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The new face of global trade

Are we dealing with reshoring?

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Authors: Łukasz Ambroziak, Dominik Kopiński, Magdalena Maj, Jan Markiewicz,
Katarzyna Sierocińska, Jan Strzelecki

Substantive editing: Paweł Śliwowski

Editing: Annabelle Chapman

Editors: Jakub Nowak, Małgorzata Wieteska

Graphic design: Anna Olczak

Text and graphic composition: Tomasz Gałązka

Graphic collaboration: Sebastian Grzybowski

Polish Economic Institute

Al. Jerozolimskie 87

02-001 Warsaw

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Key numbers

2.7%

China's share in EU-27 countries' use of materials in 2021

1.5%

Russia's share in EU-27 countries' use of materials in 2021

0.9 pp

increase in China's share in EU-27 countries' use of materials in 2018-2021

3.7%

China's share in Germany's use of materials in 2021

3.3%

percentage of greenfield foreign investments worldwide attracted by China in 2021

3.4%

percentage of greenfield foreign investments worldwide attracted by Poland in 2021

134%

increase in FDI flowing into developed countries in 2022 (year on year)

By 50% in 2021

fall in value of greenfield transactions in China compared to the pre-pandemic year 2019, and by as much as 71% compared to 2018

70%

percentage of US companies planning nearshoring or restoring, according to surveys

Sixfold

increase in number of impediments to international trade in 2009-2022, according to Global Trade Alert

Key findings

- **The data shows that the economic recovery of 2021 actually contributed to the consolidation of dependence on supplies from China and Russia by increasing imports from these directions.** In 2018-2021, China's share in the use of materials in manufacturing in the EU increase by 0.9 pp, and Russia's share by 0.4 pp. This shows that, in the short term, the structure of the materials used in manufacturing cannot be changed.
- **The EU's dependence on materials from outside the EU in manufacturing production is relatively low.** In 2021, this was around 20% of materials used. 11.7% of materials came from outside the EU and the OECD; this included 2.7% from China and 1.5% from Russia. **However, the multistage production process — a result of years of advancing globalisation — means that distributions in material supplies from these two countries with a relatively low share can significantly disrupt production processes in the EU.** This was shown by supply chain problems during the COVID-19 pandemic and the energy crisis triggered by Russia's invasion of Ukraine.
- **The question of moving production to safer places is increasingly present in the public debate.** Friendshoring, nearshoring and reshoring have become important subjects in the public debate. In countries such as the US, France and Japan, governments are introducing programmes that seek to stimulate the relocation of production.
- **Contrary to declarations about the need to move production home or nearby, in 2018-2021, the reshoring indicator was only positive in relatively few countries,** including Luxembourg, Sweden, France, Spain and Ireland, as well as Romania. Intensive offshoring is still underway in many countries. During the period studies, they intensified in Germany, Italy, Poland and Slovakia, among other countries. Hungary is an example of a country where the process of reshoring and offshoring takes place simultaneously on a large scale.
- **The shifts in global FDI flows between developed and developing countries point to reshoring trends.** In 2021, there was a relative increase in FDI flowing into developed countries, compared to developing ones - the value of announced greenfield projects

increased by 15%, all of this in highly developed countries. To a large extent, the collapse of this category in China accounted for the fall in greenfield FDI in developing countries.

- **The war in Ukraine and growing geopolitical tensions will probably increase companies' and governments' conviction about the inevitability of at least partial reshoring.** This will be accompanied by increasing the security of supply chains by diversifying supplies, increasing storage buffers, improving risk management, and so on.
- **However, the relocation of production by companies will be a long-term phenomenon and will only occur when states use incentives.** This results in protectionist policies and support for industry being more widely applied. At the same time, a system of incentives increasing the level of protection will disrupt the benefits of free trade and may cause international tensions.

Offshoring — moving production or an entire enterprise to a different country to reduce costs (for example, labour or tax-related costs).

Reshoring — moving production that was previously relocated to a different country back to the home country.

Nearshoring — moving producing to neighbouring countries with a similar level of economic development.

Friendshoring — moving production to countries that are safe, politically stable and share similar values (not necessarily identical ones).

Introduction

The COVID-19 prompted a wave of protectionism (Evenett, 2022) and, in recent months, the Russian invasion of Ukraine has also been causing wide-ranging changes in countries' approach to international trade. The energy crisis triggered by it is leading many governments to support domestic industry. Recent examples include Germany's EUR 300 billion subsidy programme in connection with high energy prices, the EU's decision to support semiconductor production in Europe (the Chips Act), and — the most blatant example — the US Inflation Reduction Act, which is meant to finance investment in low-carbon production, but contains explicitly protectionist elements.

While most of the export restrictions introduced at the start of the coronavirus pandemic have been lifted, the following question remains: will the race to support domestic industry caused by the sharp increase in energy prices continue, transforming globalisation?

Recent events have placed questions of production location and safety in the spotlight. The need to shorten supply chains and move production closer to (nearshoring) or back home (reshoring) is being more clearly emphasised, especially by US politicians. The experience of interrupted supply lines during the pandemic has also led multinational corporations to include security of supply in their calculations. A European Bank for Reconstruction and Development survey conducted among European companies in 2022 shows that two-thirds of companies have introduced changes to increase supply chain resilience (EBRD, 2022). However, these kinds of actions are associated with increased costs. The authors of an International Monetary Fund study estimated that a departure from globalised trade would be the most costly for Asian countries, because

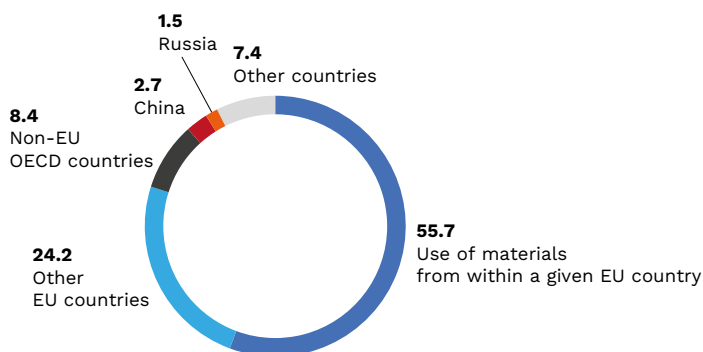
roughly half of US imports and one-third of Europe's imports come from this continent (Cerdeiro, Kothari, Redl, 2022).

In our report, we consider whether reshoring, nearshoring and friendshoring (moving production to friendly countries) can be observed in international trade flows and investments. For this purpose, we analyse dependence on imports from the two countries that have caused the most severe disruptions in supply and production: China, in connection with the COVID-19 pandemic, and Russia, in connection with its brutal invasion of Ukraine and its energy blackmail. Next, we examine how the use of imported materials, which can be treated as an indicator of reshoring, has changed in individual countries. In the final part of the report, we show how the turbulence linked to the coronavirus pandemic and international events have affected foreign investment.

1. Interdependencies. Countries' dependence on imports from China and Russia

Research using global input-output tables points to the EU's relatively low dependence on non-EU materials in manufacturing. 79.9% of the materials used in manufacturing in 2021 came from the country itself or from other EU-27 countries. Non-EU OECD members accounted for 8.4% of the materials used, while 11.7% came from beyond the EU and the OECD; of these, 2.7% came from China and 1.5% from Russia. In 2021, Lithuania and Greece were the most dependent on material supplies from beyond the EU and the OECD (over 30% of the materials used in manufacturing), followed by Bulgaria (26%), Ireland, the Netherlands and Estonia (over 20%). For comparison, the use of materials from beyond the EU and the OECD in US manufacturing was lower than in the EU: it amounted to 6.8%.

