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The trade effects of the war in Ukraine from the European Union's and – in particular – Poland's perspective[1]

Introduction

The Russian Federation's invasion of Ukraine, which began on 24 February 2022, constitutes the escalation of the war continuing from 2014. Due to the Russian war in Ukraine and the subsequent economic sanctions against Russia, a process of transforming the architecture of the world economy has begun. The Russian-Ukrainian conflict will reshape international trade and redefine global value chains, leading to decentralised value chains and changes in trade efficiency. As a result of the Russian war in Ukraine, the impact on countries' economies will be heterogeneous and asymmetric, and will differ greatly, depending on the economies' energy resources intensity and the intensity of mutual economic and, especially, trade relations.

The war in Ukraine is the third asymmetric shock that the European Union has experienced in the last two decades, after the 2008 financial and economic crisis, the following Eurozone crisis, and the COVID-19 pandemic. An asymmetric shock is a sudden change in economic conditions that affects some EU countries more than others. The war in Ukraine is indeed having a much greater impact on neighbouring countries due to the influx of refugees and heavy dependence on Russian energy resources.

[1] The research was co-financed from the statutory budget of the Faculty of Law, Administration and International Relations of Andrzej Frycz Modrzewski Krakow University.

Although Russia's and Ukraine's shares in the global trade and production are relatively small, they are important suppliers of basic products, specifically food and energy. In 2019, both countries supplied approx. 25% of wheat, 15% of barley and 45% of sunflower products. Russia's share alone accounted for 9.4% of the global trade in fuels, including its 20%-share in natural gas export. Russia and Ukraine are also key suppliers of raw materials for industrial value chains. Russia is one of the world's main suppliers of palladium and rhodium, key raw materials for the production of car catalysts, satisfying 26% demand for the global import of palladium in 2019.[2] The production of semi-conductors is, to a large extent, dependent on neon provided by Ukraine.

Therefore, the trade consequences of the war for the European Union, Ukraine's important trading partner, deserve special attention. The war also disrupts trade relations between the EU and Russia. The EU's direct trade sanctions are limited to specific sectors, such as oil, coal, arms, dual-use goods, as well as the aviation and space industry. However, financial sanctions, particularly the SWIFT ban imposed on seven Russian banks, increase the costs of commercial transactions considerably. When discussing the trade effects of the war, attention must be paid not only to trade relations between the EU and Ukraine, but also between the EU and Russia, which is a prominent trading partner of the European Union. The trade effects of the Russian invasion of Ukraine are experienced across Europe, they are and will be different for individual Member States.

This paper aims to present the trade effects of the war in Ukraine from the European Union's, Member States' and, in particular, Poland's perspective. This refers not only to the trade creation and diversion effect, but also to changes in the structure of the EU's trade regarding the main groups of goods. These effects will vary depending on direct trade links, dependence on Russian energy and susceptibility to rising energy prices. In order to show a broader perspective of trade relations between the EU and Ukraine, the legal basis of mutual relations was presented first. It was about a deep and comprehensive agreement with Ukraine and a partnership and cooperation agreement with Russia. Given an extensive range of parties involved and issues covered by the research, this paper focuses only on the main aspects of the problem.

2 *The Crisis in Ukraine. Implications of the war for global trade and development*, WTO, https://www.wto.org/english/res_e/booksp_e/imparctukraine422_e.pdf [accessed: 22 February 2023]

Legal bases for the EU-Ukraine and the EU-Russia trade relations

In the 1990s, the European Union entered into Partnership and Cooperation Agreements (PCAs) with countries belonging to the Commonwealth of Independent States. The Community made such agreements with Russia, Ukraine, Moldova, Kazakhstan, Armenia, Georgia, Kyrgyzstan, Uzbekistan, Azerbaijan, and Tajikistan. These agreements were signed with states belonging in that time to the WTO, hence they provided for the normalisation of conditions for trade, in accordance with the most favoured nation (MFN) clause, as well as a general co-operation framework for other areas of the economy.

An association agreement between Ukraine and the EU, whose main part was Deep and Comprehensive Free Trade Agreement (DCFTA), entered into force on 1 January 2016. That agreement led to the outbreak of the conflict between Ukraine and Russia. DCFTA is based on two fundamental elements. First and foremost, it provides for trade liberalisation by eliminating customs duties, import quotas and other (legal, technical, and procedural) barriers to trade. The agreement also stipulates that Ukraine will liberalise regulations on investments and services, including financial, telecommunications, sea transport, and postal services. Second, Ukraine commits itself to adopting EU regulations and technical and infrastructural standards under the agreement. It further provides for the adaptation of Ukrainian regulations to the Union legislation. The EU's priorities for negotiations concerning a free trade area with Ukraine included mainly the following areas: (1) closer integration of Ukraine with the European market, aimed at enhancing its political and economic stability; and (2) safeguarding the interests of Union companies and investors by opening and liberalising the Ukrainian market and adapting it to the European model. It is necessary to improve conditions for investment, as Ukraine has been assessed as a country with the worst business climate in Eastern Europe. In the 2012 Doing Business Ranking, which examines the conditions for conducting business, Ukraine was ranked 152nd out of the 183 countries in the world, the lowest in Eastern Europe,[3] and with the highest corruption rate. In Transparency International's corruption perception ranking for 2011, Ukraine was ranked 152nd out of the 182 countries in the world; this being the lowest position in Eastern Europe.[4] DCFTA is seen as one of key instruments for the European integration of Ukraine. Nonetheless, that integration is not understood as the prospects for membership, but as the adjustment of Ukraine to fit the European model, which is expected to ensure stability in the immediate neighbourhood of the EU.

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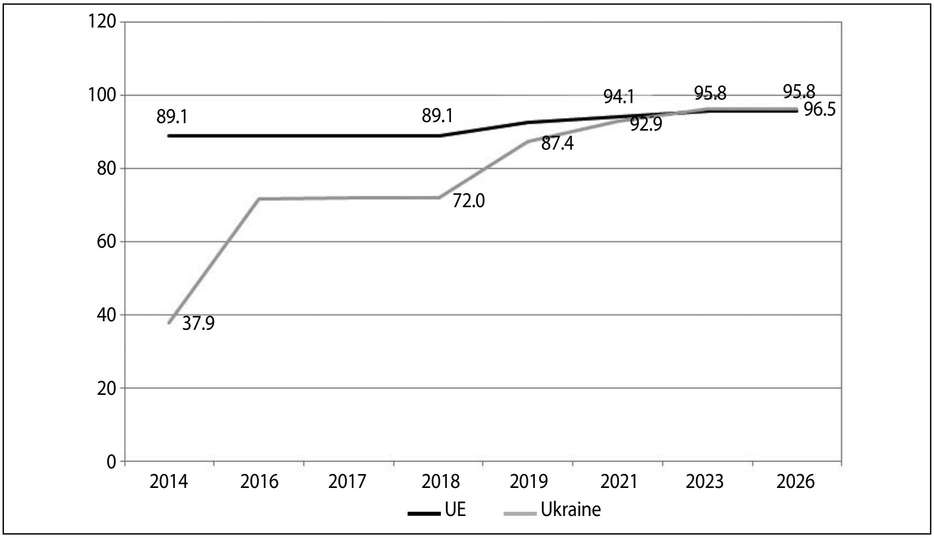
3 *The 2012 Doing Business ranking*, https://archive.doingbusiness.org/en/reports/global-reports/doing-business-2012 [accessed: 25 February 2023].

