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# IS THE GLOBAL ECONOMY FRAGMENTING?

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## ABSTRACT

Using monthly data on trade in goods between January 2016 and May 2023, this study assesses the impact of recent shocks on the fragmentation of the global economy, looking in particular at the dynamics of friend-shoring, near-shoring and decoupling between the world's two largest economies. Results based on gravity model regressions with high-dimensional fixed effects show that trade flows have become more sensitive to geopolitical distance since the start of the war in Ukraine, leading to the first signs of overall trade fragmentation along geopolitical lines, i.e. friend-shoring. Trade in goods between hypothetical East and West blocs has grown 4 per cent slower than intra-bloc trade since the start of the war. On the other hand, we find no evidence of an increased regionalisation of world trade since the shock of the COVID-19 pandemic or the war in Ukraine. Therefore, our results suggest that near-shoring strategies did not have a large impact on world trade. Finally, our results confirm that the increased trade tensions between the world's two largest economies have significantly reduced their bilateral trade, a trend that has been exacerbated by the geopolitical tensions and uncertainty created by the war in Ukraine.

*JEL classifications*: F01, F14, F52.
*Keywords*: global trade outlook, empirical studies of trade, fragmentation, decoupling.

[1] The opinions expressed in this paper are those of the authors. They do not represent the positions or opinions of the WTO or its members and are without prejudice to members' rights and obligations under the WTO. Any errors are attributable to the authors. We thank Eddy Bekkers and Edvinas Drevinkas for their help and discussions.

## KEY MESSAGES

Rising geopolitical tensions, the shock of a global pandemic and the war in Ukraine have led to increased scrutiny of the complexity of global production and its relationship with supply chain risk and resilience. Discussions about trade strategies such as friend-shoring, near-shoring and decoupling gained prominence in the public debate. In this paper, we use monthly data on trade in goods between January 2016 and May 2023 to provide early evidence on whether the global economy has begun to fragment along geopolitical or regional lines.

- We find early evidence of a trend towards a stronger alignment between trade flows and geopolitical affinities since the onset of the war in Ukraine. Our estimates suggest that trade between hypothetical East and West blocs grew around 4 per cent slower than trade within the blocs.

- On the other hand, the data do not show any signs that the recent shocks have led to an overall trend towards regionalization of global trade, or near-shoring. No continent shows signs of increased trade regionalisation while Africa's intra-regional trade grew even slower than its extra-regional trade since the COVID-19 pandemic.

- The trade tensions between China and the United States have had a strong impact on trade between the two economies, which was further compounded by the global uncertainty and geopolitical tensions following the start of the war in Ukraine.

- Our findings thus point to the first signs of fragmentation in global trade along geopolitical lines, but not along regional lines.

## 1 INTRODUCTION

The end of the Cold War ushered in an era of global economic integration. International flows of goods, services, capital, people and knowledge continued to expand, linking economies through an increasingly complex web of international production networks. The global financial crisis of 2008-09 led to a collapse in global trade and, despite a rapid recovery, has been followed by a stagnation of global trade integration, at least as measured by the share of world trade in world GDP. Rising geopolitical tensions, the shock of a global pandemic and the war in Ukraine have changed the debate from whether the world *is* deglobalizing to whether it *should* deglobalize. As a result, trade strategies such as near-shoring, friend-shoring and decoupling between the two world largest economies gained prominence in the public debate. If implemented, these strategies would lead to the fragmentation of the global economy along regional and geopolitical lines.

In this paper, we provide early evidence on whether the global economy has begun to fragment along geopolitical or regional lines. We use regression analysis with high-dimensional fixed effects to estimate whether the sensitivity of trade flows to political distance increased after the war in Ukraine, leading to an increase in the fragmentation of the global economy into trade blocs defined by political affinities.[2] We also test whether the increased interest in supply chain strategies based on shorter supply chains and near-shoring has led to a regionalisation of trade flows. Finally, we estimate the degree of decoupling in aggregate trade flows between China and the United States following the escalation of trade tensions and the start of the war in Ukraine.

Trade tensions between the world's two largest economies have already changed global trade patterns. Freund et al. (2023) show that import tariffs have shifted US sourcing from China to other partners, particularly for advanced technology products. We confirm this decoupling pattern and show that it is part of a broader shift towards trading with politically aligned economies in times of heightened global uncertainty. On the other hand, trade data do not yet show signs of large-scale near-shoring as the growth in aggregate trade within regional blocs has not outpaced that between blocs since the COVID-19 pandemic.

