

FRIEND-SHORING IN INTERNATIONAL TRADE: RISK REDUCTION STRATEGY OR ECONOMIC FRAGMENTATION?

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Abstract: *This paper examines the structural transformation of global trade under contemporary geopolitical tensions, with a focus on the concept of friend-shoring. It evaluates whether friend-shoring constitutes an effective strategy for reducing risks in global supply chains or contributes to the deepening of geoeconomic fragmentation.*

The paper contributes to the emerging literature on geoeconomic fragmentation by integrating insights from global production network theory with recent empirical and macroeconomic evidence on trade reconfiguration. The analysis is based on a qualitative review of specialized literature and the interpretation of secondary data from academic studies and institutional reports published by organizations such as the IMF, ECB, EBRD, NBER, WTO, and the World Bank.

The results indicate that while friend-shoring can enhance short-term resilience by reducing exposure to geopolitical risks, it generates significant economic costs, including higher intermediate input prices, reduced innovation efficiency, and weaker diffusion of productivity gains. Furthermore, geoeconomic fragmentation leads to uneven welfare losses across regions, with emerging economies facing disproportionate adjustment burdens.

The findings also show that decoupling does not produce a clear separation between trade blocs, but instead reconfigures global interdependencies through intermediary economies and indirect supply chain linkages, limiting the effectiveness of politically driven supply chain restructuring.

The paper argues that friend-shoring represents a transformation of globalization rather than a retreat from it, reshaping the balance between economic efficiency, supply security, and geopolitical resilience.

Key words: *friend-shoring, global value chains, geoeconomic fragmentation, resilience, national security.*

JEL: F13, F14, F23, F52, F60

Introduction

The current economic context is marked by a shift from relatively unrestricted global integration toward a form of organization increasingly shaped by national security interests, a process in which "economic deglobalization may take on a selective nature and apply to different markets, industries and enterprises, as well as to specific goods and services in varying degrees" (Budner et al., 2026, p. 6). Friend-shoring, understood as the redirection of supply networks toward states considered politically allied or compatible, has become a central element of new industrial policies. This trend changes the business environment, as "some MNCs navigate geostrategic globalization by embracing or even catalysing states' geopolitical and geoeconomic objectives" (Schindler & Rolf, 2025, p. 905). The *aim of this paper* is to examine whether friend-shoring is an effective strategy for reducing risks in global supply chains or contributes to the deepening of global economic fragmentation. The paper follows three main lines of analysis: how geopolitical tensions reshape supply chains, the macroeconomic costs of geoeconomic fragmentation (GEF), and the practical limits of decoupling through relevant case studies.

Methodologically, the paper is based on a qualitative analysis of the specialized literature and on the interpretation of secondary data drawn from academic articles, institutional working papers and reports published by organizations such as the International Monetary Fund (IMF), the European Bank for Reconstruction and Development (EBRD), the European Central Bank (ECB), the National

Bureau of Economic Research of the USA (NBER), the World Trade Organization (WTO), and the World Bank. The sources include theoretical studies on global production networks, empirical research, and macroeconomic models estimating the effects of trade fragmentation, decoupling, and the reorientation of investment flows. The research relies on secondary data and findings as already established and validated in the profile literature.

Furthermore, the actual paradigmatic change is examined through the tension between the need to secure critical resources and the risk of weakening the multilateral trade architecture, considering that "a shift may be in the offing from a default bias for efficient global suppliers in a low-tariff world toward more locally or regionally integrated value chains" (Klarin et al., 2024, p. 2266). This approach becomes relevant as economic decisions are no longer shaped only by comparative advantage. Research on global production networks shows that "the decoupling of major economic powers and relentless trade tensions in the international political economy might well trump the competitive logics of global production networks driven by cost minimization, market access, and shareholder pressure" (Yeung, 2021, p. 435).

Proceeding from aforementioned, the supply chain restructuring should therefore not be treated as a purely market-driven process. It reflects a wider shift in which geopolitical criteria increasingly shape the decisions of firms and states. This dynamic matters because "there is a real risk that geopolitical and strategic imperatives will lead to a decoupling and fragmentation of the world economy into hostile political blocs" (Antràs, 2020, p. 37). The paper starts from the *assumption* (hypothesis) that friend-shoring can reduce some immediate supply chain vulnerabilities, while also generating systemic costs through higher prices, lower efficiency, and deeper geoeconomic fragmentation.