4 *Transparency International's corruption perception ranking for 2011*, https://www.transparency.org/en/cpi/2011 [accessed: 25 February 2023].

Chart 1. Timeline for reduction of tariff rates specified in the EU-Ukraine Free Trade Agreement (% of duty-free tariff lines)



Source: Author's own elaboration based on WTO, *The Association Agreement between the European Union and Ukraine (goods and services)*, Report by the Secretariat, WT/REG353/1, 13 April 2017.

Before the agreement entered into force, 25.1% of the EU's tariff lines were covered by a zero MFN tariff rate, accounting for 75.7% of its imports from Ukraine between 2011 and 2013. It was as early as in April 2014 that the EU introduced unilateral trade preferences for Ukraine (autonomous trade measures, ATM), lowering customs duties in accordance with DCFTA for industrial goods. Hence, in 2014, zero rates of customs duties were applied additionally to 64% of tariff lines for imports from Ukraine. At the end of the transitional period, in 2023, 95.8% of EU tariff headings are duty free for imports from Ukraine, which represents 97.9% of its import in terms of value. There will still be 400 tariff lines which have to be subject to customs duties.

In Ukraine, on the other hand, before the agreement entered into force, 37.9% of tariff headings were covered by a zero MFN tariff rate, accounting for 53.7% of the country's imports from the UE between 2013 and 2015. With the agreement entering into force in 2016, further 33.9% of tariff lines were covered by zero rates of customs duties in relation to imports from the EU. Further reductions in customs duties, covering another 24.7% of tariff lines, are planned over a ten-year transitional period, i.e., until 2026. Consequently, as of 2026, 96.5% of tariff lines will be covered by zero customs duties, representing 97.7% of import value. Ultimately, non-zero duty rates will apply to 367 tariff lines. Tariff quotas have been introduced for 36 groups of goods. These quotas apply to goods that are considered in the EU to be particularly sensitive and which have to face competition from

Ukrainian goods (e.g., wheat and poultry meat). The EU-Ukraine agreement bans both parties from imposing export duties. However, the Ukrainian government has agreed to the gradual abolition of existing export duties until 2026 in relation to certain goods, including livestock and hide raw materials, seeds of some types of oil-yielding crops and types of metal.[5]

Since the very beginning of the Eastern Partnership's existence, the initiative has been perceived in Ukraine in two ways. On the one hand, the project was seen as a new instrument for bilateral co-operation, allowing Ukraine to obtain specific benefits: a free trade agreement and visa liberalisation (the liberalisation of visas eventually took place in June 2017 after Ukraine had satisfied the liberalisation criteria). On the other hand, many Ukrainian politicians criticised the Eastern Partnership (EP) as a project offering no prospects of EU membership and categorising their country into the same group with such states as Belarus or Azerbaijan, whose ambitions to co-operate with the EU are far more modest. EU membership is regarded by the Ukrainian authorities and citizens as one of the key objectives for Ukraine's foreign policy. However, as there has been no new ambitious Union programme for Ukraine, a sceptical attitude towards the EU has been instilled into the country. This process began already in 2015, when the EU agreed to delay the temporary implementation of DCFTA following Russia's reservations. A setback to the EU-Ukraine relations was seen later, in 2016, when the EU delayed the fulfilling its obligations owing to a referendum on DCFTA held in the Netherlands. The EU's image in Ukraine is becoming more and more negative also due to crises affecting the Union: migration, Brexit, etc. Furthermore, disappointment has been expressed about the limited effects of DCFTA on the EU-Ukraine trade (and mainly on Ukraine's exports). ATM and DCFTA enabled the EU to become the main trading partner for Ukraine (the EU's share in exports rose from 26% in 2013 to 37% in 2016, whereas in imports, it grew from 35% to 44%); however, as regards current prices, the total trade in goods declined (from USD 43.8 billion in 2013 to USD 30.4 billion in 2016; Eurostat data).

Since 1997, political and economic relations between the EU and Russia have been based on a bilateral partnership and cooperation agreement (PCA). PCA provisions on trade are designed to promote trade and investments, as well as to foster economic relations for the benefit of both parties. Negotiations of a new EU-Russia agreement started in 2008, but were stopped in 2010, as there was no progress in the chapter concerning trade and investments. In March 2014, the European Council suspended the negotiations following Russia's military intervention in Ukraine. Since 2012, when Russia became a WTO member, the EU-Russia relations have also been subject to multilateral WTO rules.

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[5] *The Association Agreement between the European Union and Ukraine (goods and services)*, Report by the Secretariat, WTO, WT/REG353/1, 13 April 2017.

The EU's trade sanctions against Russia

Sanctions imposed on Russia are the most severe and expensive penalties that have been levied on a big economy at least since the Cold War. Their range, global coordination, and the speed of action in this respect seem to be unprecedented.[6]

Since March 2014, sanctions against Russia have been gradually introduced by the EU in response to:[7]

- the annexation of Crimea in 2014;
- military aggression in Ukraine in 2022;
- the annexation of Ukrainian regions: Donetsk, Luhansk, Zaporizhzhia, and Kherson in 2022.

The EU applied sanctions to:

- Belarus – in response to its involvement in the assault on Ukraine;
- Iran – in connection with Russia's use of Iranian drones against Ukraine.

The European Commission employed measures mainly designed to restrict trade, namely import and export bans. In July and September 2014, the EU imposed economic sanctions on trade with Russia in relation to specific sectors of the economy. Since then, economic sanctions have been extended successively by another six months. On 25 February 2023, the EU adopted the tenth package of additional restrictive measures against Russia. Union sanctions do not apply to food and agricultural products; hence they do not limit the export of these goods and transactions related to them. Consequently, EU sanctions have no bearing on food security and concern only bilateral trade between the EU and Russia – but international trade remains unaffected. Economic sanctions are aimed at the financial, trade, energy, transport, technological, and defence sectors. The sanctions that have importance for trade include:[8]

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6 S. Cecchetti, K.L. Schoenholtz, R. Berner, *Russian sanctions: Some questions and answers*, CEPR, VoxEU, 21 March 2022, https://cepr.org/voxeu/columns/russian-sanctions-some-questions-and-answers [accessed: 28 February 2023].

7 *EU response to Russia's invasion of Ukraine*, European Council, https://www.consilium.europa.eu/en/policies/eu-response-ukraine-invasion/ [accessed: 28 February 2023].