## 2 FRIEND-SHORING SINCE THE WAR IN UKRAINE?

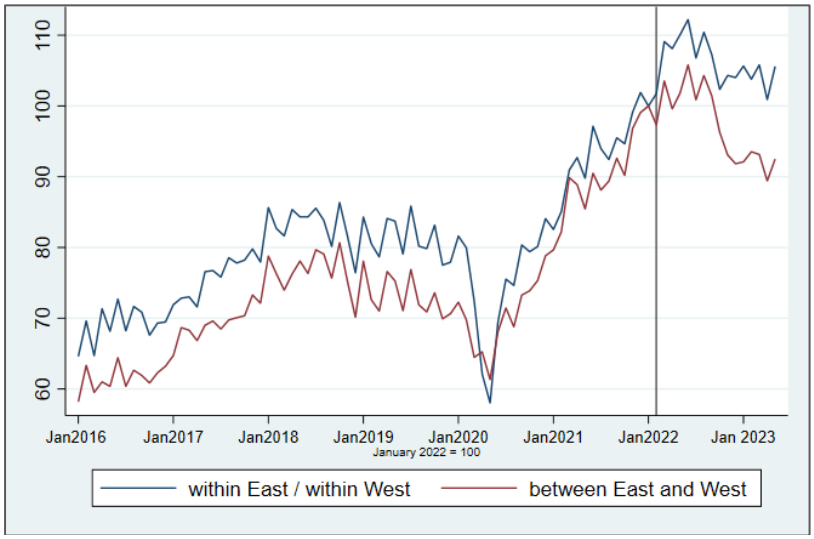
Studies focusing on international trade have shown that political distance matters for international trade through three main channels: the propensity to sign a trade agreement or extend preferential treatment (Mansfield et al., 2000; Sekkel, 2009), the likelihood of imposing economic sanctions and of severe diplomatic incidents that lead to trade sanctions (Fuchs and Klann, 2013; Crozet and Hinz, 2020; Hinz and Leromain, 2020), and consumer attitudes and preferences (Michaels and Zhi, 2010; Heilmann, 2016).

Measuring (geo)political distance with UN General Assembly (UNGA) voting patterns, Dajud (2013) finds that increased political distance reduces bilateral trade. Mytiakov et al. (2013) also find significant negative correlation between political distance and US imports, which is driven by petroleum products. Finally, Jakubik and Ruta (2023) find that geopolitical distance matters more for bilateral trade flows in times of heightened trade policy uncertainty.

[2] Our analysis complements earlier studies that find that foreign direct investment (FDI) flowing from and to emerging and developing economies is substantially lower for more geopolitically distant partners and that this sensitivity to geopolitical distance has increased in the past few years (2018-2021) compared to the period 2009-2018 (IMF 2023). Since FDI, global supply chains and international trade flows are tightly connected, fragmentation in FDI along geopolitical lines could be a sign of a similar development in global trade flows in the future.

Using monthly trade flows data from January 2016 to May 2023[3], we investigate whether trade in goods has become more sensitive to geopolitical distance since the start of the war in Ukraine. To measure geopolitical distance, we use the absolute distance between the ideal point estimates of states' political preferences based on voting patterns in the UN General Assembly (Bailey et al., 2017). Further, we follow Góes and Bekkers (2022) in splitting our sample of economies into two groups - a hypothetical East and West bloc – according to their geopolitical distance from the United States and China (see Appendix). Figure 1 shows that total trade in goods between these two hypothetical blocs (in red) grew much slower than within the blocs (in blue) after the onset of the war in Ukraine.

**Figure 1: Trade within and between hypothetical geopolitical blocs**




*Source*: Own calculations based on Trade Data Monitor
*Note*: Seasonally adjusted series. Russian Federation, Belarus and Ukraine are excluded.

We use regression analysis to test that this trend is indeed a feature of the data. In our baseline estimation we use monthly trade flows data from January 2016 to May 2023 for 97 reporting economies and 118 partner economies (we exclude Belarus, Russian Federation and Ukraine)[4]. We run our regressions on data disaggregated into 22 product groups[5], controlling for country-pair, importer-sector-time and exporter-sector-time fixed effects.

In the first model specification we include a dummy indicating whether the trade flow is between economies belonging to different blocs (*East-West*) interacted with a dummy for the time period of war in Ukraine (*War in Ukraine*). The estimated coefficient on this variable tells us whether trade flows between economies in different blocs grew slower than those between economies in the same blocs in the period during the war in Ukraine compared to the period before.

In a second and third specification we include the geopolitical distance between economies, first only interacted with the dummy for the war in Ukraine and then also by itself. The estimated coefficient in the second specification tells us whether since the start of the war in Ukraine trade flows grew slower between economies further apart geopolitically. The estimates in the third specification test the underlying hypothesis that during times of increased geopolitical tensions, geopolitical affinities have more pronounced impact on international trade.

[3] Data come from Trade Data Monitor that gathers monthly export and import data from customs agencies.
[4] Belarus and Russian Federation did not release statistics since the beginning of 2022. Ukraine is excluded because of the war.
[5] These correspond to the HS Sections.

Finally, in the fourth specification we extend the first one by including a dummy for trade between the United States and China (*CHN-USA*) interacted with a dummy for the period since the start of trade tensions between the two economies (*trade tension*). This specification controls for the possible confounding effect of the trade tensions between the largest economies of each bloc.

Formally, we run a Poisson Pseudo Maximum Likelihood (PPML) estimation on trade flows:

$$V_{ijst} = \exp\left(\rho_{ist} + \gamma_{jst} + \eta_{ij} + \delta_{ijT}\right)$$

Where $V_{ijst}$ is the trade flow between country *i* and country *j* in sector *s* in month *t*. $\rho_{ist}$ ($\gamma_{jst}$) are importer (exporter)-sector-time fixed effects, $\eta_{ij}$ are country-pair fixed effects, and $\delta_{ijT}$ is the variable of interest measuring the potential effect of the war in Ukraine on friend-shoring.