Supply chain reconfiguration under geopolitical pressure

The transition toward new production models is driven by a strong perception of national vulnerability. In this context, firms and states are redirecting external relations according to perceived risks, geopolitical constraints, and the need to secure access to essential inputs. This shift goes beyond the traditional logic of economic efficiency, since "friend-shoring has thus become part of a broader shift from market-driven to politically orchestrated production geographies" (Umar & Yang, 2025, p. 197). Supply chain reconfiguration can no longer be understood only as a corporate decision. It results from the interaction between firms, states, and strategic objectives.

The role of the state becomes central in this reconfiguration, even if the state does not fully control the dynamics of global production networks. As the literature shows, "the state is a constitutive part, but not necessarily the central driver, of global production networks" (Yeung, 2021, p.433). In periods of geopolitical uncertainty, the state's capacity to influence firms increases, since "the state can undoubtedly influence these lead firms through specific policy interventions such as strategic industrial policy or trade restrictions"(ibid.) Friend-shoring, therefore, has a broader scope than bilateral trade policy, as it "does not only operate through bilateral trade arrangements to steer the geographic distribution of supply chains to favor geopolitical allies, but proactively aims to shape the whole structure of GPNs by influencing inter-firm and firm-state relations more distinctively" (Kalvelage&Tups, 2024, p. 153).

At the operational management level, these pressures restrict sourcing options and increase attention to political risk. Firms can no longer make decisions only based on costs. They must also assess the stability of relations between the home country and the countries in which parts of the supply chain are located. In this respect, "companies reduce their supply bases in countries where political divergence increases" (Charpin&Cousineau, 2025, p. 1008). This tendency shows that international logistics is increasingly shaped by security criteria, with efficiency often subordinated to geopolitical traceability.

This form of risk-averse governance leads to more redundant supply chains, but not necessarily to more transparent ones. In large global networks, mapping all dependencies becomes increasingly difficult because "with such a large network, it is easy to see how supply chain visibility can turn to supply chain opaqueness" (Baldwin & Freeman, 2022, p. 11). This lack of transparency explains why

simply changing direct suppliers does not guarantee risk reduction. Exposure may persist through sub-suppliers, intermediate inputs, or indirect trade routes.

In strategic resources, friend-shoring is presented as a way to make supply more predictable. This is especially relevant for sectors dependent on critical raw materials, as "ensuring a reliable supply chain through friend-shoring can offer industries like tech and green energy more predictable access to critical minerals" (Vivoda& Matthews, 2024, p. 468). This predictability involves additional costs, since supplier reconfiguration, monitoring of new partners, and compliance with political or ESG standards can make sourcing more difficult.

Politically based resilience still faces logistical and informational obstacles. States can support supply chain reorganization through industrial policies, trade restrictions, or investment incentives, but risks are not eliminated, they are redistributed. The loss of access to high-performing suppliers may also affect firms' capacity to innovate, since "each country whose firms lose access to the most productive suppliers face higher cumulative diffusion inefficiencies" (Góes&Bekkers, 2022, p. 28). Friend-shoring can reduce some visible vulnerabilities, but it can also create other costs by limiting access to technology, knowledge, and higher-quality inputs.

Overall, supply chain reconfiguration under geopolitical pressure shows that economic security has become a central criterion in the organization of global production. Firms have to accept higher costs, while states intervene more directly in the orientation of trade and investment flows. This reorganization does not eliminate the structural risks of globalization. It turns them into dependencies that are more complex, costlier, and sometimes harder to observe.

Geoeconomic fragmentation and its impact on global welfare

Although friend-shoring policies are promoted as mechanisms for risk reduction, the profile research shows that geoeconomic fragmentation involves high systemic costs. In this respect, "a shift to near- or friend-shoring could decrease local producers' vulnerability to geopolitical developments and global shocks, but would entail substantial costs and significant disruptions" (Aiyar et al., 2023, p. 13). This suggests that economic security is obtained through a direct "trade-off" with the efficiency of the global system.

The impact of these changes becomes more pronounced in economies that depend heavily on global integration, where restrictions on trade flows affect production and long-term growth. The analysis shows that "dynamic losses far outsize static losses" (Góes&Bekkers, 2022, p. 27), suggesting that the negative effects are not limited to initial shocks. They grow over time through weaker access to technology and more productive suppliers.

