

Unlocking MENA and CCA Trade in a Fragmented World

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Subi Suvetha Velkumar

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Unlocking MENA and CCA Trade in a Fragmented World**Prepared by Apostolos Apostolou, Fillipo Gori, Thomas Kroen, Salem Nechi and Subi Velkumar***

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ABSTRACT: This paper investigates the impact of geoeconomic fragmentation on trade flows in the Caucasus and Central Asia (CCA) and Middle East and North Africa (MENA) regions. Amidst ongoing conflicts, security threats, the spike in global economic uncertainty, and evolving consumer sentiments, these regions face intricate challenges that necessitate agile policy responses. The analysis presents three illustrative scenarios, examining the effects of targeted trade restrictions, trade diversion, and neutral stances on exports and economic output. The findings of these illustrative scenarios highlight the critical importance of reducing trade barriers, enhancing infrastructure, and improving regulatory environments to navigate the risks and opportunities posed by geoeconomic fragmentation. These measures are essential for fostering resilience and promoting sustainable growth in the affected regions.

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WORKING PAPERS

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1. Introduction

The global economic landscape is increasingly characterized by geoeconomic fragmentation, which is fundamentally changing the economic linkages between economies. This complex phenomenon has extensive

implications for financial markets, technological diffusion, commodity prices, and trade. Against this backdrop, the recent spike in global economic uncertainty affects the economies of the Middle East and North Africa (MENA) and Caucasus and Central Asia (CCA) regions. These effects are transmitted through multiple channels, as global forces not only drive domestic uncertainty but also intensify existing regional vulnerabilities. Additionally, the region faces spillovers from escalating global trade tensions and heightened policy uncertainty (International Monetary Fund, 2025). This paper specifically zooms in on the economic outcomes related to shifting trade patterns for the CCA, MENA and Pakistan, two regions particularly affected by these dynamics. While this paper focuses on the economic costs and unintended economic spillovers of conflicts and geopolitical developments, the associated humanitarian crises can be severe.

These two regions have become critical focal points where conflicts, security threats, and trade interventions are reshaping established economic paradigms. Russia's war in Ukraine has resulted in a significant shift in global trade policy, leading to a surge in trade activity for CCA countries. This increase in trade flows has been primarily driven by increased transit trade and trade diversion, which have also exposed the region to greater geopolitical risks. In contrast, the MENA region and Pakistan, with its diverse economic landscapes, face a broader array of challenges stemming from geoeconomic uncertainties and shocks, including ongoing regional conflicts. These challenges are reflected in increased trade restrictions and emerging trade security threats, such as attacks on merchant vessels navigating the Bab el-Mandeb Strait.

The empirical analysis presented in this paper reveals that geoeconomic fragmentation affects both the CCA region and the MENA region and Pakistan, with impacts on trade and GDP varying based on the severity and nature of fragmentation scenarios. We assess three illustrative scenarios. The first scenario envisions that CCA and MENA economies and Pakistan could benefit from trade diversion resulting from targeted trade restrictions imposed among larger economies. This would lead to modest output gains, particularly in the CCA region. The second scenario suggests that by maintaining neutrality, MENA and CCA countries could act as intermediaries between blocs that have severed trade linkages, benefiting from larger gains in exports and economic output. The third scenario considers a three-bloc arrangement in which many CCA and MENA countries and Pakistan would experience trade and output losses. The most affected countries would be in the CCA and the MENA region excluding the countries of the Gulf Cooperation Council (GCC). This analysis indicates that the economic consequences of geoeconomic fragmentation present both risks and opportunities for these regions, depending on the specific scenario.

A key finding of this paper is that economic policies can play a vital role in a fragmented world. By adopting effective policy measures, countries in these regions can better navigate the shocks associated with geoeconomic fragmentation and leverage emerging opportunities to improve economic growth. Specifically, reducing trade restrictions, easing regulatory constraints, and improving infrastructure can lead to significant increases in trade and income, while also helping to mitigate the negative impacts of reduced trade flows. In this context, there is considerable room for improvement, as the CCA region and MENA region and Pakistan currently lag international benchmarks in "trade enablers" like tariff and non-tariff barriers, infrastructure, and regulatory quality.