Depending on the model specification, $\delta_{ijT}$ is represents:

(1) Trade between countries belonging to the Eastern and Western bloc, from March 2022
(2) Trade between countries depending on their UNGA voting distance, from March 2022

Specification (3) extends (2) by including a time varying UNGA voting distance. Specification (4) extends (1) by including China-United States bilateral dummy interacted with a post-June 2018 dummy.

Results are reported in Table 1. In Table 2 and Table 3 we report results from specifications (1) and (3) for each one of the 22 product groups separately, this allows us to see which sectors contribute the most to the aggregate results.

**Table 1: Friend-shoring**

| VARIABLES | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| East-West * war in Ukraine dummy | -0.043*** | | | -0.035** |
| | (0.014) | | | (0.014) |
| UNGA distance * war in Ukraine dummy | | -0.034*** | -0.030*** | |
| | | (0.010) | (0.010) | |
| UNGA distance | | | -0.031 | |
| | | | (0.025) | |
| CHN-USA * trade tension dummy | | | | -0.362*** |
| | | | | (0.040) |
| Constant | 19.458*** | 19.380*** | 19.414*** | 19.467*** |
| | (0.001) | (0.002) | (0.028) | (0.001) |
| Observations | 18,095,558 | 17,116,944 | 17,116,944 | 18,095,558 |
| Importer-sector-time fixed effects | Yes | Yes | Yes | Yes |
| Exporter-sector-time fixed effects | Yes | Yes | Yes | Yes |
| Importer-exporter fixed effects | Yes | Yes | Yes | Yes |
| Includes RUS, UKR, BLR | No | No | No | No |

Cluster-robust standard errors in parentheses. Three-way clustering at the Reporter, Partner, Time level

*** p<0.01, ** p<0.05, * p<0.1

Gravity estimates show that trade between the two hypothetical blocs has indeed declined since March 2022 compared to intra-bloc trade. Column (1) of Table 1 predicts that trade flows between blocs have grown 4.2 per cent slower than trade within these blocs.[6] In Column (2) we use instead a continuous variable measuring the ideal point distance in voting at the UN General Assembly. This result substantiates the previous one, and supports the idea that bilateral trade relationships among less aligned countries decreased more following the war in Ukraine. In column (3) we control also for changes in the ideal point distance over the full time period, and results are substantially unchanged. The coefficient on the time-varying ideal point distance, despite being negative, is not statistically significant. These results support the view that it is precisely during times of increased geopolitical tensions, that political alignment has a more pronounced impact on international trade.

In the last specification we want to make sure that the results are not driven by the decoupling between China and the United States, that started already in July 2018 with the increased trade tension between the two world largest economies. Column (4) confirms the fact that bilateral trade flows between the United States and China grew substantially slower (by around 30 per cent) following the implementation of reciprocal import tariffs. Nevertheless, the decoupling of the two economies is not driving our results in friend-shoring as the predicted slowdown in trade between non-aligned economies remains at around 3.5 per cent.

Table 2 and Table 3 replicates the specification of Columns (1) and (3), but running the regressions for each one of the 22 product groups separately. Among the sectors that contribute the most to the fragmentation between the hypothetical blocs are: live animals and animal products; vegetable products; mineral products (which include oil); and machinery, appliances, and electrical equipment. An interesting result is the positive and significant coefficient for arms and ammunitions in Table 2, which suggests that non-aligned economies traded more in these goods since the war in Ukraine. Looking at Table 3 we see a slightly different result. Countries in opposing geopolitical blocs tend to trade less in arms and ammunition in general across all the sample period. Since the beginning of the war in Ukraine they might have traded more in some of these specific goods, but the difference is not statistically significant.

[6] The effect is calculated as $\exp(\delta_{ijT}) - 1$.

**Table 2: Friend-shoring at the product group level – geopolitical blocs**

| PRODUCT GROUP | East-West * war in Ukraine dummy | | Observations |
|---|---|---|---|
| ALL | -0.043*** | (0.014) | 18,095,558 |
| Live Animals; Animal Products | -0.102* | (0.057) | 693,575 |
| Vegetable Products | -0.063* | (0.035) | 793,426 |
| Animal or Vegetable Fats and Oils | -0.064 | (0.105) | 586,954 |
| Prepared Foodstuffs; Beverages, Spirits, Tobacco | -0.002 | (0.028) | 809,152 |
| Mineral Products | -0.132* | (0.077) | 712,837 |
| Products of the Chemical or Allied Industries | 0.057 | (0.036) | 821,232 |
| Plastics, Rubber and Articles Thereof | -0.031 | (0.033) | 818,515 |
| Raw Hides, Skins, Leather | 0.138** | (0.061) | 770,209 |
| Wood and Articles of Wood | 0.001 | (0.031) | 735,786 |
| Pulp of Wood, Paper | -0.061 | (0.041) | 792,834 |
| Textile and Textile Articles | 0.052 | (0.075) | 836,579 |
| Footwear, Headgear, etc. | 0.101** | (0.047) | 767,116 |
| Art. of Stone, Plaster, Cement, Ceramics, Glass | 0.014 | (0.037) | 762,215 |
| Pearls, precious stones, precious metals | 0.075 | (0.116) | 689,297 |
| Base Metals and Articles of Base Metal | -0.064 | (0.052) | 823,049 |
| Machinery, Appliances, Electrical Equipment | -0.020** | (0.009) | 843,885 |
| Vehicles, Aircraft, Vessels | 0.009 | (0.029) | 788,813 |
| Precision Instruments | 0.009 | (0.033) | 815,410 |
| Arms and Ammunitions | 0.570** | (0.222) | 298,914 |
| Misc. Manufactured Articles | -0.017 | (0.029) | 805,544 |
| Works of Art | 0.129 | (0.125) | 575,101 |
| Special Classification Provisions | -0.058 | (0.131) | 493,866 |