Chart 1. Use of materials in manufacturing in EU-27 countries in 2021 (%)

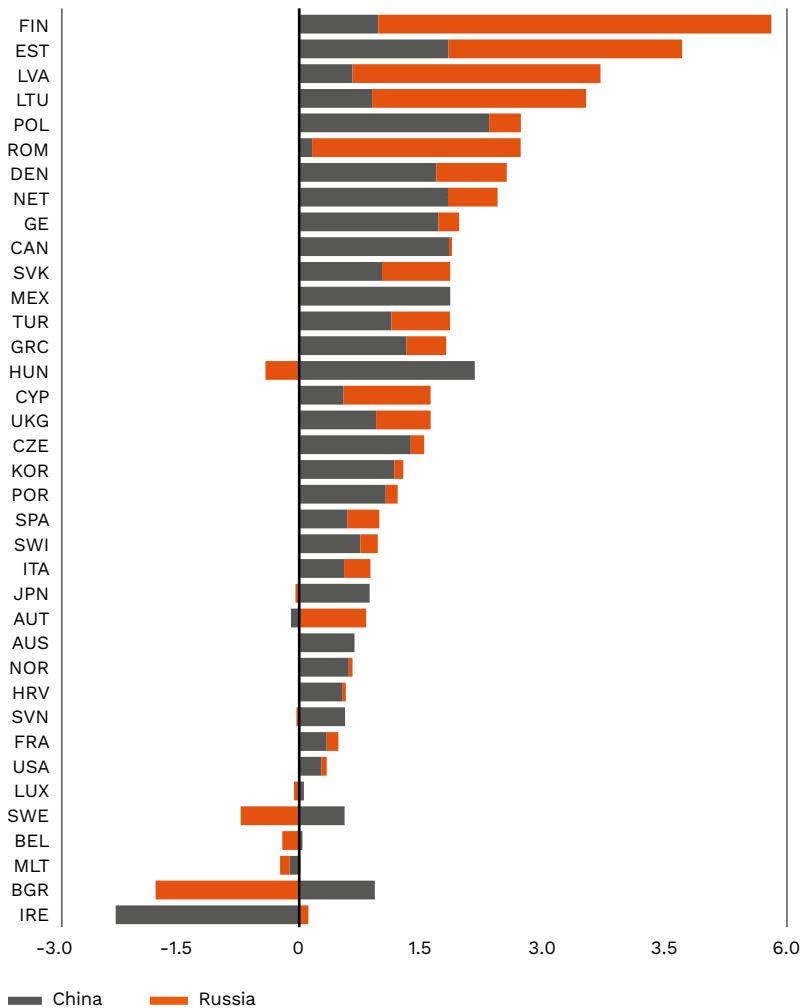


Source: prepared by PEI based on ADB MRIO (2022).

Despite numerous declarations about the need to shorten supply chains and relocate production from China, in 2018–2021, this country’s share in the use of materials in manufacturing in EU-27 countries increased by 0.9 pp.

Russia’s share increased by 0.4 pp. The share of materials from China and Russia only decreased in a handful of EU and OECD countries. In most cases, these two countries’ combined share increased by over 1 pp. China’s share increased the most in Poland (by 2.3 pp) and Hungary (2.2 pp), as well as in Estonia, the Netherlands, Denmark, Germany, Canada and Mexico (slightly below 2 pp). In the Baltic Sea region countries (Finland, Estonia, Latvia and Lithuania) and Romania, Russia’s share increased clearly, too.

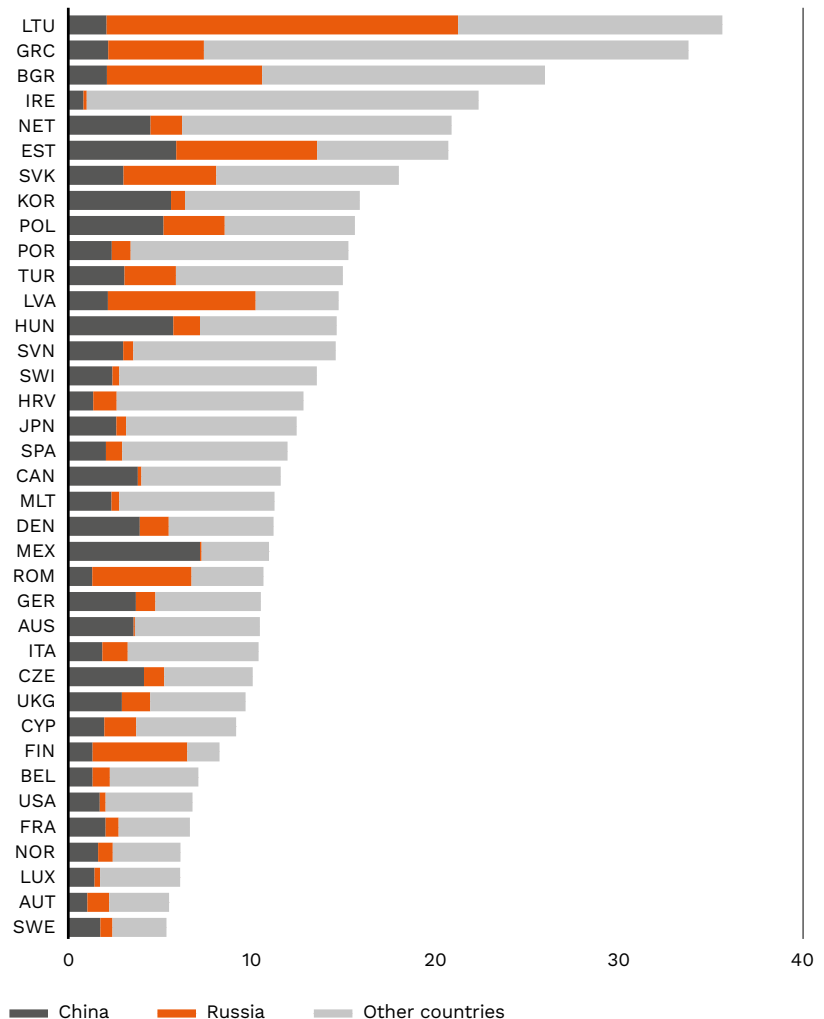
Chart 2. Changes in China and Russia’s share in materials used in manufacturing in 2018–2021 (pp)



Source: prepared by PEI based on ADB MRIO (2022).

In 2021, China accounted for the largest share (over 5%) of materials used in manufacturing in Estonia, Hungary and Poland, as well as — if we look at the OECD — in Mexico and South Korea. China's share was also high in the Netherlands, the Czech Republic, Germany, Denmark and Austria (around 4% of materials used). It was relatively low in the US, where it was 1.7%. In 2021, the following countries were the most dependent on Russia: the Baltic Sea region countries (Lithuania, Latvia, Estonia and Finland), Greece, Romania and Bulgaria. The study points to Russian materials' relatively low share in Germany (just 1.1%).

Chart 3. Share of countries from outside the EU and the OECD in materials used in manufacturing in 2021 (%)



Source: prepared by PEI based on ADB MRIO (2022).

Import dependencies in different sectors

Studying import dependencies enables us to identify the sectors and products for which it is particularly important to diversifying supplies. In 2021, the European Commission listed 390 products in EU imports with a high level of dependence on supplies from outside the bloc in 2019 (EC, 2021). These products included 137 critical ones, in the four most sensitive production ecosystems: renewable energy sources, energy-intensive industries, health, and digital and electronic products. We updated this list based on the data from 2021 (PEI, 2022). **The list prepared by the PEI contained the 106 most critical products in EU imports from outside the bloc, which accounted for 4.3% of those imports in 2021.** The largest number of products (80 of them) were in the energy-intensive industries ecosystem. Here, a number of chemical products, metal ores and products made of them, as well as energy commodities — anthracite and energy commodities with a secret code (including natural gas) — were identified.

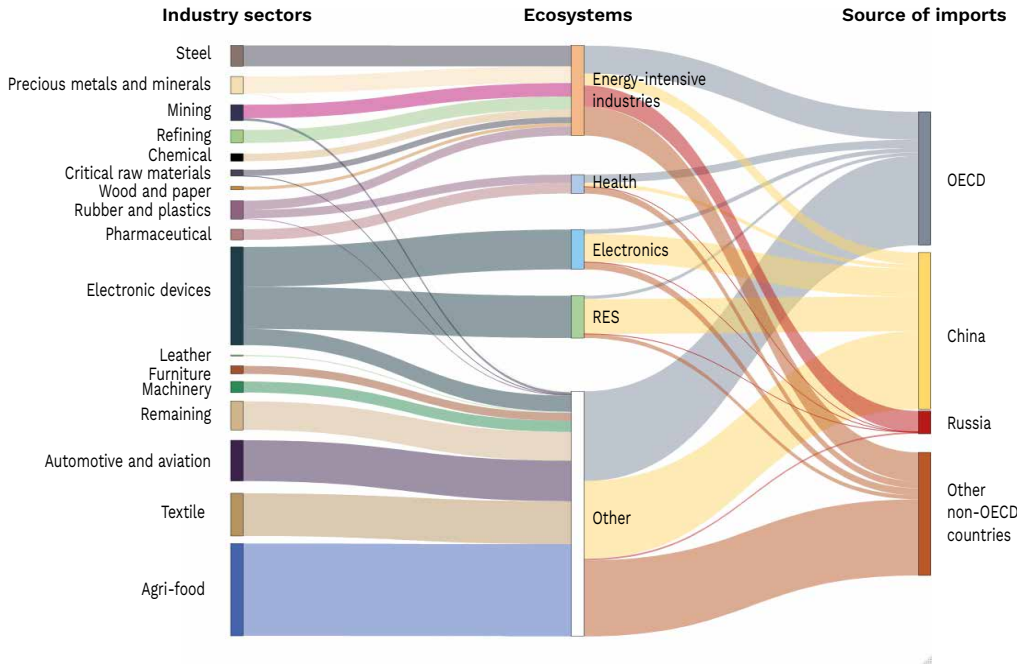
Table 1. Statistics on products for which the EU-27 was highly dependent on imports from outside the EU in 2021