8 The sanctions list was prepared based on the Council of the EU data: *EU adopts new set of measures to respond to Russia's military aggression against Ukraine*, Press release, 28 February 2022, Official Journal of the European Union, L 081, 9 March 2022 (sectoral measures of Russia); *EU adopts fifth round of sanctions against Russia over its military aggression against Ukraine*, Press release, 8 April 2022; *Russia's aggression against Ukraine: EU adopts sixth package of sanctions*, Press release, 3 June 2022; *Russia's aggression against Ukraine: EU adopts "maintenance and alignment" package*, Press release, 21 July 2022; *EU adopts its latest package of sanctions against Russia over the illegal annexation of Ukraine's Donetsk, Luhansk, Zaporizhzhia and Kherson regions*, Press release, 6 October 2022; *Russia's war of aggression against Ukraine: EU adopts 9th package of economic and individual sanctions*, Press release, 16 December 2022; *One year of Russia's full-scale invasion and war of aggression against Ukraine, EU adopts its 10th package of economic and individual sanctions*, Press release, 25 February 2023; Official Journal of the European Union, L 059I, 25 February 2023 (including a list of sanctions); EU restrictive

Financial sector:

- limited access of certain Russian banks and companies to the Union's primary and secondary capital markets;
- a ban on transactions with the Central Bank of Russia, the Central Bank of Belarus, and the Russian Regional Development Bank;
- certain Russian and Belarusian banks excluded from the SWIFT system;
- a ban on the supply of euro-denominated bank notes to Russia and Belarus;
- a ban on public funding or investments in Russia;
- a ban on investments and contributions to projects co-financed by the Russian Direct Investment Fund.

Energy:

- a ban on the import of coal and other solid fossil fuels from Russia (effective as of 10 August 2022);
- a ban on the import of oil (from December 2022) and refined petroleum products (from February 2023) from Russia, with limited exceptions;
- a price cap on the sea transport of oil – USD 60 per barrel;
- a ban on the export from Russia of goods and technologies for the oil refining sector;
- a ban on new investments in the Russian energy and mining sector.

Transport:

- the EU airspace closed to all aeroplanes from and registered in Russia;
- a ban on sea transport of Russian oil to third countries (if purchased at a price higher than the price cap);
- EU ports closed to Russian ships;
- Russian and Belarusian road carriers banned from entering the EU;
- a ban on the export of goods and technologies for the aviation, maritime and space sector to Russia.

Defence:

- a ban on the export of dual-use products and technologies to Russia;
- a ban on the export of drone engines to Russia;
- a ban on trade in arms, including firearms for civilian use;
- a ban on trade in ammunition, military vehicles and paramilitary equipment.

Raw materials and other goods:

- a ban on the import of iron, steel, timber, cement and plastics from Russia;
- a ban on the import of gold, including jewellery form Russia;
- a ban on the import of seafood and liquor (e.g., caviar, vodka), cigarettes and cosmetics from Russia.

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measures against Russia over Ukraine (since 2014), https://www.consilium.europa.eu/en/policies/sanctions/restrictive-measures-against-russia-over-ukraine/ [accessed: 28 February 2023].

Particularly relevant EU sanctions having an impact on trade with Russia were introduced on 8 April 2022. The EU put a ban on the import of coal from Russia. From that date on, a four-month 'period for termination' of existing contracts would continue. These are for execution of existing contracts and spot market transactions.[9]

At the beginning of June 2022, the EU adopted the sixth package of sanctions against Russia. It included a complete ban on the import of Russian oil transported by sea (from 5 December 2022) and petroleum products (from 5 February 2023), which account for 90% of current oil imports from Russia to the EU. The ban on import by sea covers transitional periods of six months for oil and eight months for petroleum products. That sanctions package also includes a ban on insurance and financing of transport (including forwarding) of Russian oil to third countries. For that ban a six-month 'termination' period has been set.[10]

The EU-Ukraine and the EU-Russia trade relations in the context of military conflict: trade disruptions

The EU is Ukraine's largest trading partner and its share in both EU's import and export in 2021 was nearly 40% (Table 1). On the other hand, Ukraine (in 2021) is the fifteenth biggest trading partner of the EU and a priority partner as part of the Eastern Partnership and the European Neighbourhood Policy (ENP). The country's share in the EU's overall trade is 1.2% (1.1% for EU imports and 1.3% for exports). The EU-Ukraine overall trade reached the level of nearly EUR 52.4 billion (exports plus imports) in 2021, which means almost a twofold increase since 2016, when DCFTA entered into effect.

The goods which are mainly exported from Ukraine to the EU include base metals, including iron and steel (20.8% of total exports), mineral products (nearly 18%), vegetable products (nearly 15%) – particularly sunflower seed oil and cereals. The goods which are mainly exported from the EU to Ukraine encompass machinery and appliances (24% of total exports), products of the chemical or allied industries (16%), including pharmaceutical products, and transport equipment (11%) (Table 1).

9 *Question and answers on the fifth package of restrictive measures against Russia*, European Commission, https://portal.ieu-monitoring.com/editorial/eu-adopts-5th-round-of-sanctions-against-russia [accessed: 27 February 2023].

10 *UK and EU hit Russian oil cargoes with insurance ban*, Financial Times, 31 May 2022, https://www.ft.com/content/10372dd3-be3c-42b9-982b-241a38efcc88 [accessed: 28 February 2023].

Table 1. EU-Ukraine trade (in EUR billion and %)

	Imports					Exports				
	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
Value	16.2	17.4	19.1	16.3	24.1	19.8	21.5	24.1	23.1	28.3
Share in extra-EU (%)	0.9	0.9	1.0	1.0	1.1	1.0	1.0	1.1	1.2	1.3
Main goods (% of the total, 2021) (HS section)	Base metals and articles of base metal (23,8)(XV); mineral products (17,8)(V); vegetable products (14,7)(II)					Machinery and appliances (24,0) (XVI); products of the chemical or allied industries (16,1)(VI); transport equipment (11,4)(XVII)				
Ukraine's major trading partners (% of the total, 2021)	Imports					Exports				
	EU27 (40.2); China (15.2); Russia (8.4); Belarus (6.7)					EU27 (39.1); (China (12.1); Turkey (6.1); Russia (5.1)				

Source: Author's own elaboration based on European Commission Trade Statistics, https://policy.trade.ec.europa.eu/analysis-and-assessment/statistics_en [accessed: 28 February 2023].

Table 2. EU-Russia trade (in EUR billion and %)