Cluster-robust standard errors in parentheses. Three-way clustering at the Reporter, Partner, Time level
*** p<0.01, ** p<0.05, * p<0.1

## Table 3: Friend-shoring at the product group level – geopolitical distance

| PRODUCT GROUP | UNGA distance | | UNGA distance * war in Ukraine dummy | | Observations |
|---|---|---|---|---|---|
| ALL | -0.031 | (0.025) | -0.030*** | (0.010) | 17,116,944 |
| Live Animals; Animal Products | 0.014 | (0.052) | -0.107*** | (0.041) | 653,739 |
| Vegetable Products | -0.041 | (0.053) | -0.001 | (0.032) | 750,285 |
| Animal or Vegetable Fats and Oils | -0.142 | (0.099) | -0.098 | (0.063) | 554,359 |
| Prepared Foodstuffs; Beverages, Spirits, Tobacco | -0.031 | (0.031) | 0.008 | (0.015) | 764,461 |
| Mineral Products | -0.073 | (0.078) | -0.104*** | (0.036) | 673,649 |
| Products of the Chemical or Allied Industries | 0.008 | (0.046) | 0.030 | (0.021) | 776,255 |
| Plastics, Rubber and Articles Thereof | -0.028 | (0.025) | -0.025 | (0.024) | 774,066 |
| Raw Hides, Skins, Leather | -0.009** | (0.004) | 0.094** | (0.041) | 725,939 |
| Wood and Articles of Wood | 0.072 | (0.061) | -0.014 | (0.015) | 695,721 |
| Pulp of Wood, Paper | 0.019 | (0.059) | -0.082*** | (0.031) | 749,768 |
| Textile and Textile Articles | 0.071 | (0.048) | 0.009 | (0.050) | 791,615 |
| Footwear, Headgear, etc. | -0.006 | (0.070) | 0.090** | (0.042) | 724,691 |
| Art. of Stone, Plaster, Cement, Ceramics, Glass | -0.025 | (0.035) | -0.003 | (0.021) | 720,170 |
| Pearls, precious stones, precious metals | 0.008 | (0.077) | 0.049 | (0.070) | 646,851 |
| Base Metals and Articles of Base Metal | -0.114 | (0.082) | -0.050 | (0.032) | 778,217 |
| Machinery, Appliances, Electrical Equipment | -0.046 | (0.040) | -0.005 | (0.007) | 798,544 |
| Vehicles, Aircraft, Vessels | 0.046 | (0.045) | 0.012 | (0.012) | 747,226 |
| Precision Instruments | 0.003 | (0.042) | 0.011 | (0.016) | 770,613 |
| Arms and Ammunitions | -0.684** | (0.283) | 0.151 | (0.095) | 277,474 |
| Misc. Manufactured Articles | -0.054 | (0.052) | -0.025 | (0.021) | 762,244 |
| Works of Art | 0.378 | (0.262) | 0.105* | (0.062) | 537,359 |
| Special Classification Provisions | -0.127 | (0.197) | -0.031 | (0.055) | 457,970 |

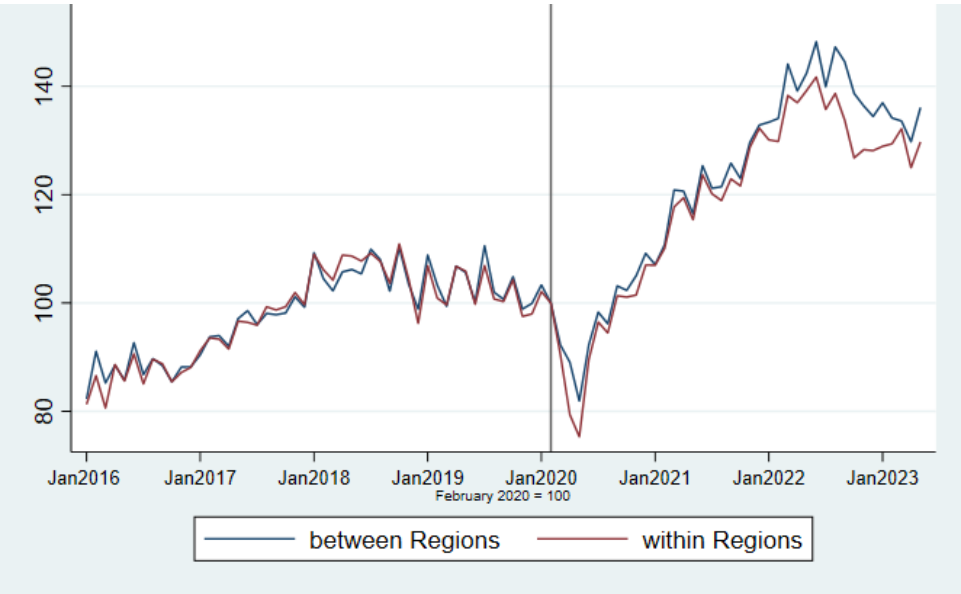
Cluster-robust standard errors in parentheses. Three-way clustering at the Reporter, Partner, Time level
*** p<0.01, ** p<0.05, * p<0.1