Name of ecosystem	Number of products	Share of imports from outside the EU	Examples of products
Energy-intensive industries	80	3.0	anthracite, natural gas, chromium and antimony ores, barium and lithium carbonate, phenyl-acetic acid
Health	14	0.3	nitrogen heterocyclic compounds, barbituric acid, vitamin E
Electronics and digitisation	11	0.5	televisions and monitors
Renewable energy sources	1	0.5	photosensitive semiconductor elements (e.g. photovoltaic panels)

Source: prepared by PEI based on EC (2021) and Eurostat.

The products and sectors in the greatest need of diversification include energy-intensive industries, health, digital and electronic products, and renewable energy sources. According to the PEI's research, 87% of the imports of the most critical products come from non-OECD countries, which accounts for almost 3.7% of EU imports. China alone accounts for a quarter of supplies of critical products, and Russia for 6%.

Infographic 1. Relationship between production sectors, ecosystems, and sources of imports for the most dependent products in EU imports



Source: prepared by PEI based on Eurostat data.

Energy commodities

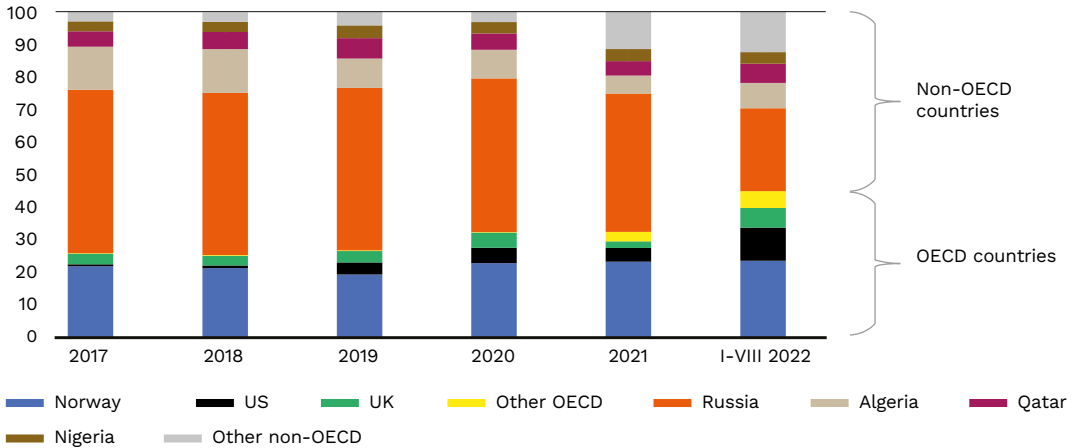
In sectoral terms, the EU is most dependent in the processing of energy resources (especially coke and refined petroleum products). Around 50% of these products were imported from outside the OECD in 2021, including 15% from Russia. In the 20 years since 2000, the average EU-27 country's energy dependence rose from 56.3% to 57.5%, which means that, over those two decades, EU member states become slightly more dependent on energy imports.¹ To a large extent, this was influenced by the EU's energy dependence on Russia.

The main energy imports are oil and oil products, which account for almost two-thirds of EU energy imports, followed by natural gas and solid fossil fuels, primarily hard coal. Until the end of 2021, Russia was the main supplier of oil and natural gas. The EU responded to Russia's invasion of Ukraine with several packages of sanctions, which directly and indirectly influence trade

¹ The energy dependency indicator shows what share of energy the economy has to import. It is defined as net energy imports divided by the gross energy available and presented as a percentage. If the indicator is negative, the country is a net exporter of energy; if it is over 100 per cent, it means that energy products were stored.

in these commodities. For this reason, a change in the direction of energy commodity imports can be observed.

Chart 4. EU-27 gas imports (%)

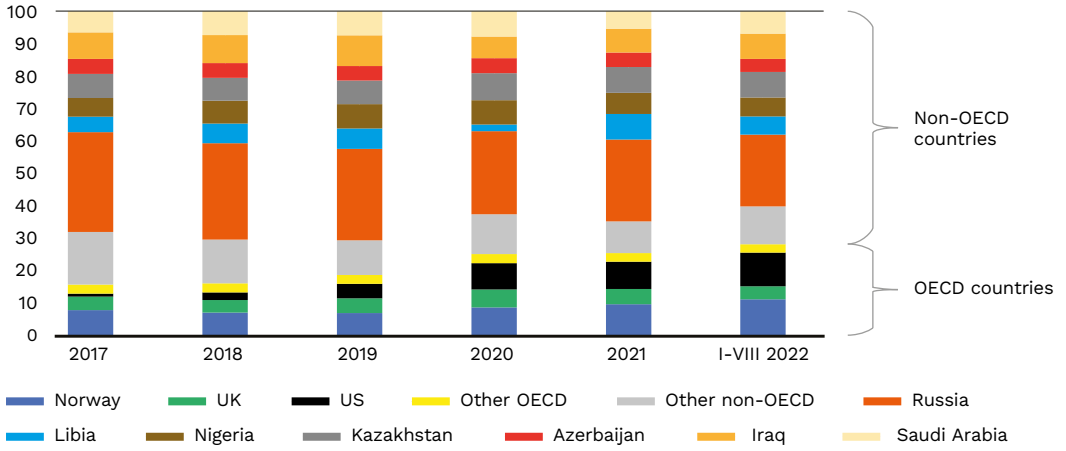


Source: prepared by PEI based on Eurostat data.

The EU is 83.5% dependent on gas imports (net imports as a percentage of domestic consumption). In 2021, after the pandemic, countries' use of gas increased by 4.3% year on year, and gas imports from Russia amounted to 155 billion m³, around 45% of total imports and 40% of consumption. In total, the EU imported 66% of its gas from non-OECD countries. In January-September 2022, EU imported 52 billion m³ of natural gas imports from Russia; 11% of total imports and 20% of consumption.

EU oil imports over the past three years have been less dependent on supplies from the East. Apart from Russia, which supplies around 25% of oil needs, the EU imports oil from Norway, Kazakhstan, the US, Saudi Arabia, Nigeria, Iraq and other countries. In total, 74% of oil imports came from non-OECD countries in 2021. Until August 2022, Russia's share in EU-27 imports was 22%; that is, 70 million tonnes. From 5 December 2022, the EU and the UK banned seaborne imports of oil from Russia, the greatest achievement so far, making it more difficult for Russia to make money from fossil fuel sales.

Chart 5. EU-27 oil imports (%)



Source: prepared by PEI based on Eurostat data.



2. Is reshoring taking place?

In recent years, the global economy has been exposed to strong turbulence. It started with the US-China trade war in 2018, followed by the outbreak of the COVID-19 pandemic, and then Russia's invasion of Ukraine in 2022.

Global input-output tables show that in 2019 global production fell compared to the previous year; its structure changed, too (ADB MRIO, 2022). The share of domestic materials consumed increased, while the share of value added and the consumption of foreign materials decreased. The year 2020 saw a further decline in global production, as well as a further increase in the share of domestic materials and decrease in the share of value added and imported materials. In 2021, the global economy experienced a post-pandemic recovery. Global production increased, the share of domestic input in this production decreased, and the share of value added and imported materials, in particular from China, grew.