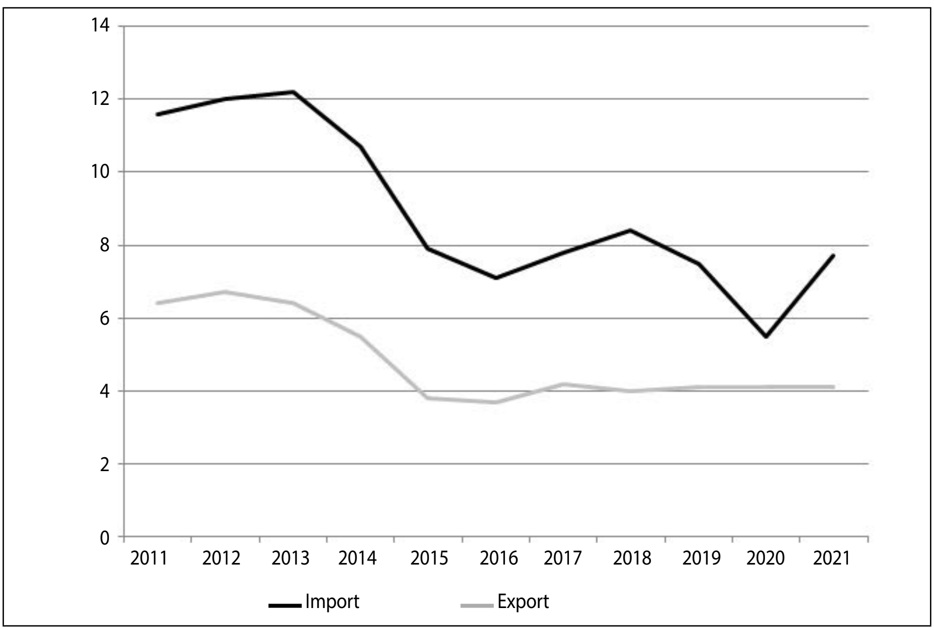
	Imports					Exports				
	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
Value	138.3	160.9	144.9	94.7	162.5	82.8	82.3	87.8	79.0	69.3
Share in extra-EU (%)	7.8	8.4	7.5	5.5	7.7	4.2	4.0	4.1	4.1	4.1
Main goods (% of the total) (HS section)	Mineral products (64,7)(V); not classified (12,2)(XXI); base metals and articles of base metal (9,3)(XV)					Machinery and appliances (30,3) (XVI); products of the chemical or allied industries (19,0)(VI); transport equipment (13,6)(XVII)				
Russia's major trading partners (% of the total, 2021)	Imports					Exports				
	EU27 (31.9); China (24.8); USA (6.0); Belarus (5.3)					EU27 (38.2); China (13.9); Turkey (5.4); Belarus (4.6)				

Source: Author's own elaboration based on European Commission Trade Statistics, https://policy.trade.ec.europa.eu/analysis-and-assessment/statistics_en [accessed: 28 February 2023].

Out of all states located directly to the east of the EU, Russia was undoubtedly its most important trading partner at the time the country launched the war with Ukraine. In 2021, Russia was the fifth biggest trading partner of the EU (ranking third for imports and fifth for exports), having a 5.9% share in the EU's overall trade in goods. In 2021, the EU was the main trading partner of Russia, having a 35.9% share in the overall trade in goods of that country (Table 2). Despite the fact that in 2021 Russia's share in the Union's trade in goods with foreign countries was merely 5.9% (exports plus imports), it is one of the biggest suppliers of coal, gas, and particularly oil to the EU: in 2020, the EU imported from Russia 45% of mineral fuels in terms of value, with three-fourth of that volume being oil. In 2021, the EU's imports from Russia amounted to EUR 165 billion and included mainly mineral products (nearly 65%), timber (EUR 3.16 billion, 2.0%), iron and steel (EUR 7.4 billion, 4.7%), and fertilisers (EUR 1.78 billion, 1.1%) (Table 2). The EU's exports to Russia in 2021 totalled slightly more than EUR 69.0 billion. The following goods had the biggest share: machinery and appliances (30.3%); products of the chemical or allied industries (19.0%), including pharmaceuticals (EUR 8.1 billion, 8.1%); transport equipment (13.6%), including motor vehicles (EUR 8.95 billion, 9%), electrical machinery and equipment (EUR 7.57 billion, 7.6%), and plastics (EUR 4.38 billion, 4.3%).

In general terms, trade relations with Russia play a minor role to the EU. Although the EU is the main trading partner of Russia, with almost half of the total exports of that country, Table 2 shows that the EU does not consider trade with Russia to be very important, except for the energy sector. Furthermore, trade has been continuing to decline since the annexation of Crimea by Russia and the introduction of the first package of economic sanctions by the EU in 2014. The year 2021 was an exception, when a share in imports from Russia grew to 7.7% (Chart 2).

Chart 2. EU trade with Russia (% of total EU trade)



Source: Author's own calculations based on Eurostat data.

Nevertheless, these general figures do not demonstrate considerable differences among countries. One may observe that particularly in the case of export, Russia was the biggest export market for Latvia (30.4%) and Lithuania (25.6%). Similarly, even though the volume of export to Russia is small for the majority of Western and Northern European countries, its role in most economies of Central and Eastern

Europe is essential, which applies also to Poland (11.1%). As regards import, trade relations with Russia are particularly strong in Eastern Europe, the Baltic States, and Poland (Table 3).

Table 3. EU trade of goods to Russia, 2021 (in EUR million and %)

Country	Imports of goods, in EUR million	% of Russia in extra-EU imports	Exports of goods, in EUR million	% of Russia in extra-EU exports	Trade balance in EUR million
Germany	28,856	6.6	26,774	4.2	-2,083
Netherlands	26,684	7.1	7,967	3.7	-18,717
Poland	16,725	17.1	8,004	11.1	-8,721
Italy	13,984	7.0	7,696	3.1	-6,288
France	9,229	4.6	6,392	2.8	-2,907
Finland	8,550	38.8	3,751	12.4	-4,798
Belgium	7,801	7.7	4,445	2.9	-3,356
Spain	5,977	3.7	2,213	1.8	-3,764
Lithuania	4,582	37.3	3,749	25.6	-833
Greece	4,297	13.7	207	1.1	-4091
Slovakia	4,213	22.0	1,345	7.9	-2,858
Hungary	4,131	12.0	1,711	6.5	-2,420
Austria	3,692	8.4	2,049	3.9	-1,643
Romania	3,160	11.7	1,001	5.0	-2,159
Bulgaria	2,980	19.3	433	3.8	-2,547
Czechia	2,987	6.3	3,594	9.6	+615
Estonia	2,110	37.8	772	12.8	-1,338
Latvia	1,983	35.8	1,931	30.4	-52
Sweden	1,978	3.8	2,222	3.0	+244
Denmark	1,852	5.5	1,021	2.0	-830
Portugal	1,068	4.9	178	1.0	-890
Ireland	580	0.9	540	0.5	-40
Croatia	489	6.5	204	3.4	-285
Slovenia	415	1.9	852	5.4	+436
Cyprus	86	2.8	61	2.6	-25
Luxembourg	16	0.7	155	5.7	+139
Malta	9	0.4	8	0.6	-1

Source: Author's own calculations based on Eurostat data.

Four Member States had a positive trade balance with Russia. The biggest surplus was recorded by Czechia (EUR 615 million), followed by Slovenia (EUR 436 million), Sweden (EUR 244 million) and Luxembourg (EUR 139 million). A trade deficit with Russia was reported by 23 Member States. The biggest deficit was recorded by the Netherlands (EUR 18,717 million), followed by Poland (EUR 8,721 million) and Italy (EUR 6,288 million) (Table 3).

According to available data, bilateral trade between Russia and the European Union rose by 30.1% from January to July 2022. Exports from Russia to the EU grew by 69.9%, whereas exports from the EU to Russia fell by 33% due to sanctions and growing energy prices. According to Eurostat, in spite of sanctions, bilateral trade between Russia and EU Member States indeed increased in the period from January to July 2022. The value of trade in that period reached the level of EUR 171.4 billion, while exports from the European Union to Russia declined by 33% over 7 months in 2022, falling to a level of merely EUR 34.1 billion, the EU's imports from Russia grew by 69.9% to EUR 137.3 billion.[11] Direct disruptions to EU-Russia trade are limited, but also highly concentrated on the Baltic States and some Member States from Central and Eastern Europe.