The results presented in this paper indicate that to effectively address the dynamics of geoeconomic fragmentation, CCA and MENA economies and Pakistan should proactively recalibrate their trade policies, diversify market outreach, and strengthen infrastructural frameworks. Specifically, the analysis identifies the reduction of trade barriers, promotion of product diversification, and enhancement of infrastructure capabilities as crucial strategies for building resilience and fostering prosperity in the face of rising geoeconomic uncertainties.

The paper is structured as follows. Sections 2 and 3 provide an overview of trade-related stylized facts and the existing literature. Section 4 provides the model and describes the scenarios considered. Section 5 details the data used in the analysis, while Section 6 presents the results. Finally, Section 7 offers concluding remarks.

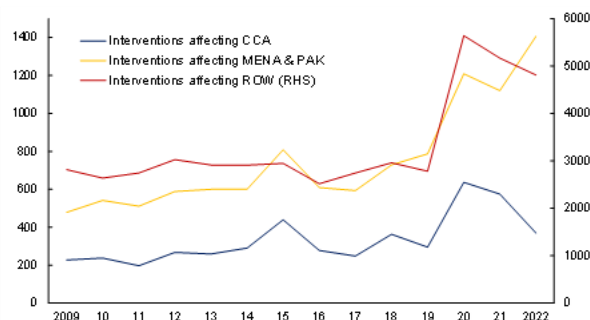
2. Stylized Facts: Geoeconomic Fragmentation and New Trade Patterns

The analysis in this paper is motivated by several stylized facts that illustrate recent dynamics in trade policy, flows, and barriers.

Fact 1: The number of trade interventions has increased.

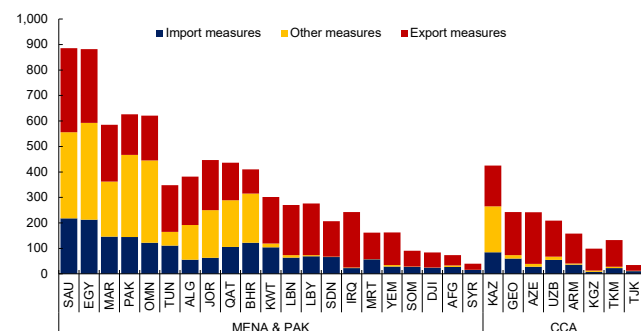
Globally, policymakers have become more inclined to implement trade interventions which hinder the free flow of trade. Trade interventions have surged by 70 percent globally since 2019. In this context, the average number of trade interventions affecting economies in the CCA and MENA regions and Pakistan has nearly doubled since 2018, with a particularly pronounced increase in the MENA region and Pakistan (Figure 1.1). The new measures affecting these two regions are varied, with export bans, quotas, licensing requirements, and export subsidies being the most prevalent (Figure 1.2). Additionally, several countries have implemented new import measures, including tariffs, subsidies, and other import restrictions.¹

Figure 1.1. Trends in Trade Interventions
(Number)



Sources: Global Trade Alert database 2023; and IMF staff calculations.
Note: Trade interventions are defined as those that discriminate against foreign commercial interests. The main categories of interventions include export and import policy instruments, subsidies and state aid, and trade defense instruments. CCA = Caucasus and Central Asia; MENA & PAK = Middle East, North Africa, and Pakistan; ROW = rest of the world.

Figure 1.2. MENA and CCA: New Trade Interventions
(Number, 2020–22)



Source: Global Trade Alert database 2023; and IMF staff calculations.
Note: Other measures include anti-circumvention, anti-dumping, anti-subsidy, restrictions to public procurement, special safeguards, and measures not elsewhere specified. Data labels in the figure use International for Standardization (ISO) country codes. CCA = Caucasus and Central Asia; MENA & PAK = Middle East, North Africa, and Pakistan.

¹ Other interventions, such as anti-circumvention, anti-dumping, anti-subsidy measures, restrictions on public procurement, and special safeguards, have also been implemented.