## 3 NEAR-SHORING SINCE THE COVID-19 PANDEMIC?

The architecture of global value chains arises from factor costs differences among economies. Combining advanced production technology with low wages in developing countries allows multinational firms to increase their production efficiency. Rising labour costs in many developed and developing countries, combined with falling prices of automation technologies, low interest rates in advanced countries and increasing trade policy uncertainty, have led to increased automation in many industrial and service sectors. Some recent empirical evidence shows that robot adoption in developed economies is associated with production stages moving back, resulting in re-shoring or near-shoring (Krenz et al., 2021).

The COVID-19 pandemic might have accelerated the trend of production automation and the potential for near-shoring. The pandemic has pushed entire economies into the digital space and remote work, and thus further accelerated digitalization of all activities. It has also ignited a discussion about vulnerabilities in complex supply chains. Global value chains were hit heavily by the pandemic because of lockdowns and production shutdowns, scarcity of primary goods, the simultaneous changes in global demand, and especially due to the bottlenecks in transportation links. The disruptions caused by the COVID-19 pandemic brought increased scrutiny to the complexity of global production and to its relationship with supply chain risk and resilience. More regional sourcing was suggested as one strategy to enhance supply chains resilience, making near-shoring through production automation more attractive.

**Figure 2: Trade within and between geographical regions**




*Source*: Own calculations based on Trade Data Monitor
*Note*: Seasonally adjusted series. Russian Federation, Belarus and Ukraine excluded.

In the following analysis we investigate whether trade data show an increased regionalization of goods flows since the COVID-19 pandemic. Figure 2 plots the evolution of global trade in goods split by whether the flow is within or between regions. There are no signs of near-shoring yet as the growth in aggregate trade within regional blocs did not outpace that between blocs since the COVID-19 pandemic. In fact, trade within regions appears more sensitive to shocks as it declined more during the pandemic shock as well as in reaction to the war in Ukraine. Nevertheless, it rebounded in both cases.

As in the previous analysis, we run a Poisson Pseudo Maximum Likelihood (PPML) estimation on trade flows:

$$V_{ijst} = \exp(\rho_{ist} + \gamma_{jst} + \eta_{ij} + \delta_{ijT})$$

Where $V_{ijst}$ is the trade flow between country *i* and country *j* in sector *s* in month *t*. $\rho_{ist}$ ($\gamma_{jst}$) are importer (exporter)-sector-time fixed effects, $\eta_{ij}$ are country-pair fixed effects, and $\delta_{ijT}$ is the variable of interest measuring the potential effect of the COVID-19 pandemic on near-shoring.

Depending on the model specification, the dummy $\delta_{ijT}$ is equal to 1:

(1) For trade within the same region, from March 2020
(2) For trade within Africa, from March 2020
(3) For trade within the Americas, from March 2020
(4) For trade within Asia and Oceania, from March 2020
(5) For trade within Europe, from March 2020
(6) For trade within Africa, Americas, Asia & Oceania, Europe, from March 2020

**Table 4: Near-shoring**

| VARIABLES | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Intra-region | -0.025 | | | | | |
| | (0.017) | | | | | |
| Africa | | -0.175*** | | | | -0.163*** |
| | | (0.060) | | | | (0.062) |
| Americas | | | -0.016 | | | -0.005 |
| | | | (0.027) | | | (0.030) |
| Asia & Oceania | | | | -0.010 | | 0.026 |
| | | | | (0.028) | | (0.024) |
| Europe | | | | | -0.084 | -0.092 |
| | | | | | (0.061) | (0.068) |
| Constant | 19.462*** | 19.455*** | 19.455*** | 19.456*** | 19.465*** | 19.463*** |
| | (0.005) | (0.001) | (0.001) | (0.004) | (0.008) | (0.007) |
| Observations | 18,095,558 | 18,095,558 | 18,095,558 | 18,095,558 | 18,095,558 | 18,095,558 |
| Fixed effects: | | | | | | |
| Importer-sector-Year | Yes | Yes | Yes | Yes | Yes | Yes |
| Exporter-sector-year | Yes | Yes | Yes | Yes | Yes | Yes |
| Importer-exporter | Yes | Yes | Yes | Yes | Yes | Yes |
| RUS UKR BLR | No | No | No | No | No | No |

Cluster-robust standard errors in parentheses. Three-way clustering at the Reporter, Partner, Time level
*** p<0.01, ** p<0.05, * p<0.1
Note: Each intra-region dummy is interacted with a dummy for the periods after the onset of the COVID-19 pandemic.

Results reported in Table 4 show no evidence of near-shoring – or the regionalisation of global value chains – following the COVID-19 pandemic. Intra-regional trade did not pick up as a consequence of the global health crisis, and no continent started trading more with itself. The only significant effect – but a negative one – is for Africa. Contrary to the near-shoring narrative, the pandemic seems to have reduced intra-African trade growth by roughly 15 per cent compared to trade between Africa and

other regions.[7] The result seems to suggest that Africa started trading more with other continents rather than with itself or, equivalently, that within continent trade decreased faster. This might highlight the dependency of Africa on the rest of the world, even more so when a global shock materialises.