Attention must be given to Russia's importance in the import of certain goods to the EU. Supply chain disturbances are in this case even more relevant than the total trade volume. For instance, Russian timber accounts for almost a half of the total timber import to Finland and considerably contributes to the national forestry sector, which comprises 20% of the total production of the industry and 15% of industry employment. Similarly, farmers across Europe depend, to a large extent, on fodder plants imported from Ukraine, while being heavily dependent on Russia and Belarus as regards fertilisers.[12] More importantly, Russia is one of the world's leading exporters of raw materials and is ranked high on the Union's list of suppliers of critical raw materials. Critical raw materials (CRMs) – such as lithium, cobalt, and rare earth elements (REEs) – are essential commodities for the EU economy. The EU has so far classified 30 raw materials as 'critical,' depending on their supply risk and economic importance. China currently produces 86% of the world's rare earth supply. The EU is largely dependent on palladium from Russia, which is a precious metal used for reducing car emissions. Indeed, Russia extracts 40% of global palladium resources.[13]

Shortages in this respect have already led to price rises and may quickly translate into supply chain issues, especially for the German and Italian automotive industry. Russia also has a big share in the total EU's import of nickel and aluminium.

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11 *Russia-European Union Bilateral Trade Increased 30.1% In 7M 2022*, Russia Briefing News, 3 October 2022, https://www.russia-briefing.com/ [accessed: 27 February 2023].

12 N. Redeker, *Same shock, different effects: EU member states' exposure to the economic consequences of Putin's war*, Hertie School, Jacques Delors Centre, 7 March 2022, https://www.delorscentre.eu/en/publications/economic-consequences-ukraine [accessed: 10 March 2023].

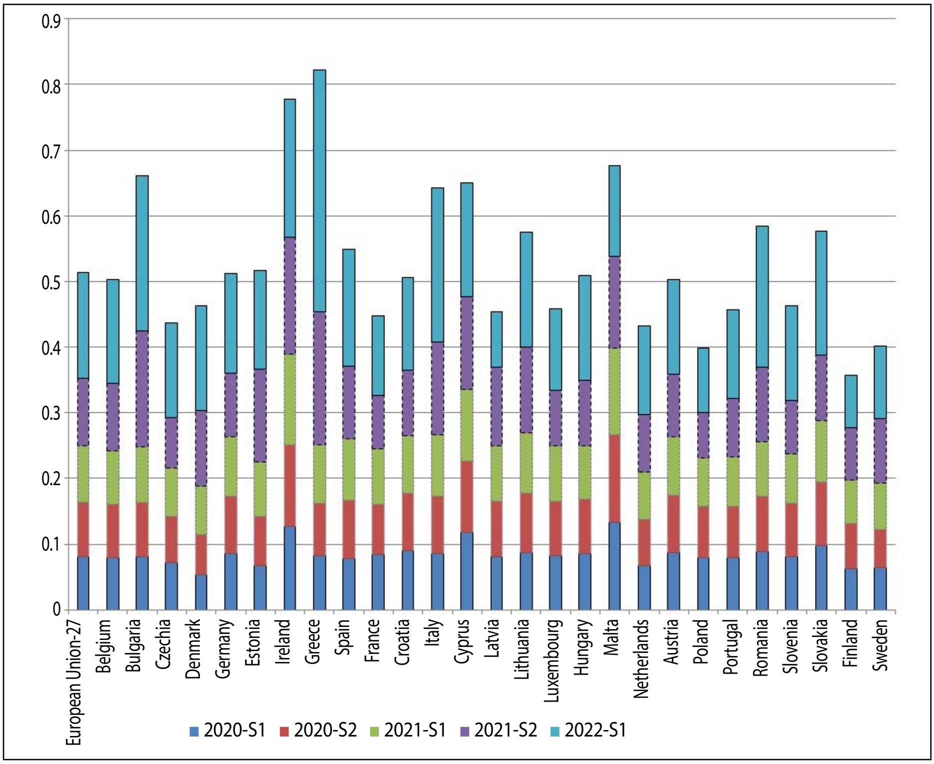
13 K. van Wieringen, M. Fernández Álvarez, *Securing the EU's supply of critical raw materials*, European Parliamentary Research Service, 8 July 2022, https://epthinktank.eu/2022/07/08/securing-the-eus-supply-of-critical-raw-materials/ [accessed: 10 March 2023]; *Securing technology-critical metals for Britain: Ensuring the United Kingdom supply of strategic elements & critical materials for a clean future*, University of Birmingham, Birmingham Centre for Strategic Elements, EPSRC Critical Materials & Critical Elements and Materials (CrEAM) Network, Birmingham 2021, p. 22, https://www.birmingham.ac.uk/documents/college-eps/energy/policy/policy-comission-securing-technology-critical-metals-for-britain.pdf [accessed: 10 March 2023].

Currently, Europe imports 47% of its primary aluminium; however, China controls 60% of the global production capacity, with Russia being ranked behind. The demand for that metal, used in electric cars and feeder cables, is growing.[14] Disturbances to trade flows in these areas may hence have a serious impact on the EU's steel, manufacturing, and construction industries.

Exposure to energy imports and energy prices

Rising energy prices are the second main impact channel of Russia's invasion of Ukraine on EU trade. In fact, there are two channels that affect Member States: firstly, through direct dependence on the Russian import of energy; and secondly, through soaring gas, oil, and coal prices on global energy markets that follow from the present conflict. Energy prices are shown in Chart 3.

Chart 3. Electricity prices for non-household consumers – bi-annual data (in EUR per kilowatt hour)



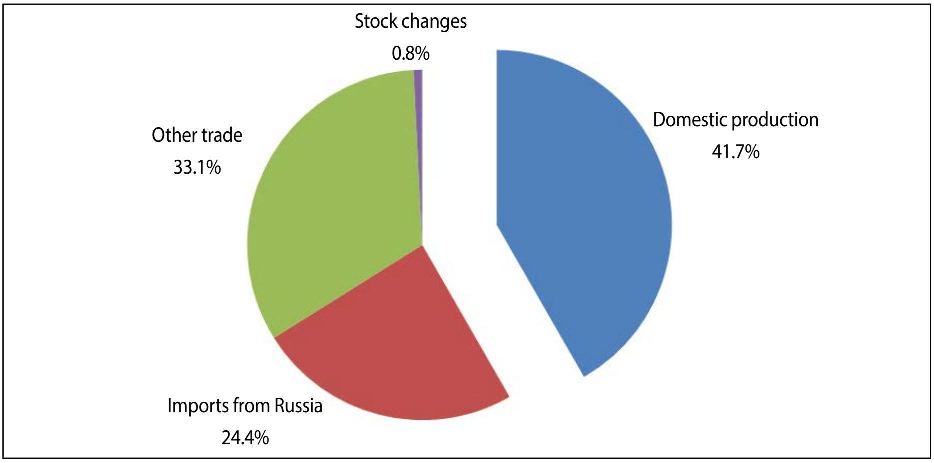
Source: Author's own calculations based on Eurostat data.