Fact 2: Trade patterns have been shifting.

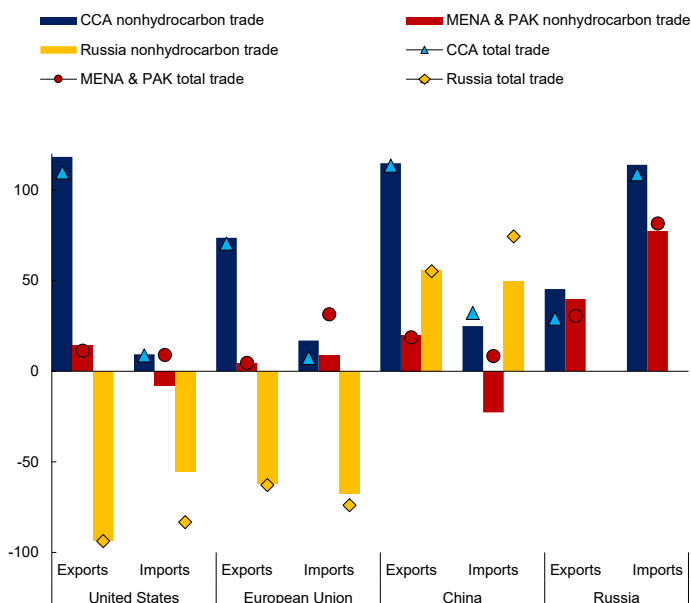
Changes in global trade policy and geopolitical events have contributed to shifting trade patterns in the CCA and MENA regions and Pakistan (Figure 2). Following the start of Russia's war in Ukraine in 2022, the CCA's share in EU, Russian, and US nonhydrocarbon exports increased by 74, 45, and 118 percent, respectively. Additionally, the CCA's share in their nonhydrocarbon imports rose by 17, 114, and 9 percent, respectively. In contrast, Russia's shares in EU and US nonhydrocarbon exports and imports declined sharply (Figure 2). The CCA region also expanded its share in China's nonhydrocarbon exports, reflecting some reorientation of trade with greater traffic through the Middle Corridor, where transported volumes have surged (International Monetary Fund, 2024). Hence, trade diversion toward the CCA region entailed a noticeable increase in imports from and

exports to major trading partners and across a wide range of product categories, particularly in extractive industries and manufacturing, such as iron and steel, electrical machinery, chemicals, and vehicles. In MENA, shifting trade patterns were seen mainly among oil exporters and for hydrocarbon exports, as the European Union substituted some of its Russian-supplied oil and gas. MENA's share in EU, Russian, and US hydrocarbon imports increased by 30, 463, and 17 percent, respectively (CEPII 2023).

Fact 3: MENA and CCA economies face large trade barriers.

Ongoing shifts in trade patterns are affecting CCA and MENA economies and Pakistan within an environment characterized by generally high trade barriers. Overall, economies in the CCA and MENA regions and Pakistan (notably outside the GCC) have large gaps relative to the global frontier both in terms of trade barriers (Figure 3.1), and infrastructure and the regulatory environment (Figure 3.2). These gaps are potentially associated with constrained trade potential and their removal could deliver sizable trade gains.

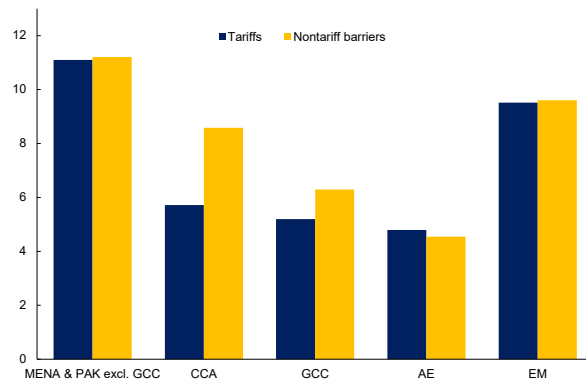
Figure 2. Trade Shares with Partner Countries, 2021–23
(Percentage change)



Sources: CEPII BACI database; and IMF staff calculations.