In Table 5 we investigate which products are driving this negative regionalisation effect for Africa since the pandemic. We replicate the specification of Columns (2) running the regressions for each one of the 22 HS Sections separately. The sectors that contribute the most to the lack of regionalization in Africa – or to its increased dependency on the rest of the world – are: vegetable products; mineral products (which include oil); plastic and rubber; footwear and headgear; precision instruments; and arms and ammunitions.

**Table 5: Near-shoring at the product group level – Africa**

| PRODUCT GROUP | Within Africa * COVID-19 | | Observations |
|---|---|---|---|
| ALL | -0.175*** | (0.060) | 18,095,558 |
| Live Animals; Animal Products | -0.009 | (0.128) | 693,575 |
| Vegetable Products | -0.241** | (0.113) | 793,426 |
| Animal or Vegetable Fats and Oils | -0.221 | (0.205) | 586,954 |
| Prepared Foodstuffs; Beverages, Spirits, Tobacco | -0.075 | (0.104) | 809,152 |
| Mineral Products | -0.351*** | (0.090) | 712,837 |
| Products of the Chemical or Allied Industries | -0.011 | (0.054) | 821,232 |
| Plastics, Rubber and Articles Thereof | -0.144*** | (0.050) | 818,515 |
| Raw Hides, Skins, Leather | 0.675 | (0.552) | 770,209 |
| Wood and Articles of Wood | 0.094 | (0.144) | 735,786 |
| Pulp of Wood, Paper | 0.153 | (0.162) | 792,834 |
| Textile and Textile Articles | 0.117 | (0.167) | 836,579 |
| Footwear, Headgear, etc. | -0.781*** | (0.130) | 767,116 |
| Art. of Stone, Plaster, Cement, Ceramics, Glass | 0.118 | (0.143) | 762,215 |
| Pearls, precious stones, precious metals | -0.077 | (0.448) | 689,297 |
| Base Metals and Articles of Base Metal | -0.152 | (0.127) | 823,049 |
| Machinery, Appliances, Electrical Equipment | -0.088 | (0.103) | 843,885 |
| Vehicles, Aircraft, Vessels | -0.334 | (0.217) | 788,813 |
| Precision Instruments | -0.389*** | (0.088) | 815,410 |
| Arms and Ammunitions | -1.058** | (0.431) | 298,914 |
| Misc. Manufactured Articles | -0.019 | (0.109) | 805,544 |
| Works of Art | 0.119 | (0.366) | 575,101 |
| Special Classification Provisions | 0.648 | (0.418) | 493,866 |

Cluster-robust standard errors in parentheses. Three-way clustering at the Reporter, Partner, Time level
*** p<0.01, ** p<0.05, * p<0.1

## 4 DECOUPLING BETWEEN THE TWO LARGEST WORLD ECONOMIES?

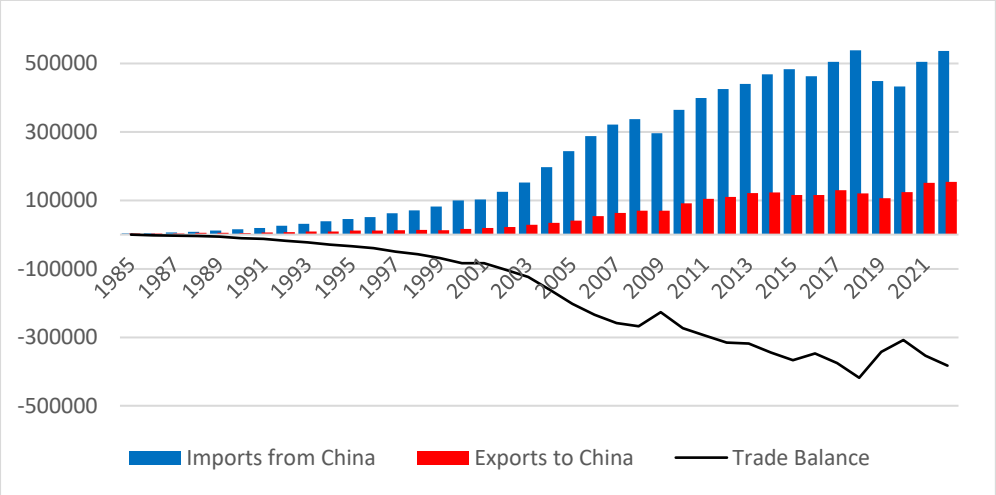
Trade tensions between China and the United States saw a tit-for-tat escalation of import tariffs in 2018 and 2019, resulting in the United States imposing an average import duty of 19.3 per cent on imports from China, and China imposing an average import duty of 21.1 per cent on US imports. More

[7] The effect is calculated as $\exp(\delta_{ijT}) - 1$.

than 66 per cent of Chinese exports to the United States and 58 per cent of US exports to China are covered by these additional tariffs (Bown, 2023).