[14] F. Simon, *EU to introduce targets for raw materials self-sufficiency*, Euractiv, https://www.euractiv.com/section/energy-environment/news/eu-to-introduce-targets-for-raw-materials-self-sufficiency/, 9 December 2022 [accessed: 12 March 2023].

According to the latest available data, energy prices in the EU in H1 2022 were two times higher than in H1 2020. The biggest rise in electricity prices was seen in the corresponding period in Greece, Bulgaria, Italy, and Romania, whereas the lowest in Poland, Lithuania, and Finland (Chart 3).

The EU, on the other hand, depends on Russia for 24.4% of all its energy needs, more than 40% of that demand was accommodated by its own production (Chart 4).

Chart 4. Gross available energy in the EU and its sources, 2020 (in %)

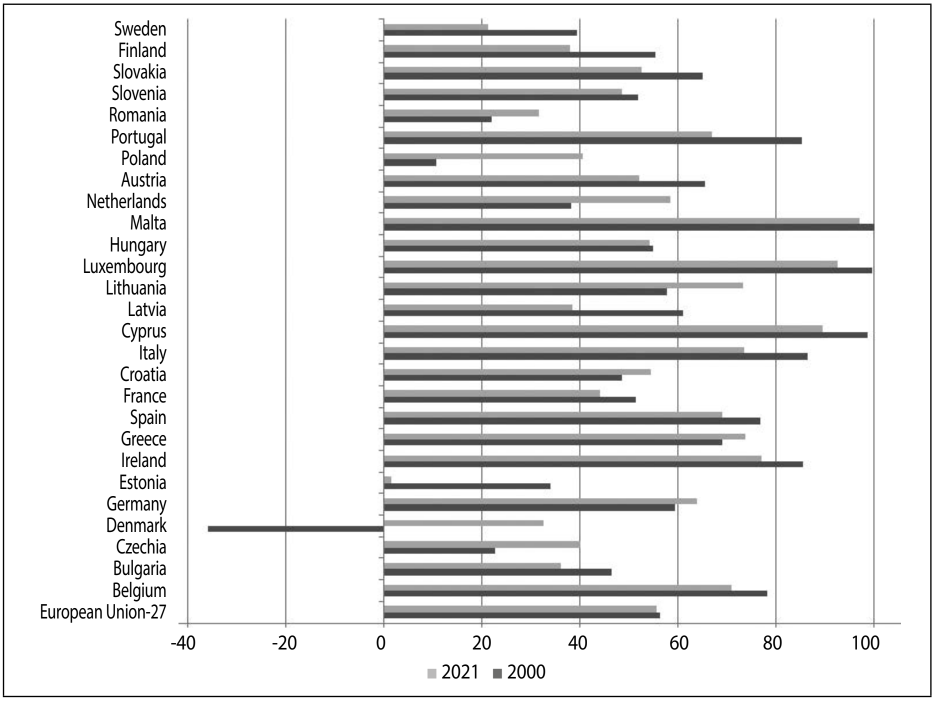


Source: Author's own elaboration based on Eurostat data.

However, to assess the 'energy self-sufficiency' of EU Member States concerned, an energy dependency rate can be used. An energy dependency rate is the percentage of net import of gross available energy (in terajoules). That rate shows the degree to which an economy is dependent on import to satisfy its energy needs. It is measured by a share of net import (import minus export) in gross national energy consumption (namely, the sum of energy generated and net import).

In 2021, an energy dependency rate in the EU stood at 56%, which means that more than half of the EU's energy needs was satisfied by net import. In all Member States, an energy dependency rate ranges between above 90% in Malta, Cyprus and Luxembourg and 10% in Estonia. It must be emphasised that the rate in question has risen dramatically for Poland: from 10% in 2000 to more than 40% in 2021 (Chart 5).

Chart 5. Energy dependency rate in the EU countries (in %)



Source: Author's own calculation based on Eurostat data.

The EU is dependent, to a large extent, on the import of energy resources from Russia. In 2020, the European Union imported the largest share of coal from Russia, nearly 47%.[15] Furthermore, in 2020, Russia's share in oil imports was around 23%, whereas the share in the total EU's import of natural gas amounted to 40%. What is relevant is the fact that while trade has been falling in other sectors since the annexation of Crimea and the beginning of the war in Donbass in 2014, the gas and coal imports have been growing.[16]

Russia remains the largest oil supplier for the EU. Russia's share decreased considerably in Q3 2022, totalling 14.4%, which points to a 10.4% decline compared to 2021. On the other hand, there was an increase in the share of the United States (+3.0%), Norway (+1.1%), Saudi Arabia (+4.0), and Iraq (0.9%) (Table 4). After Russia's invasion of Ukraine, the European Union replied by imposing several sanctions packages, which had an impact, both directly and indirectly, on trade in oil

15 *Leading countries based on hard coal production 2021*, Statista, 2023, https://www.statista.com/statistics/264775/top-10-countries-based-on-hard-coal-production/ [accessed: 12 March 2023].

16 N. Redeker, *op. cit*.

and natural gas. Therefore, the diversion effect for trade in oil can be seen in the first three quarters of 2022 (Table 4).

Table 4. Extra-EU imports of oil by main trading partners (% share of trade in value)

Partner	2021	Partner	Q1 2022
Russia	24.8	Russia	25.9
Norway	9.4	United States	10.4
United States	8.9	Norway	9.5
Libya	8.2	Kazakhstan	8.5
Kazakhstan	8.0	Libya	7.2
Nigeria	7.2	Nigeria	6.4
Others	33.4	Others	32.2
Partner	Q2 2022	Partner	Q3 2022
Russia	16.8	Russia	14.4
United States	11.5	United States	11.9
Norway	10.1	Norway	10.4
Nigeria	7.3	Saudi Arabia	9.1
Iraq	7.2	Iraq	7.6
Kazakhstan	7.0	Kazakhstan	6.8
Others	40.1	Others	39.8

Source: Eurostat database (Comext) and Eurostat estimates.

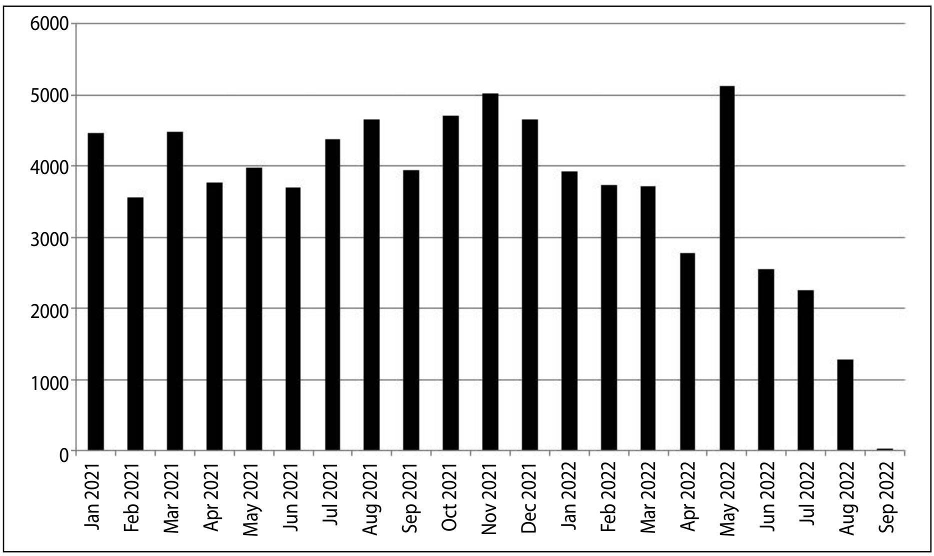
Table 5. Extra-EU imports of natural gas from main trading partners (% share of trade in value)