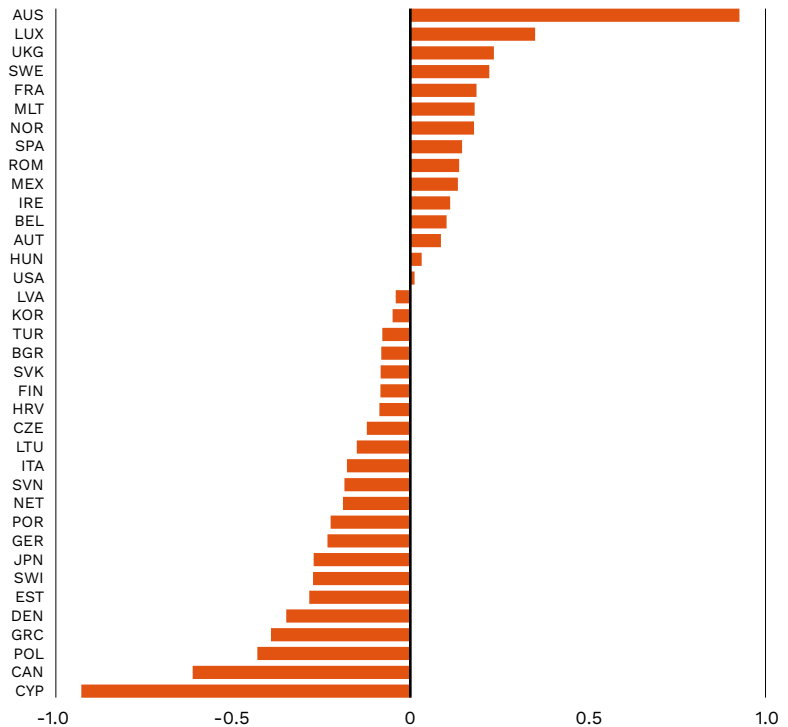
In 2018-2021, reshoring was only observed in certain EU and OECD countries, as shown by a positive difference in the ratio between domestic material consumption and imported material consumption over that period. In the EU, this phenomenon was the most pronounced in Luxembourg, Sweden, France, Spain and Ireland. The list also includes two countries that joined the EU after 2000: Hungary and Romania. Reshoring also occurred in the US, as shown by the indicator's positive value. It was the first country that sought to move some production processes back home; this began during the US-Chinese trade war. The Americans are particularly active in the field of semiconductor production as they strive to become independent from Asian manufacturers. The EU is taking similar steps (see the box below). In contrast, the indicator's negative value in Poland and Germany suggests that reshoring is not occurring.

Towards independence in microchip production

Taiwan Semiconductor Manufacturing Company (TSMC) is set to build a new microchip factory in Arizona. The investment cost is USD 12 billion. The Taiwanese company is responsible for over 90% of production of the most modern chips, which are used in smartphones, among other things, and 53% of all types of chips. The production process is extremely complex and the chain's links are located all over the world. Investments in this industry therefore require major financial outlays. Based on the act signed by President Joe Biden, USD 52.7 billion was allocated for the development of the American semiconductor industry. The EU is moving in a similar direction, with plans to allocate almost USD 50 billion for this purpose.

Source: prepared by PEI (2022).

Chart 6. Change in reshoring indicator in 2018-2021 (in points)



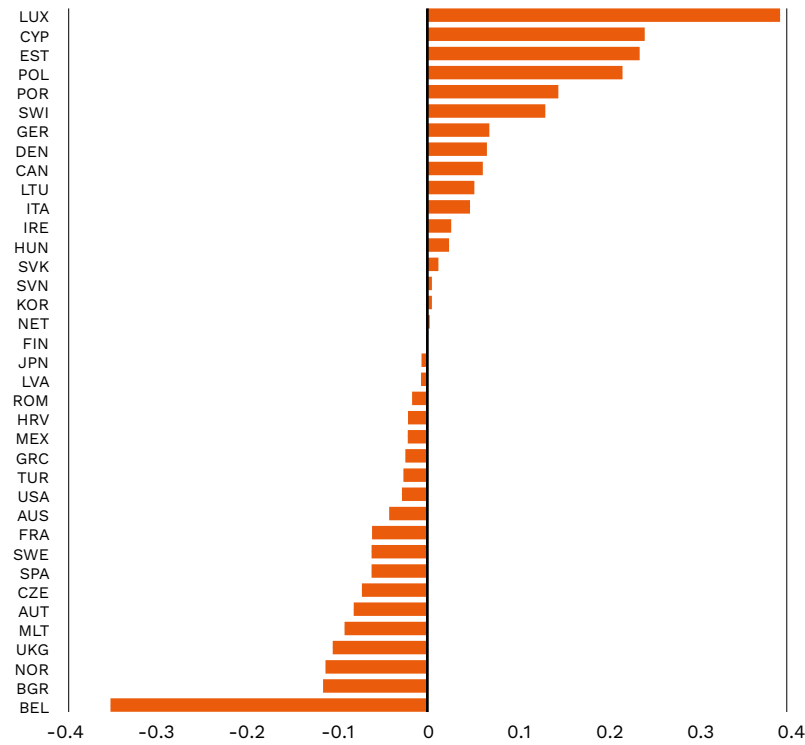
Note: a positive value points to reshoring, while a negative value points to its absence. In other words, a positive value means that, between 2018 and 2021, the ratio between the use of domestic material and the use of imported material increased.

Source: prepared by PEI based on ADB MRIO (2022).

If we consider the economy as a whole, reshoring may occur at the same time as offshoring. It will simply occur in different production activities.

A positive increase in the offshoring indicator (measured as the ratio between the use of imported materials and value added created) between 2021 and 2018 indicates that offshoring occurred. Apart from Luxembourg, Cyprus and Estonia, the list of countries where offshoring is occurring includes major EU economies Germany and Italy, along with Poland, Hungary and Slovakia. Despite numerous announcements about the need to move production closer to home, or to the home country itself, offshoring can still be observed.

Chart 7. Changes in offshoring indicator in 2018-2021 (in points)



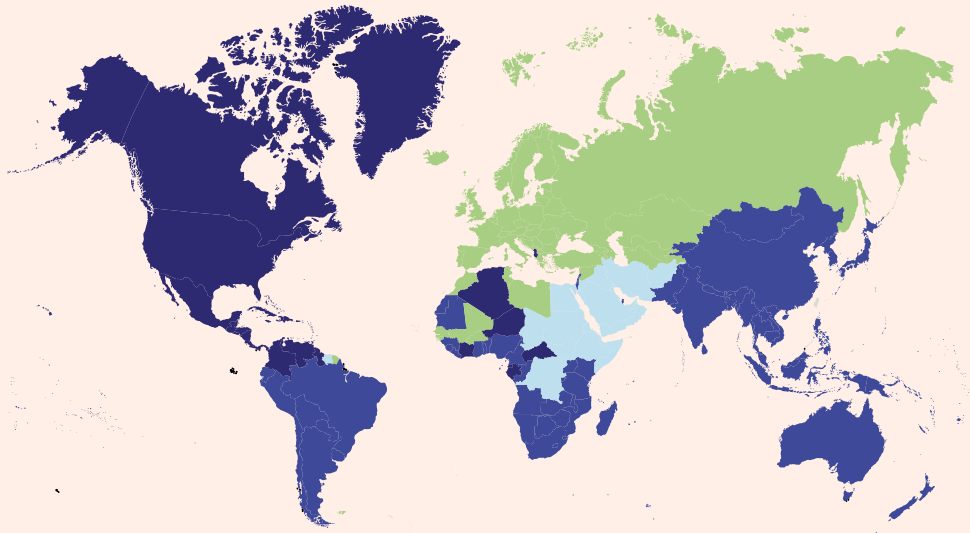
Note: a positive value points to offshoring, while a negative value points to its absence. In other words, a positive value means that the ratio between the use of imported material and value added created increased.

Source: prepared by PEI based on ADB MRIO (2022).

Quantifying the Fragmentation of Global Trade

To ascertain whether the fragmentation of the global economy is really taking place, we conducted a network analysis of exports of goods in 2019–2021. We grouped countries according to their export links using the Louvain algorithm used to map social networks, among other things (Blondel et al., 2008). We then examined the ratio between intergroup and intragroup trade.

