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Cutting through the value chain: The long-run effects of decoupling the East from the West

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Cutting through the Value Chain: The Long-Run Effects of Decoupling the East from the West

Gabriel Felbermayr, Hendrik Mahlkow and Alexander Sandkamp

Key Messages

- A reciprocal economic decoupling between the EU and China would permanently reduce income in both economies by 0.8 percent and 0.9 percent respectively.
- A decoupling of Russia from the US and its allies would have much more severe long-term impacts for real income in Russia (-9.7 percent) than in the US and its allies (-0.2 percent).
- The reason for the uneven distribution of costs lies primarily in Russia's low economic importance compared with the US and its allies. Teaming up thus increases the harm imposed on the strategic rival.
- Eastern European countries would be more strongly affected by a decoupling from Russia because of their more intensive interlinkages with the Russian economy.
- A full decoupling between “East” (i.e. BRIC countries) and “West” (the US and its allies) would reduce income in both country groups on average by 3.9 percent and 1.3 percent respectively.



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Kiel, April 14, 2022

Introduction

The Russian invasion of Ukraine on February 24, 2022 has pushed the relationship between Russia and the political West to a new low, having provoked a cascade of economic sanctions and counter-sanctions. It only seems a matter of time until protectionist policies cause a complete decoupling of value chains, leaving Russia on one side and the EU, the US and their allies on the other.

With the notable exception of energy trade, Russia is, however a relatively small trading partner for most countries belonging to the political West. For example, in 2021 only 2.8 percent of imports to Germany – Europe’s largest economy – came from Russia (Destatis, 2022). A decoupling from other countries – first and foremost China (11.8 percent of German imports in 2021) would constitute a much bigger threat to long-term prosperity in the EU. Given China’s lenient position towards Russia in the context of the Ukraine crisis and against the background of a large set of frictions,¹ a decoupling between China and the political West becomes increasingly likely.

Based on a recent working paper (Felbermayr et al. 2022), this policy brief analyses the long-run effects of an economic decoupling between the political West (i.e. the EU, the US and their allies) and the East (first and foremost Russia and China). By revealing the true cost of an escalating, long-lasting trade war between the two parties, our findings

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¹ The Sino-American trade war has been damaging both economies for several years (Bown, 2020). Regarding China’s relationship with the EU, the recent struggle over the opening of a Taiwanese representative office in Vilnius (Lithuania) in November 2021 has led to allegations of China having imposed restrictions on trade with Lithuanian firms as well as European companies using Lithuanian inputs (European Commission, 2022).

Methodology

are highly relevant for political decision makers. Specifically, we investigate four distinct scenarios:

1. Decoupling between the EU on one side and China on the other.
2. Decoupling between the US allies on one side and Russia on the other.²
3. Decoupling between the US allies on one side and Russia on the other, but only in the energy sector (oil, gas, coal and petroleum products).
4. Decoupling between the US allies on one side and the BRIC countries (Brazil, Russia, India and China) on the other.

Our analysis contributes to the current debate on the economic impact of a decoupling from Russia. Most notably, Bachmann et al. (2022) have simulated the short-run effects of a stop in Russian energy exports to Germany, finding that such a cut-off would reduce German GDP by 0.5 percent to 3 percent. We complement their findings by investigating the long-run effects of both a decoupling from Russia in the energy sector (Scenario 3) as well as a general decoupling from Russia (Scenario 2). In addition, we simulate the effect of a decoupling between the EU and China (Scenario 1, similar to Felbermayr et al. 2020, 2021) as well as an even broader decoupling between the “West” (US, EU and allies) and the “East” (BRIC, Scenario 4).

Methodology

This section provides a short overview of the methodology employed. For details, the reader is referred to Felbermayr et al. (2022). We use a computable general equilibrium model of international trade based on Caliendo and Parro (2015) to investigate the impact of different sanctioning and decoupling scenarios on trade and welfare.³ The model quantifies the effects of changes in bilateral trade barriers on 65 sectors in 141 countries, covering 98 percent of economic activity worldwide. It allows quantifying both direct and indirect trade effects such as trade diversion and real income effects.