Partner	2021	Partner	Q1 2022
Russia	39.3	Russia	30.9
Norway	24.2	Norway	25.2
Algeria	8.2	United States	15.9
United States	7.1	United Kingdom	8.2
United Kingdom	6.2	Algeria	5.5
Others	15.0	Others	14.3
Partner	Q2 2022	Partner	Q3 2022
Russia	22.9	Russia	15.0
Norway	23.3	Norway	30.8
United States	17.6	United States	15.2
United Kingdom	14.7	United Kingdom	12.3
Algeria	6.1	Qatar	7.2
Others	15.4	Others	19.5

Source: Eurostat database (Comext) and Eurostat estimates.

Similarly, Russia is the EU's biggest supplier of natural gas. Nevertheless, Russia's share decreased considerably in Q3 2022, totalling 15%, which points to a 24.3% decline, compared to 2021. On the other hand, there was an increase in the share of the United States (+9.0%), Norway (+6.6%), and the United Kingdom (+6.1%). As a consequence of the sanctions introduced by the EU, the import of natural gas dropped. The diversion effect for trade in natural gas can be also seen in the first three quarters of 2022 (Table 5).

Chart 6. Import volume of coal from Russia into the European Union from January 2021 to September 2022 (in 1,000 metric tonnes)

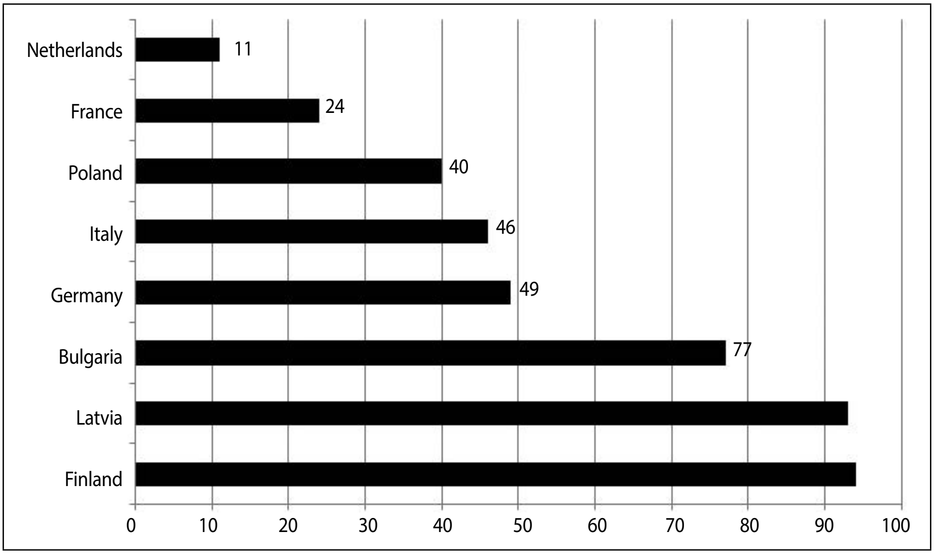


Source: *Import volume of coal from Russia in the European Union (EU)*, Statista, https://www.statista.com/statistics/1345760/eu-monthly-coal-imports-from-russia/ [accessed: 12 March 2023].

In September 2022, the European Union imported from Russia only 16.4 thousand tonnes of coal, compared to almost 1.3 million tonnes imported in the preceding month (the consequence of the introduced sanctions). In the period discussed, the import of coal reached the highest level of more than 5.1 million tonnes in May 2022 (Chart 6).

In fact, dependence on energy resources imported from Russia varies from one Member State to another. In order to evaluate Member States' susceptibility to energy sanctions, the share of energy resources imported from Russia in the total import of such resources has been shown. The highest share of import from Russia in the total gas import is observed for Finland and Latvia (above 90%), it is also relatively high (40%) for Poland (Chart 7). The greater dependence on imports from Russia is, the stronger the effects of trade disruptions caused by the war in Ukraine will be experienced.

Chart 7. Gas supply from Russia in selected EU countries, 2020 (% share in the total gas import)



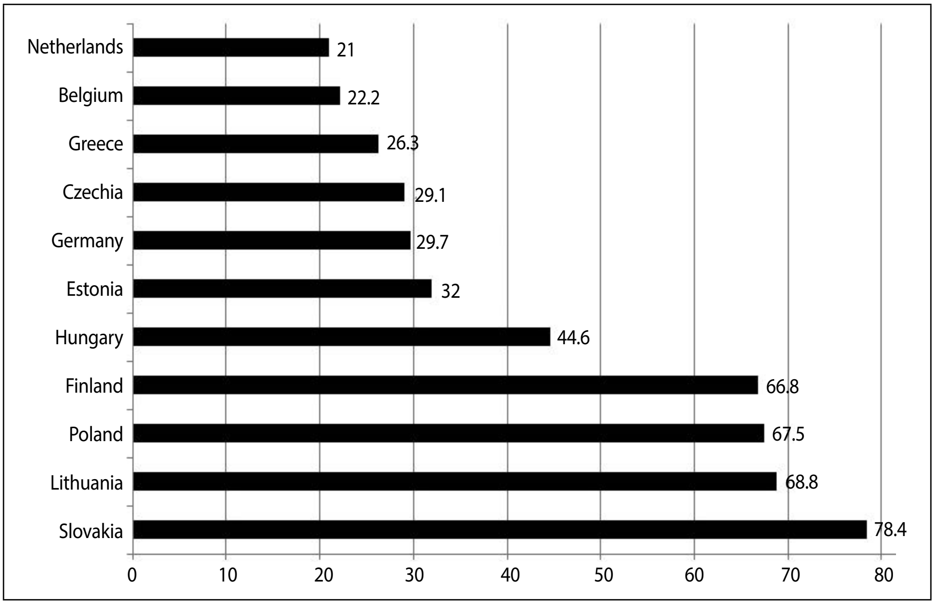
Source: Statista, *Which European Countries Depend on Russian Gas?*, Statista, https://www.statista.com/chart/26768/dependence-on-russian-gas-by-european-country/ [accessed: 12 March 2023].

The highest share of import from Russia in the total oil and petroleum product import (above 60%) is observed for: Slovakia, Lithuania, Poland, and Finland (Chart 8). These countries will suffer from the effects of trade disruptions resulting from the war to the largest degree.

In 2020, the rate of dependency on hard coal import in more than half of the EU countries exceeded 90%.[17] The difference between the net import of hard coal and its consumption results from the fact that hard coal is supplied from existing resources that respective countries have. For Poland and Czechia, the difference also covers these two countries' own hard coal production. Seven EU countries reported import dependence exceeding 100%. Greece, Luxembourg, Croatia, Romania, Cyprus, Belgium, and Sweden; these countries import more coal than they use, usually to build up reserves. One EU country reported an import dependency rate being lower than 0% – namely Portugal, which exports the remaining reserves, as it is withdrawing from coal. As regards Poland, that rate was relatively low, standing at 12%, owing to its own coal resources.