Map 1. Communities in international trade in goods in 2021, according to the Louvain method



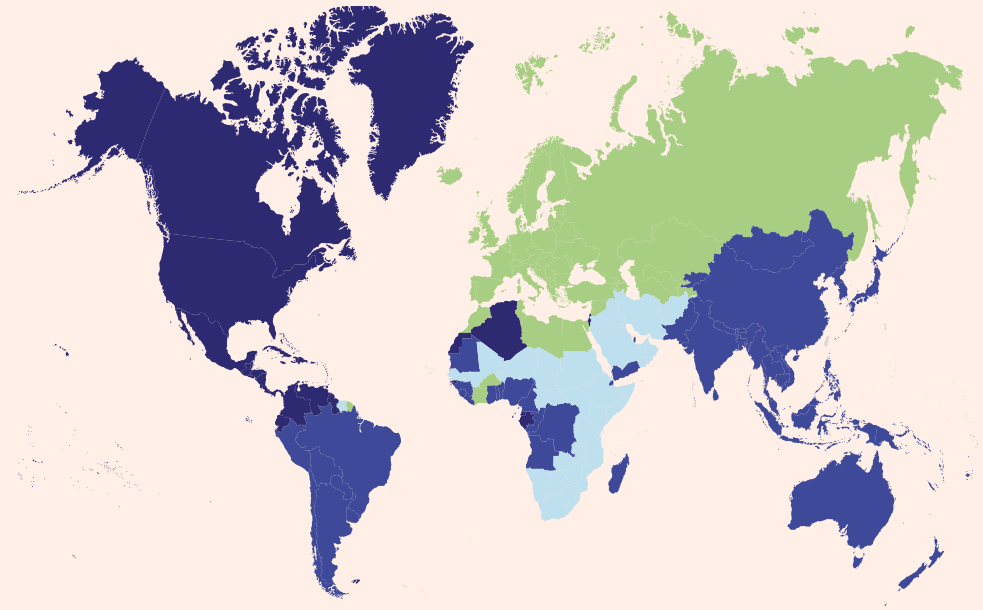
Source: prepared by PEI based on UN Comtrade data.

In 2019–2021, the share of intragroup trade, which might have suggested a departure from globalisation, did not increase significantly. During the years studied, the ratio between intergroup and intragroup trade remained at around 62%.

This method revealed interesting regularities. In 2021, the algorithm placed most of southern Africa in a group with India, South America, Southeast Asia and Australia. However, in 2019 most of Africa had formed a separate group with the Middle East. The division between the Americas turned out to be constant: all of North and Central America, along with Ecuador, Colombia and Venezuela, are in a community with the US is the largest exporter, while the south is more closely linked to China. Europe forms a close-knit group with Russia, Central Asia and some of the countries in North Africa. North-West Africa is a disputed territory: each year, the countries within it are classified together with Europe, North America, China or the African group.

Between 2019 and 2022, the “American” group increased the share trade outside the group slightly — by 4 pp, to 56%. Over the same period, the Middle Eastern group (according to the definition from 2019) reduced this percentage by 20 pp; in other words, it started trading less with countries beyond its community. The Chinese group also underwent slight isolation, but the ratio to intragroup trade fell by just 3 pp.

Map 2. Communities in international trade in goods in 2019, according to the Louvain method



Source: prepared by PEI based on UN Comtrade data.

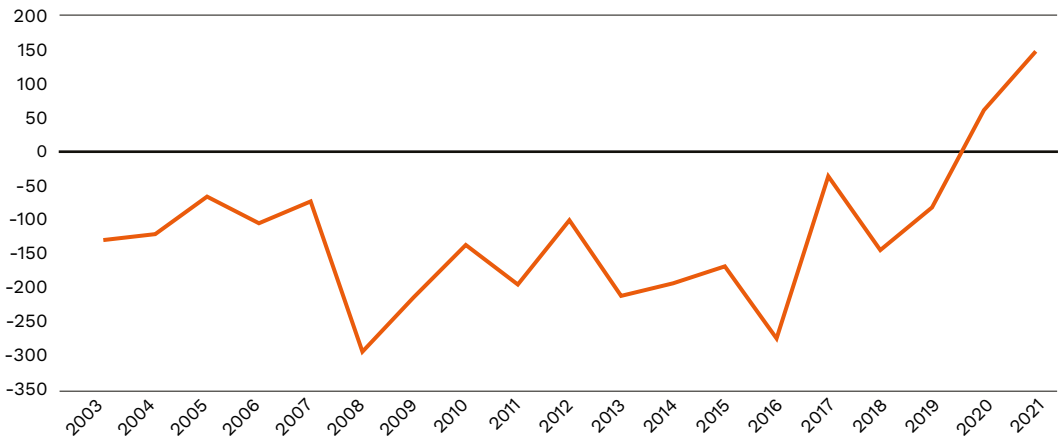
3. Foreign direct investment: symptoms of reshoring

The data on FDI might suggest the end of the era of offshoring, but it seems too early to announce the start of the era of reshoring on their basis.

Nevertheless, a certain shift in global FDI flows in recent years between developed and developing countries can be observed. In 2021, global FDI flows increased by 64% compared to the previous year and by 6% compared to the pre-pandemic year, 2019 (UNCTAD, 2022). There was a relative increase in FDI flows to developed countries, compared to developing ones. The former received USD 746 billion, 134% more than during the record-low year, 2020. This was linked to the fact that FDI transactions registered in the US more than doubled. In Europe, FDI flows decreased significantly, from USD 201 billion to 138 billion. However, this did not apply to Poland, where FDI flows increased by 84% during that period. According to fDi Markets, a record 424 FDI projects were registered in Poland in 2021 (fDi Intelligence, 2022a). Developed countries attracted 47% of all FDI, compared to 33% in 2020, thereby returning to the relative levels observed before the pandemic. Developing countries' share fell from 67% to 53%, although the value of FDI flowing to this group of countries increased from USD 644 billion to 837 billion in 2021, the highest level ever. In terms of value, developing countries' lead over developed ones when it comes to attracting FDI fell from USD 326 billion to 91 billion.

Changes in the scope of greenfield projects are more indicative of the global reorientation of FDI flows. In 2021, the value of announced greenfield projects increased by 15% globally to USD 659 billion, with this increase entirely attributable to highly developed countries (UNCTAD, 2022). In developing countries, the value of greenfield investments has remained at USD 259 billion since 2020. In terms of value, **developed countries' lead of developing countries increased from USD 57 billion in 2020 to 142 billion in 2021.** A situation in which more greenfield investments are being announced in developed countries than in developing ones has not been observed in 20 years.

Chart 8. Difference in value of greenfield investments in developed and developing countries (in billions of USD)

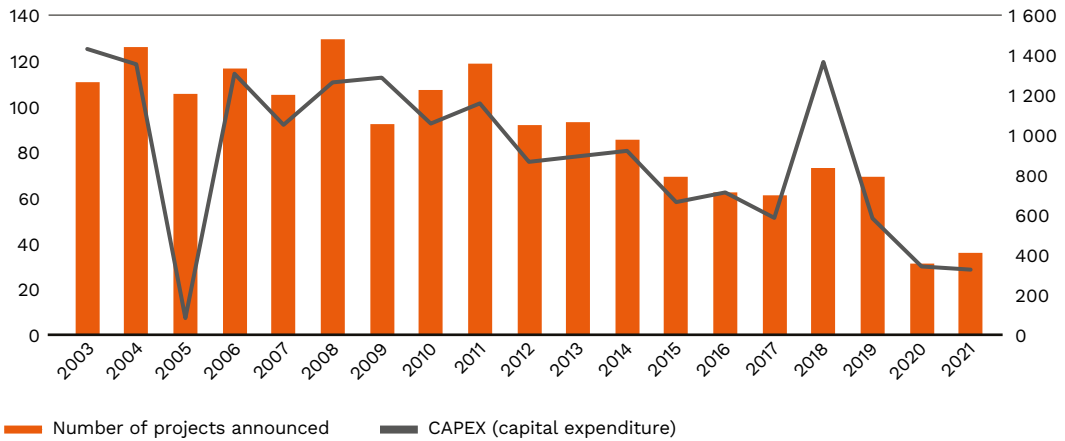


Source: prepared by PEI based on UNCTAD data.

In sectoral terms, there were relatively strong increases in a few sectors with highly complex global value chains, such as electronics and the automotive industry, which particularly felt the disruption of supply chains during the pandemic. The value of greenfield projects announced in the electronics and electronic equipment industry doubled in 2021, reaching USD 120 billion (UNCTAD, 2022). There was a clear recovery in the microchip industry. The two largest greenfield transactions announced, which may be interpreted as part of the trend of locating production closer to sales markets, are Intel's USD 19 billion investment in semiconductor production in Magdeburg, Germany, and Samsung's USD 17 billion investment in Texas, in the US.