Note: Percent change in the share of CCA, MENA and Pakistan, and Russia in exports and imports from/to selected trading partners between 2021 and 2023. CCA = Caucasus and Central Asia; MENA & PAK = Middle East and North Africa and Pakistan.

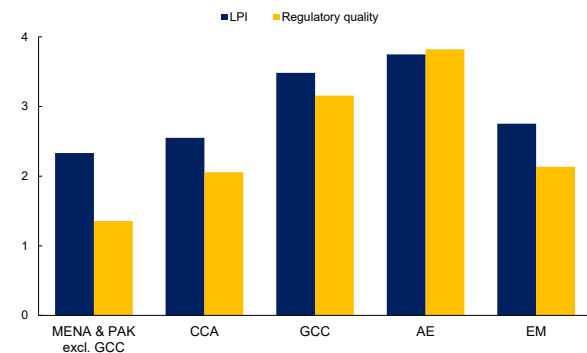
Figure 3.1. Tariff and Nontariff Barriers
(Tariffs in percent; nontariff barriers as index values)



Sources: Fraser Institute Economic Freedom Index; World Bank, World Development Indicators; and IMF staff calculations.

Note: Tariff data are for 2022; nontariff data are for 2021. Nontariff barriers have been rescaled to show index values between 0 and 20 (higher values are associated with higher barriers). AE = advanced economies; CCA = Caucasus and Central Asia; EM = emerging markets; GCC = Gulf Cooperation Council; MENA & PAK = Middle East and North Africa and Pakistan.

Figure 3.2. Logistics Performance and Regulatory Quality
(Index)



Sources: World Bank, Logistics Performance Index; and World Bank, Worldwide Governance Indicators database.

Note: Regulatory quality is rescaled as an index ranging from 0 to 5 (higher values are associated with better regulatory quality). The Logistics Performance Index (LPI) is also reported as an index, rated from very low (1) to very high (5). The LPI includes measures of infrastructure quality, customs performance, logistics quality, and logistics efficiency. AE = advanced economies; CCA = Caucasus and Central Asia; EM = emerging markets; GCC = Gulf Cooperation Council; MENA & PAK = Middle East and North Africa and Pakistan.

3. Literature Review

The economic effects of geoeconomic fragmentation have garnered significant attention in the recent literature, underscoring its profound impact on global economic dynamics. Gopinath and others (2024) utilize detailed bilateral data to reveal new evidence of trade and investment fragmentation along geopolitical lines following Russia's invasion of Ukraine. Their findings indicate that trade and foreign direct investment (FDI) flows have declined significantly—by approximately 12 percent and 20 percent, respectively—between countries in opposing geopolitical blocs, compared to those within the same bloc. Ahn and others (2023) examine the specific effects of geoeconomic fragmentation on FDI, which subsequently affects trade. They posit that as nations become more insular, investment flows diminish, leading to a contraction of global trade networks. This study emphasizes that reduced FDI can weaken global supply chains, increasing trade costs and reducing economic welfare across countries. Cerdeiro and others (2021) consider technological decoupling more broadly and find large potential GDP losses in such scenarios.

Alvarez and others (2023) explore how geoeconomic fragmentation affects commodity trade, particularly in energy and agriculture. They suggest that fragmentation leads to heightened volatility in commodity prices due to supply chain disruptions and the imposition of trade barriers. The study emphasizes that countries dependent on commodity exports are especially vulnerable, as geopolitical tensions may restrict their market access. Campos and others (2023) expand this analysis by focusing on emerging markets within a fragmented global economy. They note that while emerging economies may seek to diversify their trade partners to mitigate risks, their dependence on commodity exports makes them susceptible to external shocks. The authors contend that geoeconomic fragmentation could exacerbate these vulnerabilities, resulting in greater economic instability in these regions. Baba and others (2023) analyze the implications of fragmentation for the European Union, particularly in the context of its trade relations with other major economies. They find that the European Union faces significant challenges in maintaining trade volumes amid a shifting global landscape. Their study warns

that increased protectionism and potential trade wars could severely affect the EU's export-dependent economies.