[17] *Import dependency for hard coal by country, 2020*, Eurostat, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Import_dependency_for_hard_coal_by_country,_2020.png [accessed: 12 March 2023].

Chart 8. The share of Russian products in the total oil and petroleum product imports into the European Union in 2020, by country having the biggest share (in %)



Source: Statista, *Share of Russian products in total oil and petroleum product imports in the European Union (EU) and the United Kingdom (UK) in 2020*, Statista, https://www.statista.com/statistics/1298031/dependence-on-russian-oil-in-the-eu-and-uk/ [accessed: 12 March 2023].

Changes in Poland-Russia and Poland-Ukraine trade: selected aspects

In 2021, Russia was the eighth biggest recipient of goods exported from Poland and the third largest importer. Trade declined significantly shortly after Russia's invasion of Ukraine in February and with the introduction of further sanctions on the aggressor state. Throughout 2022, exports from Poland decreased by more than 46%, to slightly above $5 billion, with imports falling by nearly 17%, to around $17 billion.[18] According to the data published by the Central Statistical Office of Poland (Główny Urząd Statystyczny, GUS), Russia was ranked eighteenth as regards export destinations and fourth for imports. The share of import from Russia in Poland's total import also declined from 5.7% between January and November 2021, to 4.5% in the corresponding period of 2022.

In Q2 2022 (the most recent available data), the value of Poland's exports to Ukraine rose to EUR 2.4 billion, reaching a historic high. Compared to the corresponding

[18] *Foreign trade turnover of goods in total and by countries in January–November 2022*, Statistics Poland, https://stat.gov.pl/en/topics/prices-trade/trade/foreign-trade-turnover-of-goods-in-total-and-by-countries-in-january-november-2022,1,127.html [accessed: 12 March 2023].

period of 2021, the value of exports grew by EUR 870 million (i.e., by 56%). That is the greatest rise among all EU countries. In Q2 2022, Poland was the biggest, out of all EU countries, exporter of goods to the Ukrainian market. Poland had a 36% share in the Union's exports to war-ravaged Ukraine (compared to 24% recorded in Q2 2021). In the discussed period, Ukraine secured the ninth position on the list of Poland's importers. Ukraine's share in the Polish export also hit a record high, going up to 2.8% in Q2 2022 (in contrast to Q2 2021, when it was 1.9%). It must be highlighted that the foreign trade figures do not include the export of arms.[19]

In Q2 2022, the most important group of exports to Ukraine was fuels, which accounted for 21% of export to this country (compared to merely 2% in the corresponding period of the previous year). This stemmed mainly from the fact that the value of diesel fuel and petrol exports increased 15 times. The second largest group of exports to Ukraine was road vehicles. It comprised 18% of the total exports. In this case, the significant increase in exports followed from the Ukrainian parliament's decision to suspend customs tariff duties and VAT for imported cars, which was in effect from the beginning of July 2022. A rise in export was also reported, among other things, for the group of agri-food products.

In Q2 2022, the value of imports from Ukraine also grew by nearly EUR 600 million, in contrast to the corresponding period of 2021 (57%). As was the case with export, out of all EU countries, Poland was also the most important trading partner of Ukraine in the discussed period when it came to import. As regards Ukrainian exports to the EU, 28% went to Poland. In the period in question, the most important group of imports from Ukraine was cast iron and steel, mainly rolled steel products (23% of the value of import from that country), followed by iron ore (10%). However, the war considerably reduced the export potential of the Ukrainian steel industry. The largest metallurgical plants have either suffered heavy damage or been left on Russian-occupied territories. As for imports from Ukraine, a vital role was also played by agricultural products, including mainly sunflower seed oil (12%), soya bean oil (4%), and corn (8%). In contrast to the previous year, a huge increase was reported for fuels – the import of electricity rose.[20]

Conclusions

As demonstrated by the research, the war in Ukraine and the sanctions introduced by the EU changed the European Union's trade seen both as a whole and in the context of individual Member States. Given the fact that there is no up-to-date data,

[19] W. Mroczek, *Wojenny wzrost polskiego eksportu do Ukrainy*, Obserwator finansowy.pl, 13 September 2022, https://www.obserwatorfinansowy.pl/bez-kategorii/rotator/wojenny-wzrost-polskiego-eksportu-do-ukrainy/ [accessed: 12 March 2023].

[20] *Ibidem*.

these changes can be now identified only to a limited extent. This applies to trade in non-energy goods with Russia, dependence on Russian import of energy and energy resources, as well as susceptibility to energy price rises on global markets. As regards trade in energy resources (gas, oil and petroleum products, coal), 2022 saw the trade diversion effect, which means a decline in the import of these resources from Russia and an increase in the share in imports of other trading partners. When considering the trade consequences of the invasion of Ukraine, respective Member States experience them to a different extent. They are correlated with 'dependence on energy' from Russia (the greater such dependence is, the more severe the consequences are), with susceptibility to electricity price changes, and even with geographical proximity to Ukraine. The consequences are mainly faced by the Baltic States and certain countries of Central and Eastern Europe.

In Poland, an immediate neighbour of Ukraine, these trends have also emerged. Following Russia's invasion, Poland-Russia trade declined, which initially was also the case with Ukraine. However, throughout the consecutive months of 2022, the trade between Poland and Ukraine boosted significantly, reaching the highest level among all the European Union's Member States. Poland became Ukraine's most important trading partner (in 2021, this role was occupied by China), it also has the biggest share in trade with Ukraine among all EU Member States. It must be emphasised yet again that a comprehensive analysis of the trade consequences of the war in Ukraine will be possible only when complete data for 2022, and at least for Q1 2023, has been obtained.

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The trade effects of the war in Ukraine from the European Union's and – in particular – Poland's perspective

Abstract

The war in Ukraine is the third asymmetric shock that the European Union has experienced in the last two decades, after the 2008 financial and economic crisis, the following Eurozone crisis, and the COVID-19 pandemic. Although Russia's and Ukraine's shares in the global trade and production are relatively small, they are important suppliers of basic products, specifically food and energy. Therefore, the trade consequences of the war for the European Union, Ukraine's important trading partner, deserve special attention. The war also disrupts trade relations between the EU and Russia. The EU's direct trade sanctions are limited to specific sectors, such as oil, coal, arms, dual-use goods, as well as the aviation and space industry. However, financial sanctions, particularly the SWIFT ban imposed on seven Russian banks, increase the costs of commercial transactions considerably. This paper aims to present the trade effects of the war in Ukraine from the European Union's, Member States' and, in particular, Poland's perspective. This refers not only to the trade creation and diversion effect, but also to changes in the structure of the EU's trade regarding the main groups of goods. These effects will vary depending on direct trade links, dependence on Russian energy and susceptibility to rising energy prices. Given an extensive range of parties involved and issues covered by the research, this paper focuses only on the main aspects of the problem.

Keywords: war in Ukraine, the European Union, embargo, trade, Deep and Comprehensive Free Trade Agreement