We use the latest version of the Global Trade Analysis Project (GTAP) database (Aguiar et al. 2019) for the calibration of the model. GTAP has the advantage that it not only contains a higher sectoral resolution but also more countries than e.g. the World Input-Output Database (WIOD). In contrast to WIOD (used by Bachmann et al, 2022), GTAP also features separate fossil resource sectors, e.g. oil, gas, and coal, which play an important

² The country group “US Allies” is defined as the US, the EU27, Albania, Australia, Canada, Iceland, Japan, New Zealand, Norway, Philippines, South Korea, Taiwan, Turkey, and the United Kingdom.

³ Caliendo and Parro (2015) provide a multi-sector version of the Eaton and Kortum (2002) gravity model with intra- and international input-output linkages.

role in trade with Russia. Therefore, the model is not only based on detailed input-output linkages among a wide range of sectors and countries but also especially suitable to analyse a decoupling from Russia in the energy sector.

In the model, decoupling in the Scenarios 1, 2 and 4 is achieved by a doubling in non-tariff barriers (NTBs).⁴ This strongly reduces trade while not completely eliminating it. Scenario 3 investigates an energy embargo by the US and its allies against Russia. Therefore, NTBs in fossil fuel sectors (oil, gas, petroleum products and coal) are increased to a level such that there is no trade anymore in these sectors between the US allies and Russia.

Results

Scenario 1: Decoupling EU – China

The simulation results of the four scenarios analysed in this policy brief are presented in Table 1 below.⁵ As shown in Columns (1) and (2), a reciprocal decoupling between China and the EU (Scenario 1) would almost completely eliminate bilateral trade. In addition, the imposition of trade barriers on EU imports from China increases EU imports from the rest of the world (Column 6) but reduces exports (Column 4). This is because cutting-off European companies from cheap Chinese intermediate inputs increases production costs, thus reducing their competitiveness. In addition, falling EU demand for Chinese products leads to a real depreciation of the Renminbi (in the model though falling Chinese prices), further reducing the competitiveness of EU exports relative to Chinese exports. On the other hand, China now exports more to the rest of the world (Column 3) as Chinese exporters switch to other markets but imports less (Column 5). This development is also driven in part by the real depreciation of the Renminbi, which makes Chinese goods and services more competitive.

The imposition of barriers on Chinese imports from the EU has exactly the opposite effect. However, given the bilateral trade deficit of the EU with China, the impact of EU import barriers dominates, leading to the aforementioned simulation results. Overall, exports of both economies decline (Columns 7 and 8). Not surprisingly, a reciprocal decoupling between China and the EU would reduce real income in both economies by 0.9

⁴ NTBs include a wide spectrum of instruments such as import controls, state aid, public procurement policies and trade defense instruments (Ederington and Ruta, 2016). They have been shown to have strong trade dampening effects (Kinzius et al., 2019; Ghodsi et al., 2017; Bratt, 2017).

⁵ More scenarios are analysed in Felbermayr et al. (2022).

Results

percent and 0.8 percent respectively (Columns 9 and 10). For the EU, this amounts to a forgone annual income of 113 billion EUR (relative to GDP in 2021).

Table 1: Changes in trade and income of decoupling the East from the West (in %)

Decoupling Scenario	Bilateral exports		Exports to RoW		Imports to RoW		Total exports		Welfare	
	East (1)	West (2)	East (3)	West (4)	East (5)	West (6)	East (7)	West (8)	East (9)	West (10)
Scenario 1 EU-China	-96,21	-97,7	2,25	-0,49	-2,22	2,27	-13,56	-10,81	-0,92	-0,78
Scenario 2 US Allies-Russia	-96,36	-97,69	58,79	-0,06	-9,09	1,9	-45,21	-5,72	-9,71	-0,17
Scenario 3 US Allies- Russia (Energy)	-56,69	-26,82	56,08	-0,46	-22,56	8,35	-19,5	-1,98	-6,62	-0,096
Scenario 4 US Allies-BRIC	-95,72	-97,42	16,1	-0,46	-10,82	8,35	-54,75	-41,41	-3,86	-1,32

Note: Welfare change can be interpreted as change in real income. “West” refers to the EU (Scenario 1) or the US, the EU and their allies (Scenarios 2 to 4). “East” refers to China, Russia, or BRIC, depending on the scenario.

