipeline flows, its [Russia Fossil Tracker](#) (updated 11 August 2022) brings to light details of energy exports from Russia to other countries after the invasion of Ukraine.

Kiel Institute for the World Economy:

[The Ukraine Support Tracker](#) (updated 18 August 2022):

The Ukraine Support Tracker lists and quantifies **military, financial and humanitarian aid promised by governments to Ukraine** since January 24, 2022 (the day some NATO countries put their troops on alert). It focuses on support by 31 Western governments, specifically by the G7 and European Union member countries. The database is intended to support a facts-based discussion about support to Ukraine.

Peterson Institute for International Economics (PIIE):

Russia's war on Ukraine: [A sanctions timeline](#) (updated 15 August 2022)

An International Working Group on Russian Sanctions by Stanford University:

[A working group](#) of independent, international experts aim to recommend new economic and other measures to pressure Russian President Vladimir Putin to end his invasion of Ukraine as soon as possible and restore Ukraine's territorial integrity within its internationally recognized borders (latest whitepaper published 22 June 2022).

ANNEX 2: Recent estimates on economic effects of total or partial stop of Russian energy imports

Institution	Key scenario	Methodology, assumptions, restrictions	GDP (pp change compared to baseline scenario)	Inflation (pp change compared to baseline scenario)
ESM Blog by Capolongo, Kühl, and Skovorodov (August 2022)	Implications from a Russian gas cut-off for the euro area	<p>The authors estimate the effects of a full cut-off from Russian gas as of August 2022 that would exhaust gas reserves by end-2022. That situation would make gas rationing in early-2023 necessary, and according to their analysis trigger a recession in the euro area.</p> <p>Their analysis is based on a method that was designed to estimate the effects if a certain industry is no longer operational, the so-called “hypothetical extraction method” that uses national input–output tables. The authors offer to make their concrete assumptions and further details available upon request.</p> <p>The authors highlight that the reduction in energy dependence which has been achieved so far – procuring some of the gas from non-Russian sources – has already made the euro area more resilient: in comparison, last year’s degree of gas dependence would have caused the euro area GDP to fall by 2,6 % if Russian gas supplies were halted in August 2022.</p> <p>The authors moreover look into the effects of the Commission’s proposal to reduce gas demand by 15% between 1 August 2022 and 31 March 2023: If implemented, a stop of Russian gas deliveries would still decrease euro area GDP by about 1,1% in 2023.</p>	<p>Euro area: -1.7 pp (2023)</p> <p>Germany: -2.5 pp (2023)</p> <p>Italy: -2.5 pp (2023)</p>	
IMF Working Paper by Di Bella, Flanagan, Foda, Maslova, Pienkowski, Stuermer, and Toscani (July 2022)	Potential impact of a full and prolonged shut-off of Russian gas to Europe	<p>[The numbers presented in the right-hand column refer to the production-function model, taking technical infrastructure bottlenecks into account, assuming no further gas-sharing arrangements among MS, but burden sharing between households and industry]</p> <p>The paper analyses the implications of disruptions in Russian gas for Europe’s balances and economic output. Alternative sources could replace up to 70 percent of Russian gas,</p>	<p>EU Ø -1,8 pp</p> <p>HUN -4,2 pp</p> <p>CZE -4,1 pp</p> <p>SVK -4,1 pp</p> <p>ITA -3,7 pp</p> <p>DEU -2,0 pp</p> <p>AUT -1,9 pp</p> <p>SVN -1,7 pp</p>	