The fall in greenfield FDI in developing countries to a large extent results from the collapse of this category in China. In 2021, the value of greenfield transactions there plummeted by almost 50%, compared to the pre-pandemic year 2019, and by as much as 71% compared to 2018. Data for the first six months of 2022 collected by fDi Markets shows that this is a trend, rather than an anomaly. It shows that foreign investors announced just 110 projects, worth a total of USD 6.2 billion, in China — a drop of 50% compared to the first half of 2021, both in terms of the number of projects and the size of foreign companies' capital expenditure. For comparison, 474 projects worth a total of USD 35.3 billion were registered in China during the first half of the year in 2010–2019, on average (fDi Intelligence, 2022b). While the latest data does not necessarily reflect a tendency to move production away from China, especially considering the paralysing effects of the country's zero-Covid policy on greenfield projects, it is in line with the trend pointing to the twilight of the offshoring era.

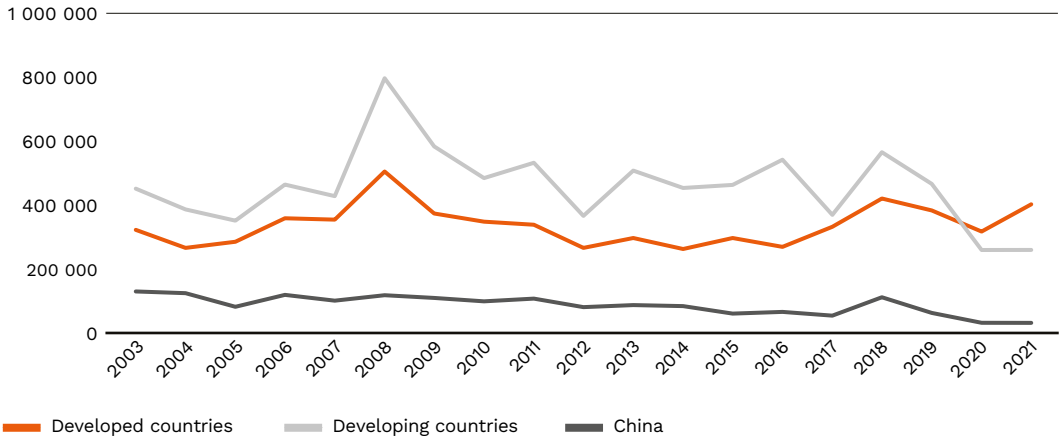
Chart 9. Foreign companies' capital expenditure (CAPEX) (in billions of USD) and number of greenfield projects in China



Source: prepared by PEI based on fDi Markets data.

Recent years have also shaken up countries' relative share when it comes to attracting greenfield FDI. China's share in global greenfield FDI flows has been declining for two decades, with the exception of the record year 2018. In 2003, 16.78% of all these investments went to China; in 2021, this was just 4.08%. The position of the US, which attracted 11.14% (compared to 3.94% in 2003), and Germany (an increased from 2.22% to 5.26%) has been growing strongly. In other words, China attracted one in six of all greenfield projects in 2003; now, this is just one in twenty-five projects. Against the backdrop of the fDi Market data, China's position in the ranking of the top recipients of greenfield FDI is even weaker, as it indicates that **in 2021 China attracted just 3.3% of all greenfield projects in the global economy, less than Poland (3.4%) (fDi Intelligence, 2022b).**

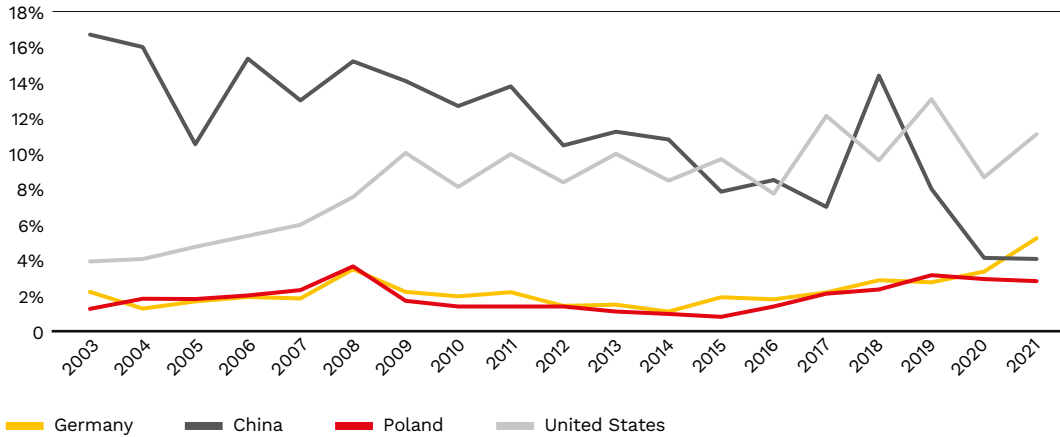
Chart 10. Greenfield foreign investment in developed and developing countries



Source: prepared by PEI based on UNCTAD data.

This data only apparently contrasts with the size of the overall FDI flows to China, which amounted to a record USD 180 billion in 2021. This value largely results from companies already present in China (such as Tesla or Volkswagen), forced to make capital expenditures to maintain their market share, increasing their capital engagement. Moreover, a significant share of FDI flows to China is essentially Chinese capital transferred via Hong Kong (so-called round-tripping), where 71% (USD 128 billion) of all capital flows in the form of foreign investment arriving in China comes from (according to the latest estimates, as much as 37% of the influx of FDI to China is subject to roundtripping)(Xiao et al., 2022). In the context of reshoring, a significant change observed in recent years concerns the sectoral composition of FDI flows to China. During the first stage of the Chinese economy after 2001, investments in the industrial sector prevailed. However, in recent years, investments in the services sector have been clearly dominant (77% in 2020 — the latest available data according to sector).

Chart 11. Countries' share in global greenfield FDI flows

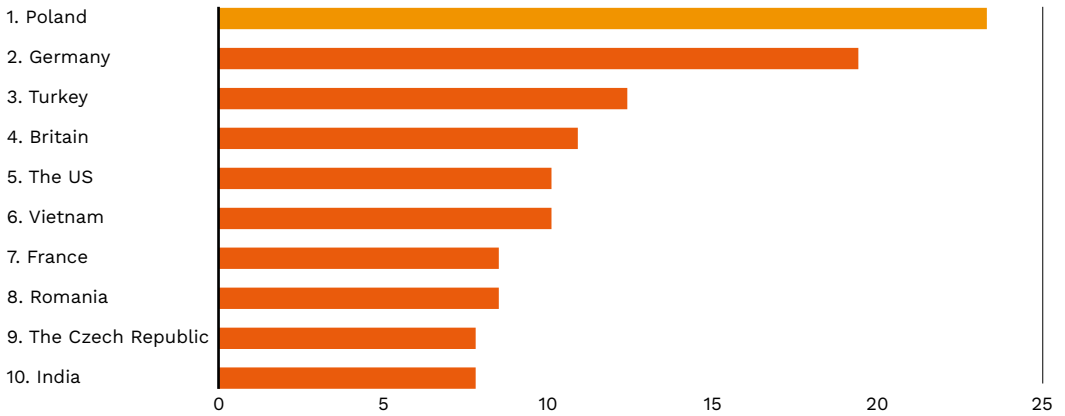


Source: prepared by PEI based on UNCTAD data.

The growing popularity of reshoring and nearshoring is most clearly visible in US companies' attitudes.

A survey conducted among 1610 American companies' managers showed a strong inclination towards reshoring: as many as 70% of them were or are planning nearshoring (33%) or reshoring (37%) (www1). Moving production must not be confused with moving jobs: as many as 40% of companies plan to automate and robotise production to increase resistance to shocks. In a survey by Kearney, 92% of managers spoke positively of reshoring, while 78% of respondents said "yes" or "maybe" to reshoring in 2020 (www2). According to a Reuters study (Hadwick, 2022) conducted among American and European companies in the third quarter of 2022, 67% of producers have already changed where they supply raw materials and components from, while 37% are interested in relocating production in the near future. European entrepreneurs cite Poland (23%) and Germany (19%) the most often as convenient places to transfer production to. This is a continuation of a trend observed in earlier years. A survey by BCI Global (www3) conducted in late 2021 found that 61% of respondents in developed countries were planning onshoring or reshoring within the next three years. In the case of Europe, the top locations were: the Czech Republic, Germany and Poland. For the US, it was Mexico. Moreover, in a 2021 study, 71% of European and American producers in the clothing industry expressed a similar opinion on the need to relocate production (McKinsey, 2021). A series of other studies point to how companies are revising their procurement strategy in favour of greater security. For example, 82% of procurement managers surveyed by McKinsey say said that they are sourcing materials from at least two suppliers, rather than one ("The Economist", 2022).