Source: Felbermayr et al. 2022, own calculations and illustration.

Scenario 2: Decoupling US Allies – Russia

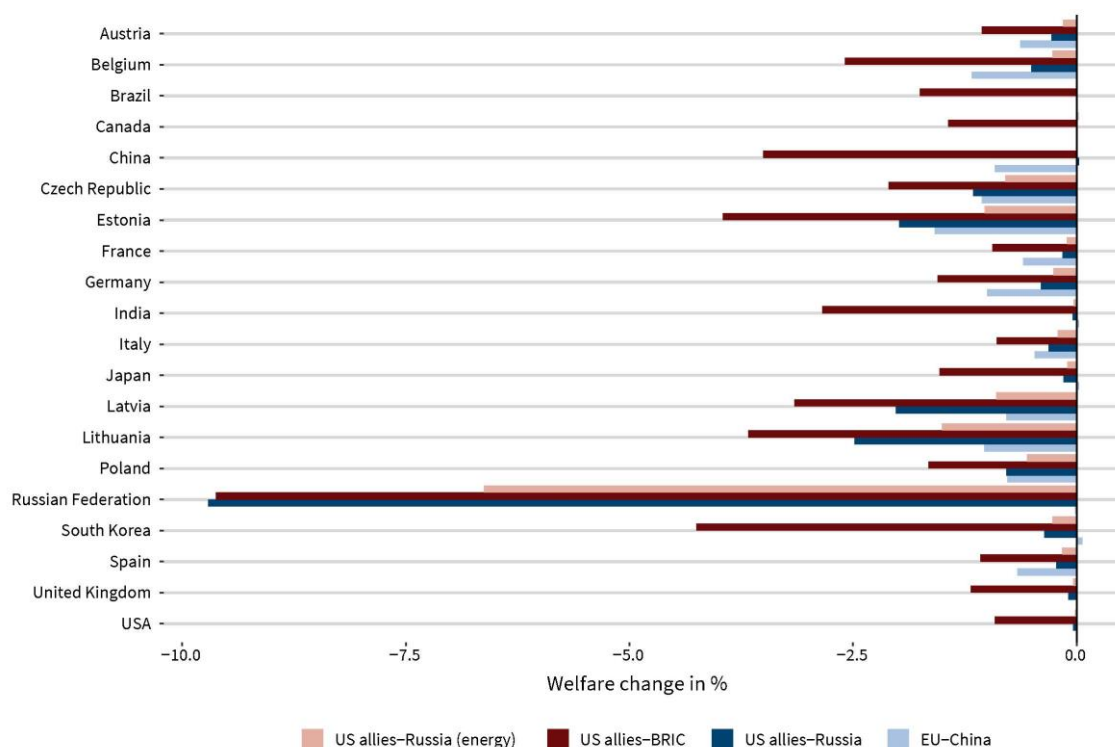
The mechanisms taking place in the other scenarios are the same as in Scenario 1, but the magnitude differs substantially. A trade war between Russia and the US and its allies (Scenario 2) would inflict high economic damage on Russia, reducing real income by 9.7 percent (Column 9). In contrast, the US and its allies would remain relatively unharmed on average (-0.2 percent, Column 10). However, income declines are unevenly distributed, as Figure 1 shows. Eastern European countries, closely interlinked with the Russian economy, suffer most (up to 2.48 percent in the case of Lithuania). On average, real income in the EU declines by almost 0.4 percent. In contrast, China would slightly benefit from a trade war between Russia and the West, almost doubling its imports from Russia and experiencing real income gains of 0.2 percent. Overall, it becomes clear that relative economic size matters both for maximising the welfare loss suffered by the political rival as well as for minimising the own party's losses.