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		<p>allowing Europe to avoid shortages during a temporary disruption of around 6 months. However, a longer full shut-off of Russian gas to the whole of Europe would likely interact with infrastructure bottlenecks to produce very high prices and significant shortages in some countries, with parts of Central and Eastern Europe most vulnerable. Methodologically, the authors make use of two approaches, a general equilibrium approach (suitable when prices can adjust and infrastructure bottlenecks do not play an important role), and a production-function based approach (more suitable where infrastructure bottlenecks matter). The authors’ findings suggest that in the short term, the most vulnerable countries in Central and Eastern Europe — Hungary, Slovak Republic and Czechia — face a risk of shortages of as much as 40 percent of gas consumption and of gross domestic product shrinking by approximately 4 percent in the baseline scenario, and of up to 6 percent in the “household protection scenario” (Most countries protect households and essential services. By protecting households, a larger decline in gas would be passed on to industry and services, which would exacerbate the supply shock. The authors’ analysis suggests that a full protection of households can increase the output costs of the full gas shut off by nearly 50 percent).</p> <p>The authors also emphasize that greater gas sharing among EU MS - consistent with the aim to achieve additional solidarity agreements - could significantly reduce the potential impact on the hardest hit countries.</p>	<p>NLD -1,4 pp POL -1,4 pp LTU -1,0 pp ROU -1,2 pp FIN -1,0 pp LVA -0,9 pp ESP -0,8 pp FRA -0,8 pp BGR -0,6 pp GRC -0,6 pp EST -0,4 pp LUX -0,3 pp</p>	
<p>IMF Working Paper by Lan, Sher, and Zhou (July 2022)</p>	<p>Complete and permanent shutoff of the remaining Russian natural gas supplies to Europe</p>	<p>The authors analyse potential impacts of a complete and permanent shutoff of the remaining Russian natural gas supplies on the German economy, taking into account the curtailment of flows through the Nord Stream 1 pipeline that</p>	<p>Germany: -1,5 pp (2H 2022) Germany: -2,7 pp (2023)</p>	<p>2 pp (2023) 2 pp (2024)</p>

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		<p>has already taken place. The authors find that such scenario could lead to gas shortages of 9 percent of national consumption in the second half of 2022, 10 percent in 2023 and 4 percent in 2024, which - given that households are legally protected - would likely fall on firms.</p> <p>The authors mention that their estimates of gas shortages seem smaller than those in the literature to date, partially because Germany has reduced its dependence on Russian gas over time.</p> <p>Their analysis combines the potential economic effects of three channels: the effects of less gas on production, the consequent effects of reduced supply of intermediate goods and services to downstream firms, and reduced economic activity due to rising uncertainty.</p> <p>The authors highlight that their simulations suggest that the economic impact can be significantly reduced if households voluntarily share a part of the burden of reduced gas supplies, for example by reducing the heating temperature by about 2 degrees, which would translate into a reduction of household gas consumption by approximately 10 percent.</p>	Germany: -0,4 pp (2024)	
Prognos Study drafted for the Vbw (Bavarian industry association) (June 2022)	A total stop of Russian gas exports to the EU, starting on July 1, 2022	The authors use a model with input-output calculations that incorporates direct effects as well as upstream and downstream effects of declining production. Under the economic assumptions used, the authors find that the downstream effects have the largest impact, even though they assume that the industry sectors indirectly affected would be in a position to replace 60 to 90 percent of those products that could no longer be produced in Germany by imports from other countries.	Germany: -12,7 pp (2H 2022)	