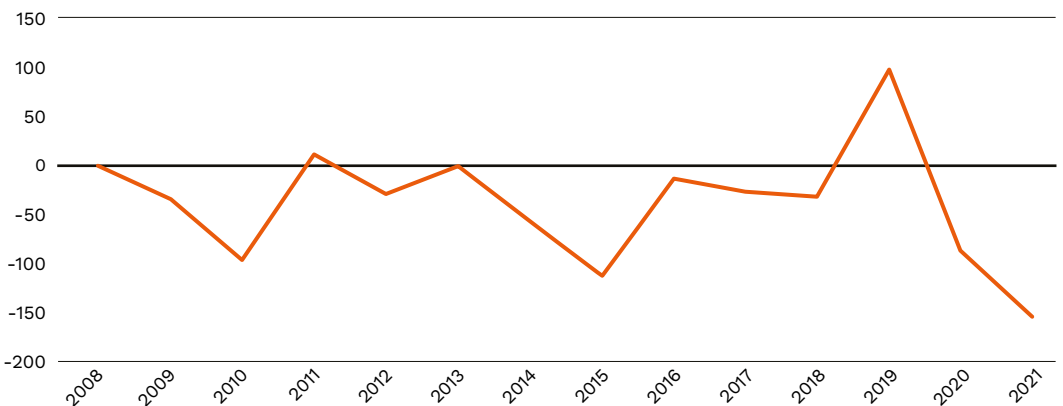
Chart 12. Ten most popular nearshoring and reshoring locations for European companies, according to the Reuters Events Supply Chain Survey



Source: prepared by PEI based on Hadwick (2022).

While survey results confirm American and European companies' declared readiness to move production from Asian markets, dependence on Asia seems to be increasing in terms of materials using in manufacturing. This is shown by the Reshoring Index prepared by Kearney, which was negative in 2020-2021. While the US-China trade war has made American companies more inclined to reshore, the period of the pandemic halted this trend. Ultimately, companies are more willing "to build warehouses than factories", it turns out (Kearney, 2021).

Chart 13. Reshoring index (imports of industrial products from 14 low-cost Asian countries in relation to US GDP)



Source: prepared by PEI based on Kearney data.

4. What will determine reshoring?

It is highly probable that the war in Ukraine and the further escalation of geopolitical tensions will strengthen Western companies' conviction about the inevitability of at least partial reshoring. At the same time, many companies do not see reshoring in binary terms (“either/or”) and are increasing their resistance to shocks and shortages using alternative strategies, such as doubling supply sources, increasing storage buffers, more effective risk management, and so on. Changes in the architecture of supply chains require a complex profitability assessment and high costs. They are not without risk, especially when it comes to sunk costs, those already incurred by companies entering a given market. Therefore, despite the companies' readiness to relocate production and many examples of them doing so, the chances of reshoring becoming the leading strategy for mitigating the risks created by the pandemic and the war in Ukraine are limited.

Table 2. Examples of reshoring

Company	Home country	Category of goods	Destination
Hasbro	US	Toys	Vietnam
Brooks Sports	US	Sports footwear	Vietnam
Apple	US	Electronics	Indonesia
Ever Win International	US	Smartphones and computer components	The Philippines
Head International	Austria	Sports equipment	The Philippines
Delta	Taiwan	Electronic equipment	India
Ricoh	Japan	Office equipment	Thailand
Sharp	Japan	LCD displays	Vietnam
Olympus	Japan	Optical equipment	Vietnam
Kyocera	Japan	Copiers and printers	Vietnam
Sony	Japan	Smartphones	Thailand
Panasonic	Japan	Car audio kits	Thailand/Mexico
Nidec	Japan	Electronics, car parts	Mexico

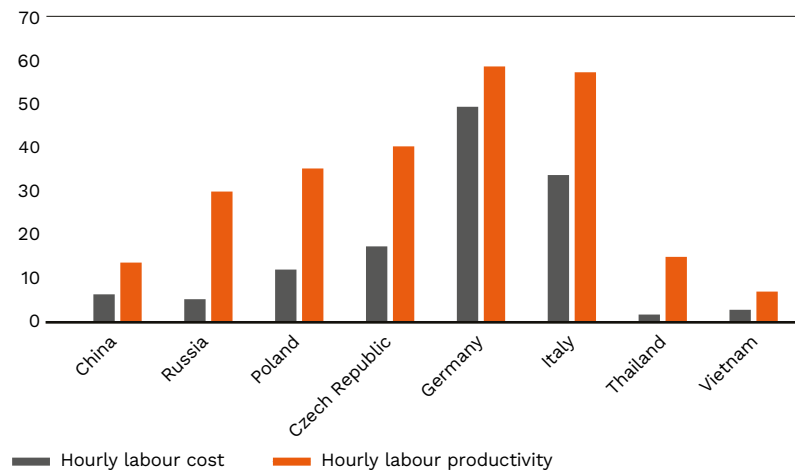
Source: prepared by PEI.

A factor increasing the attractiveness of reshoring are the changes in the organisation of production, especially relating to automation and robotisation.

In many cases, friendshoring entails an increase in production costs and, as a result, final prices for consumers, too. Offshoring — moving production to low-cost countries — was motivated by the desire to obtain a cost advantage, in the form of low wages. Reversing this process will inevitably remove this advantage. A compensating factor may be the higher productivity in more mature economies, on average. The importance of unit labour costs may also decrease as the automation and robotisation of production advance and companies implement the smart factory concept. Automation and reshoring processes can take place in parallel and reinforce one another. In this way, the divergence of production costs in developed countries, where the degree of automation is much higher, and less developed countries, where production processes are more labour-intensive, may cease to play a fundamental role in decisions on relocating production.

In this context, the competitiveness of the countries of Central Europe — where automation processes are accelerating, but where labour costs remain relatively low and highly qualified workers are readily available — is growing. Research shows that an increase in the number of robots by one per thousand workers increases the intensity of reshoring in Central Europe by 6% (Krenz, Strulik, 2021). Automation also increases companies' resistance to turbulence on the labour market and temporary staff shortages. It will make it possible to create a limited number of additional jobs requiring high qualifications (De Backer et al., 2016).

Chart 14. Labour costs and productivity in selected countries in 2021



Note: Russia - 2019, Thailand - 2017, Vietnam - 2020.

Source: prepared by PEI based on ILO data.

Apart from labour costs, differences in energy prices, the quality of infrastructure, the institutional environment and the openness of the economy are relevant when choosing where to locate production. The Savills Nearshoring Index attempts to take these factors into account. It shows that, in 2020, the most convenient countries to invest in were Vietnam, Ukraine, Indonesia, Serbia, Czech Republic, Taiwan, Thailand, Sri Lanka and Russia (Tostevin, Mofid, 2020). China was in 11th place, while Poland was 20th. Yet, after taking into account supply chains' resilience, there were seven European countries in the top ten in 2022. China was far behind, in 30th place.

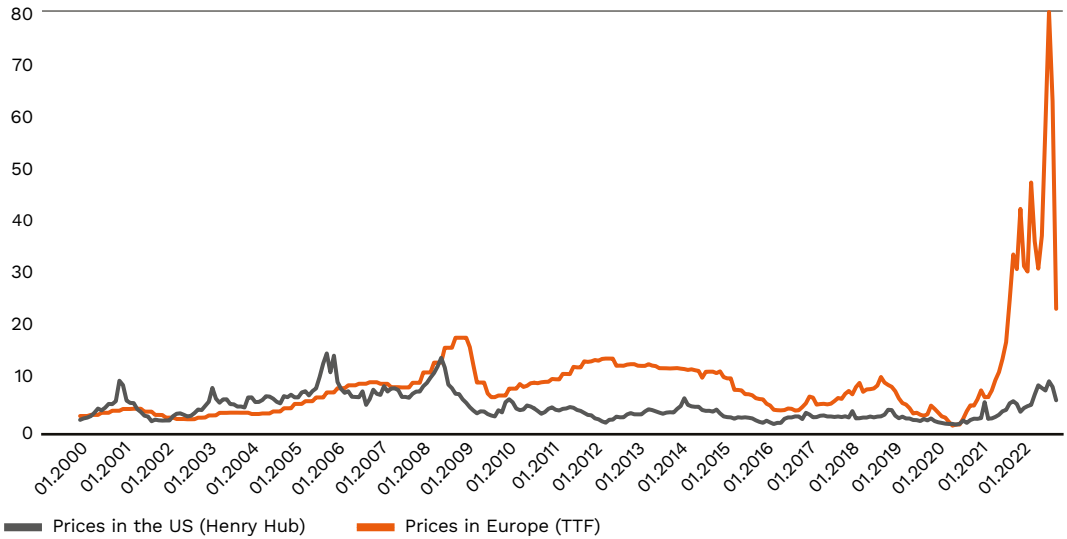
Table 3. Savills Nearshoring Index (2022)

Company	Position in Nearshoring Index	Position in Offshoring ranking
Czech Republic	1	6
Portugal	2	7
Austria	3	36
Taiwan	4	2
Britain	5	37
Japan	6	38
Canada	7	41
Finland	8	43
Poland	9	12
Sweden	10	50
Germany	18	51
South Korea	19	32
US	22	49
China	30	4

Source: prepared by PEI.