At the level of international trade, the fragmentation is not compensated by the reallocation of flows between allied states. Economic models indicate that "in a scenario of trade fragmentation, losses in trade flows between blocs would not be fully compensated by the diversion of trade within blocks, causing net trade losses" (Attinasi et al., 2023, p. 2). This structural limitation reflects the rigidity of global supply chains, especially for intermediate goods. Besides that, the disruptions in supply chains affect both production and trade flows. The analysis of the European Central Bank finds that "supply chain disruptions have a negative impact on global industrial production and trade, and a positive impact on inflation" (Attinasi et al., 2021, p. 5). This supports the view that supply chain reconfiguration can create macroeconomic costs through weaker trade activity and higher prices.

The costs are also confirmed by simulations of supply chain reorganization, which show that fragmentation can generate more severe effects than other recent economic shocks. In this context, "for all of them, though, losses from zero-Covid policy in China are lower than the losses under the friend-shoring scenario using iceberg trade costs" (Javorcik et al., 2023, p. 18). This comparison highlights the structural and persistent character of the losses generated by the geopolitical reorganization of trade.

The negative effects of fragmentation are global, although their intensity differs across regions. The results show that "as before, the GEF produces negative impacts across all regions with Latin

American and the Caribbean showing the smallest negative impact and Emerging Market Europe showing the biggest losses" (Bolhuis et al., 2023, p. 17-18). No economic area is fully insulated from the consequences of these changes.

In practice, decoupling remains incomplete, and global supply chains continue to be connected through intermediary economies. Thus, "there is a robust and economically sizable association between the increase of Chinese presence in a country, measured either through exports or announced greenfield investment, and the increase in trade outward linkages of that country with the United States" (Gopinath et al., 2024, p. 13). This dynamic suggests that fragmentation does not remove dependencies. It reshapes them into more complex forms.

As far as the strategic resources are concerned, diversification efforts imply additional costs for firms and states. Vivoda and Matthews note that "initial diversification might elevate costs, especially if new supply chains uphold stricter ESG standards" (Vivoda & Matthews, 2024, p. 468). Securing supply creates further pressure on production costs and final prices.

Fragmentation also affects capital flows, limiting the role of international investment in supporting economic growth. In this respect, "for both foreign direct investment and portfolio investment flows, it is evident that the importance of these flows relative to world GDP peaked right before the Great Recession and, by 2018, they were nowhere near to recovering from those peak levels" (Antràs, 2020, p. 9). This development indicates a trend of retreating in financial globalization, which may amplify the effects of trade fragmentation.

Overall, the specialized literature converges on the idea that geoeconomic fragmentation is not just a risk reduction strategy, but a structural transformation of the global economy, characterized by high costs, reduced efficiency and unequal redistribution of the benefits of globalization.

Market dynamics and the limits of decoupling

The application of decoupling strategies by major economic powers shows the gap between the political goal of securing supply and the reality of global markets. In the case of the United States, the shift has not produced a clear break from global supply chains, but rather a partial relocation of suppliers, since "a significant reallocation in global supply chains has been set in motion, most notably along the dimension of sourcing partner countries" (Alfaro & Chor, 2023, p. 14). This reorientation should be interpreted in a broader context in which geopolitical risk affects economic decisions, as "a shock to geopolitical risk induces persistent declines in investment, employment, and stock prices" (Caldara & Iacoviello, 2022, p. 1196).

The effects are also visible in USA trade in strategic products. In the analysis of US imports, "China's share fell 5.3 percentage points" (Freund et al., 2023, p. 5), which shows a change in direct suppliers. Yet this decline does not automatically mean greater productive autonomy, since "there is growing evidence that direct links between the U.S. and China are simply being replaced by indirect links" (Gopinath et al., 2024, p. 12). In this way, decoupling changes the form of dependence, not necessarily its economic substance.

This limit is explained by the nature of global production networks. The global economy consists of "complex and dynamic economic networks made up of inter-firm and intra-firm relationships" (Gereffi, 2013, p. 2), which makes a rapid separation of trade blocs difficult. In the case of routes through Vietnam and Mexico, this complexity becomes clear, since "the indirect supply chain links of the U.S. to China remain intact" (Alfaro & Chor, 2023, p. 26). On some dimensions, these links have even intensified, showing that friend-shoring can change the commercial label of a product without removing dependence on Chinese inputs.