Hakobyan and others (2023) offer a broader regional perspective, examining how different regions are adapting to the challenges posed by geoeconomic fragmentation. Their research shows that while some regions are working to strengthen intra-regional trade, others are struggling to identify new markets and sustain growth. The study highlights the uneven effects of fragmentation, with some regions experiencing more severe disruptions than others. Aiyar and others (2023), in their work on Structural Determinants of Network (SDN) economies, propose several policy measures to mitigate the adverse effects of geoeconomic fragmentation. They advocate for greater regional integration as a buffer against external shocks and emphasize the importance of maintaining open trade channels despite geopolitical tensions. The study suggests that countries should focus on building resilient trade networks that can withstand the pressures of fragmentation. The impact of geoeconomic fragmentation on trade is complex and far-reaching.

Broner and others (2024) and Clayton and others (2024) provide theoretical treatments of geopolitical interactions and fragmentation in a world where large countries may act as "hegemon." Javorcik and others (2024) discuss the economic implications of friend-shoring and find a sizable tradeoff between greater supply chain resilience and the sizable economic costs of friend-shoring. Freund and others (2024) present empirical evidence on the reshaping of supply chains between China and the United States, utilizing detailed micro-data. Despite these shifts, they find that China remained the top US import partner in 2022.

This working paper contributes to the existing literature by presenting a detailed empirical analysis of the economic impacts of geoeconomic fragmentation, with a specific focus on the CCA and MENA regions. It explores the multifaceted consequences of rising protectionism and geopolitical shifts, highlighting both risks and opportunities for these regions. By considering three illustrative scenarios, the paper quantifies potential trade and GDP outcomes, providing nuanced insights into how varying levels of trade restrictions and policy measures can influence economic performance. The findings underscore the importance of proactive measures, such as reducing trade barriers, improving infrastructure, and enhancing regulatory quality, to mitigate negative impacts and leverage emerging opportunities. This comprehensive approach enriches the understanding of geoeconomic fragmentation in the context of global economic uncertainties.

4. Model and Estimation

Our model integrates two crucial dimensions to comprehensively assess geoeconomic fragmentation. First, it evaluates the impact of various geoeconomic fragmentation scenarios, considering factors such as trade barriers and regional and global economic alliances. This analysis provides insights into the potential disruptions and economic shifts that could arise from increased fragmentation. Second, the model considers counterfactual analysis to assess the effectiveness of policies designed to mitigate these impacts (see Appendix for details). This includes an examination of strategies such as trade policies, infrastructure upgrades, and improvements in the regulatory environment. By integrating these dimensions, our model provides a holistic view of both the challenges posed by geoeconomic fragmentation and the potential policy responses needed to ensure economic stability and resilience.

We utilize a multi-country, single-output general equilibrium model because general equilibrium analysis (GEA) of structural gravity models of trade offers a thorough method for studying the effects of geoeconomic fragmentation on exports and GDP. This approach allows for the simulation of various geoeconomic

scenarios, considering different policy changes, economic behaviors, and responses at both the national and global levels. It highlights how changes in one area can influence global exports, imports, prices, and income distribution. By integrating GEA with structural gravity models, we can conduct a detailed analysis of trade linkages and policy spillovers, offering a clearer view of global trade dynamics and economic outcomes. This enhanced analysis equips policymakers to thoroughly assess the implications of trade policies and strategies when trade shocks hit an economy.