Energy prices and their stability, which has been upset by the war in Ukraine, are increasingly becoming an additional factor prompting companies to reshore and move production closer to sales markets. In this case, though, many companies see Europe as less attractive, which benefits the US, where energy prices are significantly lower (Hernandez, 2022). For example, the prices of gas being loaded onto tankers in American ports in October 2022 was almost four times lower than the prices in Europe (and eight times lower in September).

Chart 15. A comparison of LNG prices in the US and Euro



Source: prepared by PEI based on IEA and Nasdaq data.

China has become the main direction for the relocation of production processes (Cui, Lu, 2018), but unit labour costs there have increased by 285% over the past two decades, compared to 132% in India, 25% in Thailand and 12% in Cambodia (Tostevin, Mofid, 2020). However, it still offers advantages that are not available in smaller Asian countries, including a huge (but shrinking) workforce, estimated at over 200 million skilled workers (State Council PRCh, 2021). More than a million engineers graduate from Chinese universities every year; 1.38 million graduated in 2020 (www4). China also has unique manufacturing capabilities. It accounts for almost 30% of global industrial production (the US accounts for 17%). In terms of production volume, China is in first place in 16 out of 22 industrial product categories and second in the remaining six (UNIDO, 2022). Despite recent events, China's status as "the world's factory" remains unshakable.

Yet a key reason why a complete withdrawal from China is unrealistic, or at least a major challenge, for many companies is access to a gigantic sales market. Already, the size of the middle class in China is estimated at over 700 million people, not much less than the population of the US and the EU combined (CSIS, 2021). Bank of America estimates that the cost of foreign companies, with the exception of those that cater to the local market, withdrawing from China could amount to USD 1 trillion over five years (BoFA, 2020). A more practical scenario, compared to abandoning the Chinese market, might be the China+1 model, which involves remaining in China while diversifying intermediate goods to other countries in Asia where costs are lower. For many producers, the ASEAN countries have been playing this role for years, in particular Vietnam; its attractiveness for international corporations further

increased when the US government imposed tariffs on Chinese products. Other alternative production locations in Asia include Malaysia, Bangladesh, India and Taiwan. At the same time, in an era of permanent disruptions in international supply chains, relocating production to Vietnam and other Asian markets may not increase security of supply effectively.

In the case of the US, the largest effects of nearshoring are visible in Mexico for now. The process of moving producing there from Asia has been underway for the longest period of time, since the start of the US-China trade war in 2018. Between January and October 2022, Mexico received USD 17.2 billion in FDI, 25.5% more than during the same period of 2021. Most revenue from investments came from companies in the automotive industry, such as Volkswagen, Continental, Pirelli and Michelin (www5). In addition, Mexico was pledged USD 2.25 billion in investment support from the Inter-American Development Bank (IDB), to be used over the next three years (www6).

It also needs to be noted that the network of global supply chains and the dispersion of production stages are so large that changing them completely in certain segments and excluding Chinese partners may be almost impossible and will certainly be a long-term undertaking (Ting-Fang, Li, 2022).

Due to the ambiguous benefits of friendshoring and its long-term nature, the relocation of production by companies will require state intervention and a series of public incentives (PEI, 2022). Some impulses in this regard are provided by the increasingly widespread protectionist policies (see Chart 16), which have recently been dictated by national security issues, too, the renaissance of industrial policy observed for some time (Cherif, Hasanov, 2019), and states' desire to obtain so-called strategic autonomy. At the same time, a system of incentives increasing the effective degree of protection will obviously disrupt the efficiency benefits of free trade. It may also lead to too many production initiatives, which could increase prices and shortages.

Chart 16. Number of interventions in world trade



Source: prepared by PEI based on Global Trade Alert data.

The active role of the state applies especially to sectors and products of critical importance for the economy, such as semiconductors, drugs and medical devices, armaments and aerospace products. In August 2022, the US adopted an investment programme to stimulate the development of domestic semiconductor production (CHIPS and Science Act). The expected support amounts to USD 52.7 billion. Companies such as Micron (New York and Idaho) (Whalen, 2022), Intel (Ohio and Arizona), TSMC (Phoenix), SkyWater (Indiana) are already interested in building new factories in the US, and Samsung and Texas Instruments have announced major chip building projects in Texas. The EU plans to adopt a similar, EUR 15 billion programme to support public and private investments in semiconductor production (the Chips Act) (www7). It is expected that, in total, the program will involve around EUR 43 billion in private and public funds. The aim is to double Europe's share of the global semiconductor market from 10% to 20%, thereby ensuring independence in semiconductor production (www8). The funds will be transferred through existing programs: Horizon Europe and Digital Europe, and directly to member states. So far, the largest investments relating to the development of this sector have been announced by Intel. In addition to the construction of the semiconductor factory in Magdeburg, it foresees the development of a research centre in France and the creation (or extension) of assembly centres in Italy, Ireland, Poland and Spain (www9). Investment plans have also been announced by STMicroelectronics and GlobalFoundries; they involve building factories in France and Italy (Kar-Gupta, Mukharjee, 2022). This selective approach to subsidising production and “returning” companies will also result from developed countries’ limited financial capacity in connection with the pandemic and the war in Ukraine, as many struggling with growing budget deficits and debt.

Recommendations

The changes in global trade entail both challenges and opportunities. From an economic perspective, a departure from globalisation not beneficial for Europe or the world. However, to some extent, production may need to be diversified and relocated to ensure security of supply (Adachi, Brown, Zenglein, 2022). With globalisation slowing down and the focus on strengthening security, the state and international organisations can — and should — play a key role. To respond to today’s challenges linked to supply chain disruptions and growing geopolitical tensions, five principles of trade policy should be implemented:

- **An active industrial policy and related subsidies should not only seek to strengthen the internal market, but also to achieve goals that strengthen economic resilience.** The priorities include the energy transition and strategic areas threatened by the growing geopolitical tensions, such as: energy, medicine, electronics and digitisation, or the acquisition of the rare earth metals needed to develop green technologies.
- **Trade policy should take environmental goals into account.** Actions should include further reducing the tariffs on green goods, taking environmental commitments into greater account in FTAs, and implementing new financial and technical instruments to boost green trade, such as carbon tax.
- **States and companies should ensure security supply and cultivate a diversified network of suppliers.** They should prioritise reducing dependencies in critical sectors such as health, electronics, energy and energy-intensive industries. Governments should primarily stimulate trade and investment relations with countries that guarantee greater security of supply, that is, ones that share similar values in foreign policy.
- **The new realities of international trade will require the reform of the WTO or its replacement with a completely new organisation with effective operating mechanisms.** The crisis of multilateralism and weakening role of the WTO could lead to chaotic globalisation, which would be extremely costly for many countries, especially developing ones.
- **The international community should be consistent in implementing sanctions against states that flagrantly violate the international order.** For the sanctions to be effective, the greatest possible unanimity in the international community is key. A lack of firm response from the international community could encourage further violations of the law. This was the case with Russia after the 2008 war in Georgia, when the lack of firm sanctions encouraged the Kremlin to become aggressive towards Ukraine.

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The Polish Economic Institute

The Polish Economic Institute is a public economic think tank dating back to 1928. Its research primarily spans macroeconomics, energy and climate, foreign trade, economic foresight, the digital economy and behavioural economics. The Institute provides reports, analyses and recommendations for key areas of the economy and social life in Poland, taking into account the international situation.