Despite these increased trade policy barriers, flows of goods between China and the United States hit a record high in 2022. According to the US Bureau of Economic Analysis total imports and exports reached 690.6 billion USD, a 2.5 percent increase year-on-year. The previous record (658.8 billion USD) was attained in 2018, before the two world's largest economies started increasing import tariffs on each other's products. This put in question whether the increased trade barriers had an effect on the decoupling of the two economies.

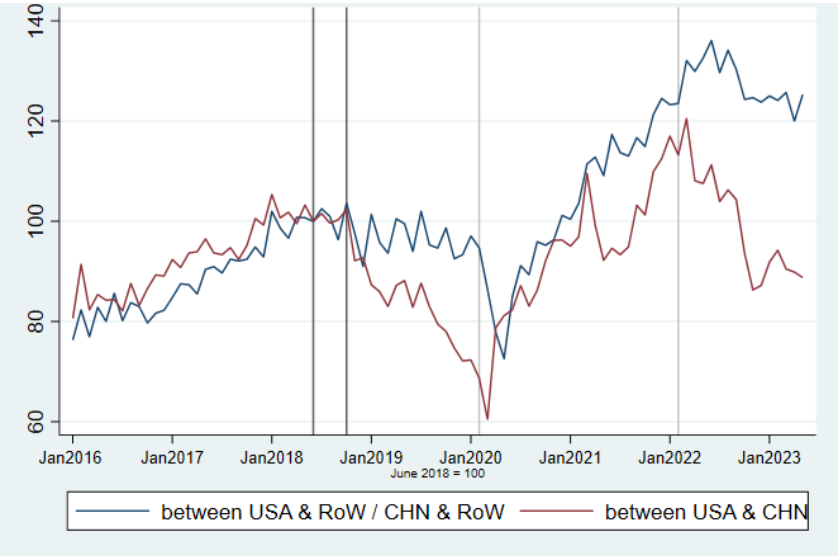
**Figure 3: Trade between China and the United States**




*Source*: US Census

Comparing trade flows between the two economies to those with other trade partners clearly shows that the United States and China have been decoupling (Figure 4). There are two clear drops in their bilateral trade: since the beginning of the trade tensions in July 2018, and following the war in Ukraine in February 2022. We see also a sharp recovery in February 2020, explained by the role of China in the global supply chain during the COVID-19 pandemic.

**Figure 4: Trade of the United States and China, with each other and with other partners**



*Source*: Own calculations based on Trade Data Monitor
*Note*: Seasonally adjusted series. Russian Federation, Belarus and Ukraine excluded. RoW stands for the rest of the world. The red line shows the evolution of trade flows between China and the United States. The blue line shows the evolution of trade flows between the United States and partners other than China, and between China and partners other than the United States.

We run a PPML regression on Chinese and US trade flows to estimate the impact of the trade tensions and the war in Ukraine, both separately and cumulated.

$$V_{ijst} = \exp\left(\rho_{ist} + \gamma_{jst} + \eta_{ij} + \delta_{ijT}\right)$$

Where $V_{ijst}$ is the trade flow between country *i* and country *j* in sector *s* in month *t*. $\rho_{ist}$ ($\gamma_{jst}$) are importer (exporter)-sector-time fixed effects, $\eta_{ij}$ are country-pair fixed effects, and $\delta_{ijT}$ is the variable of interest measuring the potential effect of the trade tensions on decoupling between the two largest economies.

Depending on the specification, the dummy $\delta_{ijT}$ is equal to 1:

(1) For trade between China and the United States, from July 2018
(2) For trade between China and the United States, from March 2022
(3) For trade between China and the United States, cumulative effect from July 2018 and from March 2022

**Table 6: Decoupling**

| VARIABLES | (1) | (2) | (3) |
|---|---|---|---|
| CHN-USA * trade tension dummy | -0.368*** | | -0.306*** |
| | (0.037) | | (0.020) |
| CHN-USA * war in Ukraine dummy | | -0.329*** | -0.214*** |
| | | (0.082) | (0.078) |
| Constant | 19.432*** | 19.425*** | 19.432*** |
| | (0.001) | (0.001) | (0.001) |
| Observations | 19,168,248 | 19,168,248 | 19,168,248 |
| Fixed effects: | | | |
| Importer-sector-Year | Yes | Yes | Yes |
| Exporter-sector-year | Yes | Yes | Yes |
| Importer-exporter | Yes | Yes | Yes |
| Trade Tension Interaction | Yes | No | Yes |
| War in Ukraine Interaction | No | Yes | Yes |
| RUS UKR BLR | No | No | No |

Cluster-robust standard errors in parentheses. Three-way clustering at the Reporter, Partner, Time level
*** p<0.01, ** p<0.05, * p<0.1

Table 6 presents strong evidence of the decoupling between the United States and China, both due to the increased trade tensions between the two economies (since July 2018) and the war in Ukraine. In Column (1) we predict that bilateral trade between the United States and China has grown around 31 per cent slower since the increase in trade tensions.[8] In specification (2), the extent of decoupling between the two largest economies since the war in Ukraine accounts for a reduction of their bilateral trade growth by 28 per cent. In column (3) we combine the two effects, the increase in trade tensions had a potential decoupling effect of 26 per cent, while the war in Ukraine slowed down the bilateral trade by an additional 19 per cent. These results are quantitatively in line with recent papers showing that trade tensions had an impact on trade patterns (Freund et al., 2023).