Trade policies used to support decoupling also change the price mechanism. In the case of the U.S.-China trade war, "tariffs could affect export prices through three channels: foreign tariffs could dampen foreign demand, while domestic tariffs could increase imported input costs or reallocate expenditures to domestic goods" (Fajgelbaum & Khandelwal, 2021, p. 15). Decoupling involves more than changing suppliers. It also transfers additional costs to firms and consumers. At the same time,

reorientation toward partners considered friendly does not guarantee general resilience. Such a strategy may work for certain political risks, but it can weaken the system's ability to absorb other shocks, since "decoupling from unfriendly nations may increase resilience to specific geopolitical shocks, but decrease resilience to other shocks unrelated to politics" (Goldberg & Reed, 2023, p. 30). This explains why friend-shoring produces selective security, rather than full supply chain stability. In this context, the costs appear in various dimensions. They come up through the macroeconomic effects of supply chain disruptions: "world trade would have been around 2.7% higher cumulatively in the absence of supply chain shocks, while global industrial production would have been around 1.4% higher" (Attinasi et al., 2021, p. 5). The costs also appear in models of trade fragmentation. It is shown that "welfare losses can be significant, although they are quite heterogeneous across economies" (Attinasi et al., 2023, p. 4). For multinational firms, this heterogeneity is amplified by geopolitical positioning strategies, since "some MNCs seek to avoid geopolitical alignment and maintain access to both the U.S. and China" (Schindler & Rolf, 2025, p. 899). This behavior confirms that firms do not automatically follow the political lines drawn by states. They seek to preserve access to markets, capital, and technology.

Comparisons with other economic shocks suggest that friend-shoring can generate higher costs because it requires complex and long-term adjustments in supply chains. At the regional level, the effects are uneven, but generally negative. Even states that attract new trade flows may remain exposed to losses generated by fragmentation.

The limits of decoupling are also reinforced by the lack of transparency in supply chains. In large global networks, firms may find it difficult to identify all real exposures, especially when they appear at the level of sub-suppliers or intermediate components. This problem is relevant for firms seeking to reduce exposure to China, since risks may remain hidden in secondary links of production. Even when the direct link is interrupted, trade relations do not disappear. They are reconfigured through indirect channels, alongside the growing presence of intermediary actors and the strengthening of external trade linkages.

For smaller economies, these transformations create a difficult position. They may benefit from the relocation of some flows, but they do not have the capacity to set the rules of the trade game. Against this background, the issue is "how the persistence of trade wars would impact the future of globalisation" (Antràs, 2020, p. 37). At the same time, recent U.S. policies show that firms are looking for alternative suppliers without fully abandoning the existing production infrastructure. In doing so, the "countries that were more deeply engaged in Chinese supply chains experienced the most rapid export growth to the USA" (Freund et al., 2023, p. 4).

Overall, the aforementioned examples show that decoupling does not produce a clean break between economic blocs. It generates intermediary routes, adjustment costs, and dependencies that are harder to trace. Friend-shoring and nearshoring can reduce some visible risks, but they do not remove the structural interdependence of global markets. The result is a more fragmented, costlier and less transparent economy, in which supply security is achieved through efficiency losses and the transfer of risks to other links in the chain.

Conclusions

This analysis shows that contemporary strategies for reorganizing global supply chains, especially those associated with friend-shoring, are better understood as an adaptation to geopolitical risks rather than a structural solution for eliminating vulnerabilities. Although these policies are designed to increase economic security, they generate significant side effects, including higher costs, market fragmentation, and lower global efficiency.

At the macroeconomic level, geoeconomic fragmentation leads to welfare losses and an uneven distribution of effects across regions, with stronger pressure on smaller economies and countries that depend more heavily on international trade. Restrictions on trade and financial flows also reduce the diffusion of technology and slow innovation, which weakens long-term growth prospects.

At the microeconomic level, firms operate in an environment marked by greater uncertainty, where decisions are no longer guided only by economic criteria but also by geopolitical constraints. This leads to supply chain restructuring, higher redundancy, and the acceptance of greater costs in exchange for perceived resilience. The analyzed examples show that this resilience remains partial, since dependencies do not disappear. They are reconfigured through intermediaries and indirect relationships. In this context, economic decoupling does not create a clear separation between blocs. It produces a complex rearrangement of global interdependencies. Supply chains become more opaque, more fragmented, and harder to manage, which complicates both corporate strategies and public policy. Friend-shoring and related strategies should therefore be understood as a transformation of globalization, not as a withdrawal from it. The global economy remains deeply interconnected, but this interconnection is increasingly mediated by political considerations, reshaping the balance between efficiency, security, and resilience.

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