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<p>Complexity Science Hub CSH, Vienna CSH Policy brief by Pichler et al. (May 2022)</p>	<p>A total stop of Russian gas exports to the EU starting on June 1, 2022</p> <p>The authors analyse two scenarios: (A) EU-wide cooperation and (B) an uncoordinated scenario.</p>	<p>The authors use the direct economic shocks in a dynamic out-of-equilibrium macroeconomic input-output model to estimate overall economic impacts (direct shocks plus indirect effects through supply relations between industry sectors). The authors notably distinguish two cases of how much of the additional EU-wide gas supply can be accessed by Austria: In the EU-cooperation Scenario A they assume that MS face a common shock and distribute existing and additional gas resources such that every country faces the same relative reduction in its gas supply. In the uncoordinated Scenario B each member state individually tries to substitute its current Russian imports from other countries (Austria depends strongly on available capacities of pipeline and LNG port infrastructures of other countries, which might not be willing to pass through gas to foreign consumers). As regards the limitations of the model used, the authors mention that due to limited availability of data, the gas dependency of industrial sectors had to be estimated, that the industry-level analysis may underestimate the amplification of gas supply shocks (a limitation that is not specific to this study).</p>	<p>Austria: -1,9 pp (EU-wide co-operation) Austria: -9,1 pp (uncoordinated action)</p>	
<p>IBS / Warsaw School of Economics IBS Research Report by Antosiewicz, Lewandowski, and Sokołowski (May 2022)</p>	<p>Ban on fuel imports from Russia</p>	<p>Evaluation of the macroeconomic effects with a multi-sector, dynamic stochastic general equilibrium model. To model the effects of the embargo, the authors define shock prices following assumptions made in scenario analyses by Oxford Economics (2022) and the German Council of Economic Experts (Grimm et al., 2022). The limitations of that study include the focus on direct price effects (oil, gas and coal prices), leaving changing</p>	<p>Poland: -0,2 to -3.3 pp (2022) Poland: -2,1 to -5,7 pp (2025)</p>	

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		consumption patterns aside. Potential welfare losses, effects of social transfers, and monetary and fiscal policy effects are not considered either.		
IML Institut für Makroökonomie und Konjunkturforschung (for Hans-Böckler Stiftung) Study by Krebs (May 2022)	Immediate stop of Russian gas deliveries	Network model, depicting the production interdependencies of the six industry sectors that rely most intensively on natural gas. Simulated network effects are modelled by analogy, drawing from a study of Carvalho et al. (2020) about the economic consequences of the 2011 earthquake that caused the Fukushima accident, resulting in the shutdown of most nuclear reactors in Japan. In that case, the initial direct impact on GDP was small, but multiplier effects increased the indirect impact nearly fivefold (second-round effects). The author points to the large degree of uncertainty associated with all calculations, exceeding the normal degree of uncertainty in economic studies.	Key scenario (shortfall 53% of gas consumption) Germany: -3,2 to -8,0 pp (2022-23) (supply-side effect) Alternative scenario (shortfall 33% of gas consumption) Germany: -1,2 to -3,0 pp (2022-23) (supply-side effect) Additional demand-side effects Germany: -2,0 to -4,0 pp (2022-23)	-
DIW Berlin Publication by Bayer, Kriwoluzky, and Seyrich (March 2022)	Full embargo of gas and oil from Russia	Effects on the financial sector disregarded No analysis of effects on different industry sectors Assumption that Maastricht criteria remain suspended Effects on perceived government default risk (and spreads) disregarded Assumption that private consumption will not be affected	Germany: -3,0 pp	2,3 pp
ECONtribute / Universities of Cologne and Bonn	Full embargo of all energy imports from Russia	Elasticities of substitution for the fossil energy imports concerned (gas, oil and coal) are said to be subject to a large degree of uncertainty. The estimated range of economic impact hence crucially depends on the assumed substitution effects and reallocation	Germany: -0,2 to -2,2 pp	-