## 5 CONCLUSIONS

Global trade and international supply chains are evolving in response to new technologies and changing patterns of comparative advantage. In recent years, however, increased trade policy uncertainty, the rise of industrial policy and geopolitical tensions have also played an important role in shaping the structure of global production. Trade tensions between China and the United States have already started to reshape global value chains since 2018. They have accelerated the relocation of some production stages to locations with lower labour costs than China, and increased trade opportunities for a number of third countries (Fajgelbaum et al., 2021; Freund et al., 2023). The subsequent shocks of the COVID-19 pandemic and the war in Ukraine brought further pressure to reassess the resilience of global production. Trade strategies to bring production closer to large markets (near-shoring) or to strengthen production networks with like-minded countries (friend-shoring) have been discussed as part of the solution.

We analyze monthly trade data to gauge whether the recent shocks have added momentum to the fragmentation of the global economy, focusing on friend-shoring, near-shoring, and decoupling between China and the United States. We find early evidence of a trend towards a stronger alignment

[8] The effect is calculated as $\exp(\delta_{ijT}) - 1$.

between trade flows and geopolitical affinities since the onset of the war in Ukraine. Our estimates suggest that trade between hypothetical East and West blocs grew around 4 per cent slower than trade within the blocs. We find the strongest effect for petroleum and other mineral products, and animals and animal products, followed by vegetable products, and machinery, appliances and electrical equipment. On the other hand, the data do not show an overall trend towards regionalization of global trade, or near-shoring. Finally, our results show that the trade tensions between China and the United States have had a strong impact on trade between the two economies, which was further compounded by the global uncertainty and geopolitical tensions following the start of the war in Ukraine.

Our findings point to the first signs of fragmentation in global trade. We find that trade flows have begun to fragment along geopolitical lines, but not along regional lines. While the use of customs data allows tracing the impact of recent global shocks, it also limits our analysis in two ways. First, customs data do not allow assessing the impact on re-shoring, i.e. the substitution of international trade by domestic production. Therefore, our analysis cannot say whether the pandemic shock has led to a re-shoring of production to large economies, rather than a near-shoring. Our data are also silent on the pattern of trade in services. Importantly, the impact of the pandemic shock on services supply chains may be quite different from that discussed in relation to near-shoring. The leap in the adoption of digital technologies has rapidly increased the potential for international trade in services that can be delivered over the internet, which may in fact lead to increased offshoring (Baldwin and Dingel, 2021).

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## APPENDIX

### Table A.1: Classification of economies in the hypothetical East and West blocs

| Economy | Bloc | Economy | Bloc |
|---|---|---|---|
| Albania | West | Latvia | West |
| Argentina | West | Lithuania | West |
| Armenia | East | Luxembourg | West |
| Australia | West | Madagascar | West |
| Austria | West | Malawi | West |
| Azerbaijan | East | Malaysia | East |
| Bahrain, Kingdom of | East | Malta | West |
| Bangladesh | East | Mauritius | East |
| Belarus | East | Mexico | West |
| Belgium | West | Mongolia | West |
| Benin | West | Morocco | East |
| Bolivia, Plurinational State of | West | Mozambique | East |
| Botswana | East | Namibia | East |
| Brazil | West | Nepal | East |
| Brunei Darussalam | East | Netherlands | West |
| Bulgaria | East | New Zealand | West |
| Burkina Faso | East | Nicaragua | West |
| Cambodia | East | Nigeria | East |
| Cameroon | East | Norway | West |
| Canada | West | Oman | East |
| Chile | West | Pakistan | East |
| China | East | Panama | West |
| Colombia | West | Paraguay | West |
| Costa Rica | West | Peru | West |
| Côte d'Ivoire | West | Philippines | West |
| Croatia | West | Poland | West |
| Cyprus | West | Portugal | West |
| Czech Republic | West | Qatar | East |
| Denmark | West | Romania | West |
| Dominican Republic | West | Russian Federation | East |
| Ecuador | West | Rwanda | East |
| Egypt | East | Saudi Arabia, Kingdom of | East |
| El Salvador | West | Senegal | East |
| Estonia | West | Singapore | East |
| Ethiopia | East | Slovak Republic | West |
| Finland | East | Slovenia | West |
| France | West | South Africa | East |
| Georgia | East | Spain | West |
| Germany | West | Sri Lanka | East |

| | | | |
|---|---|---|---|
| Ghana | East | Sweden | West |
| Greece | West | Switzerland | West |
| Guinea | East | Chinese Taipei | West |
| Hong Kong, China | West | Tajikistan | East |
| Hungary | West | Tanzania | East |
| India | East | Thailand | East |
| Indonesia | East | Togo | East |
| Iran | East | Trinidad and Tobago | West |
| Ireland | West | Tunisia | East |
| Israel | West | Türkiye | West |
| Italy | West | Uganda | East |
| Jamaica | West | Ukraine | East |
| Japan | West | United Arab Emirates | East |
| Jordan | East | United Kingdom | West |
| Kazakhstan | East | United States of America | West |
| Kenya | East | Uruguay | West |
| Korea, Republic of | West | Venezuela, Bolivarian Republic of | West |
| Kuwait, the State of | East | Viet Nam | East |
| Kyrgyz Republic | East | Zambia | East |
| Lao People's Democratic Republic | East | Zimbabwe | East |