Scenario 3: Decoupling US Allies – Russia (energy embargo)

The third scenario investigates the impact of an energy embargo imposed by the US and its allies on Russia. This means that all Russian exports of coal, gas, oil and petroleum products to the US and its allies are completely eliminated. The results are also presented in Table 1 (Scenario 3). Not surprisingly, Russia would increase its exports to the

rest of the world (Column 3). However, this cannot fully compensate for the loss in demand from the political West, so that total Russian exports fall by 19.5 percent (Column 7) and income declines by 6.6 percent (Column 9).

Figure 1: Welfare change of decoupling the East from the West



Notes: Welfare change can be interpreted as change in real income.

Source: Felbermayr et al. 2022, own calculations and illustration.

On the other hand, the West is only mildly affected, with income declining by 0.1 percent on average (Column 10). This figure might seem surprising against the background of current discussions in Europe on whether an energy embargo against Russia is feasible at all. Even for Germany with its strong energy dependence from Russia, income is only expected to decline by 0.3 percent (Figure 1). This reduction is even smaller than the lower bound of 0.5 percent estimated by Bachmann et al. (2022). The crucial difference between their estimation and ours is that we investigate long-term effects. Regarding energy trade, this refers to a period in which new pipelines and LNG terminals can be built and the energy transition is brought forward. We thus do not attempt to calculate short-term effects of an energy embargo. Instead, our results show that in the long-run, energy independence comes at relatively low costs for the EU.⁶

⁶ The long-run time horizon refers to at least 5 to 10 years until a new equilibrium is reached. Roughly, after 3 years 70% of the final effect size will have taken shape, 90% after 5 years. This time span also crucially depends on political commitment to support a rapid economic transition.

Scenario 4: Decoupling US Allies – BRIC

Scenario 4 is the most escalating one, assuming a decoupling between the US and its allies on one side and the BRIC countries on the other. The two country blocks trade heavily with each other (for example, the BRIC countries accounted for more than 16 percent of German imports and 11 percent of the country's exports in 2021, Destatis 2022), so that decoupling can have strong impacts on both East and West. The simulation results are also summarised in Table 1 (Scenario 4). Real income would decline substantially both in the BRIC countries (-3.9 percent, Column 9) and the US and its allies (-1.3 percent, Column 10). Once again, declines in welfare would be unevenly distributed, with the strongest impacts felt in Russia (-9.6 percent), Malta (-6.3 percent), Taiwan (-4.4 percent) and Korea (-4.3 percent, Figure 1). Income in Germany would fall by 1.6 percent in this scenario and in the EU on average by 1.3 percent.

Conclusion

The ongoing tensions between China on one side and the EU and the US on the other could ultimately tear apart global value chains that have contributed much to economic growth. Most recently Russia's war in Ukraine has provided sad proof of the speed with which economic – let alone political - relations between countries can break apart. In order to contribute to a better understanding of the true impacts of such actions and as a guide to policy-makers, this policy brief has presented simulation results of the effects economic decoupling would have on trade and real income.

A decoupling between “East” and “West” would significantly reduce real income in all countries involved. In the most extreme scenario, the US and its allies would experience a permanent drop in income by 1.3 percent, while the BRIC countries would see their income fall by 3.9 percent on average. Regarding the current conflict between Russia and the West, reciprocal decoupling would reduce Russian income by 9.7 percent, while the West would only suffer losses averaging 0,2 percent.

Our results provide two lessons for policy-makers: First, trade restrictions are more harmful for the target, the more unevenly distributed the economic size of the conflicting partners. Getting more countries to join the sanctions thus increases the economic damage done to Russia. Second, increasing the scope of economic sanctions comes at relatively low costs for the US and its allies on average, at least in the long-run. Nevertheless, the short-run impacts of such sanctions, in particular in the energy sector, are not only likely to be more severe but also surrounded by a large degree of uncertainty.

In the case of Russia, economic decoupling might be the best option the West has to prevent future escalations even if it doesn't stop the current war in Ukraine. More generally, however, the simulation results confirm what economic intuition dictates: Intentionally dividing the world with trade barriers reduces income in all countries involved and should thus never be done light-heartedly.

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