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Policy Brief by Bachmann, Baqaee, Bayer, Kuhn, Löschel, Moll, Peichl, Pittel and Schularick (March 2022)		of energy inputs, and to some extent also depends on the model chosen. across sectors		
Bundesbank Monatsbericht (April 2022)	Full embargo of Russian energy imports (alternative scenario)	The model calculations incorporate a component to map international economic ties (NiGEM), the macro-econometric model of the Bundesbank for the German economy (BbkM-DE), a linear sectoral input-output model (intended to capture rationing effects in energy use), and various satellite models.	Germany: -1,0 to -3,25 pp (2022) Germany: -3,5 pp (2023) EU: -1,75 pp (2022) EU: -1,75 pp (2023)	Germany: 1,5 pp (2022) Germany: 2,0 pp (2023)
Conseil d'analyse économique (CAE) Publication by Baqaee, Moll, Landais, and Martin (April 2022)	Full embargo of all Russian energy imports	Estimates rest on the assumption that the firms have the possibility to substitute intermediate goods or inputs in the production process. Not taking into account this effect would lead to higher impact, but would not be realistic based on historical and empirical insights according to the authors.	EU: -0,2 to -0,3 pp Germany: -0,3 pp France: -0,2 pp	-
ECB Staff economic projections (June 2022)	A complete cut in Russian energy exports to the euro area	The downside scenario assumes a complete cut in Russian energy exports to the euro area starting from the third quarter of 2022, leading to a rationing of gas supplies, significantly higher commodity prices, lower trade and intensified global value chain problems.	EA: -1,5 pp (2022) EA: -3,8 pp (2023) EA: +0,9 pp (2024)	EA: +1,2 pp (2022) EA: + 2,9 pp (2023) EA: -0,2 pp (2024)
European Commission Spring 2022 Economic Forecast (May 2022)	Sudden stop of gas supply from Russia, partial substitution	Severe adverse scenario, as alternative to the baseline assumption and adverse scenario: Sudden stop of gas supply from Russia with only partial substitution possibilities; oil prices as in the adverse scenario (an increase by 25% compared to the baseline assumption).	Severe adverse scenario EU: -2,5 pp (2022) EU: -1,0 pp (2023)	Severe adverse scenario EU: 3,0 pp (2022) EU: > 1,5 pp (2023)

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		<p>Caveats: the scenarios are run for the euro area as a whole, but European countries are set to be affected to different degrees.</p> <p>Like other model-based assessments, the simulations are subject to an unusual high degree of uncertainty.</p> <p>Beyond the risks explicitly addressed, additional disruptions could come from no energy imports such as metals, fertilisers and food imports, as well as from more extreme supply chain bottlenecks.</p>		
<p>IMF Regional Economic Outlook (April 2022)</p> <p>(Box 3, page 18)</p>	12 month Russian gas and oil supply shut-off	<p>The scenario presented by the IMF also assumes the disconnection of Russia from much of the global financial and trade system.</p> <p>In such a scenario the impact would propagate to the rest of the world through higher commodity prices, disruptions to supply chains, and tighter financial conditions. The resulting supply shock, at a time when commodity prices and inflationary pressures are already high, would lead to an upward shift in inflation expectations and require a greater tightening in monetary policy, further amplifying the negative impact on global activity.</p>	EU: -3,0 pp (2023)	> 1,0 pp (2022 and 2023)
<p>DIW, ifo Institut & KOF/ETH Zürich, IfW Kiel, IWH, RWI & IHS Wien Joint analysis (Gemeinschaftsdiagose) (April 2022)</p>	Stop-order by Russia concerning all oil and gas deliveries as of mid-April (alternative scenario)	The joint analysis models the external shock in five steps, based on the determination of the gas availability profile over time, immediate production losses in manufacturing, reinforcement and spillover effects on other sectors of the economy, loss of purchasing power due to higher energy prices, and a macroeconomic cycle analysis	EU: -0,5 pp (in 2022) EU: -2,5 pp (in 2023)	1,0 pp (2022) 1,1 pp (2023)
<p>OECD Economic Outlook (June 2022)</p>	Full embargo of Russian energy imports.	Effects along the production chain not taken into account, could lead to smaller impact. The OECD forecast is based on a macroeconomic multi-country input/output model, providing complete representation of the economy in the	EU: -1,25 pp	EU: > 1 pp

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		<p>sense that it covers production, government activities, income generation and consumption, prices, wages, exchange rates, and international financial and trade flows. Important to note also is that Projections for the EU countries account for spending financed by the Next Generation EU (NGEU) grants and loans, based on expert judgments about the distribution across years and different expenditure categories and informed by officially announced plans where available.</p>		