The Model

To assess the impact of geoeconomic fragmentation and policy actions on bilateral trade flows, we adopt the specification of Larch and Yotov (2016), Yotov and others (2016), and Campos and others (2023) to estimate a structural gravity system and a series of theory-consistent indexes that could be used to summarize, decompose, and aggregate the general equilibrium effects of changes in trade restrictions (based on a composite indicator of tariffs and nontariff barriers), upgrading infrastructure, and easing regulatory constraints. The presentation, notation, and discussion of the model outlined below and, in the Appendix, closely follow the framework established by Yotov and others (2016).²

The benchmark model is based on Armington's (1969) model, which considers a world comprising (N) countries, each producing a single good. Goods are differentiated by their place of origin and are traded with the rest of the world. Consumers in country j consume $c_{ij} \geq 0$ units of the good produced in country i . It is assumed that preferences are identical across countries and are represented by a constant elasticity of substitution (CES) utility function with elasticity of substitution $\sigma > 1$:

$$U_j = \left(\sum_i \alpha_{ij}^{\frac{1-\sigma}{\sigma}} c_{ij}^{\frac{\sigma-1}{\sigma}} \right)^{\frac{\sigma}{1-\sigma}} \quad (1)$$

where the parameter $\alpha_{ij} \geq 0$ is an exogenous CES preference parameter. Consumers maximize utility as given by equation (1) subject to the budget constraint:

$$\sum_i p_{ij} c_{ij} = E_j \quad (2)$$

Where E_j is the total of expenditure by customers in country j on goods from all countries, including j . The price paid for good c_{ij} is $p_{ij} = p_i t_{ij}$, where p_i denotes the factory-gate price for each good in the exporting country i and t_{ij} represents trade costs that are specific to each country pair.³ Solving the above utility maximization problem yields the following spending of consumers from country j on goods from country i , X_{ij} :

$$X_{ij} = \left[\frac{\alpha_i p_i t_{ij}}{P_j} \right]^{1-\sigma} E_j \quad (3)$$

Where $P_j = \left[\sum_i (\alpha_i p_i t_{ij})^{1-\sigma} \right]^{\frac{1}{1-\sigma}}$.

The next step consists of imposing the market clearance condition for goods from each origin. That is, the value of output in country i ,

$$Y_i = \sum_j \left(\frac{\alpha_i p_i t_{ij}}{P_j} \right)^{1-\sigma} E_j \quad (4)$$

² Full acknowledgement is given to their work as the primary reference for the approach adopted here.

³ More details on the trade costs are discussed below.

should be equal to the expenditure of all countries in the world, including country i , on this country's variety at the delivered price. To better understand this intuition, we can rewrite (4) using the derived solution of the utility maximization problem above; that is, $Y_i \equiv \sum_j X_{ij}$ for all j . The total value of output in all countries is then defined as $Y \equiv \sum_i Y_i$. Rearranging terms in (4) provides:

$$(\alpha_i p_i)^{1-\sigma} = \frac{\frac{Y_i}{Y}}{\sum_j \left(\frac{t_{ij}}{P_j} \right)^{1-\sigma} \frac{E_j}{Y}} \quad (5)$$

Considering the notation of Anderson and van Wincoop (2003) which defines the denominator in equation (5) as

$$\Pi_i^{1-\sigma} = \sum_j \left[\frac{t_{ij}}{P_j} \right]^{1-\sigma} \frac{E_j}{Y} \quad (6)$$

which when substituted in (5) yields

$$(\alpha_i p_i)^{1-\sigma} = \frac{\frac{Y_i}{Y}}{\Pi_i^{1-\sigma}} \quad (7)$$

By substituting (6) and (7) in (3) and (4), the structural gravity system is then represented by the following:

$$X_{ij} = \frac{Y_i E_j}{Y} \left[\frac{t_{ij}}{\Pi_i P_j} \right]^{1-\sigma} \quad (8)$$

$$\Pi_i^{1-\sigma} = \sum_j \left[\frac{t_{ij}}{P_j} \right]^{1-\sigma} \frac{E_j}{Y} \quad (9)$$

$$P_j^{1-\sigma} = \sum_i \left[\frac{t_{ij}}{\Pi_i} \right]^{1-\sigma} \frac{Y_i}{Y} \quad (10)$$

where X_{ij} represents trade flows from country i (exporter) to country j (importer); E_j is the total expenditure in importer country j ; Y_i refers to the total production in exporting country i ; Y represents the world output; t_{ij} is the bilateral trade frictions between countries i and j ; $\sigma > 1$ is the elasticity of substitution among goods from different countries; P_j and Π_i are the inward and outward multilateral resistances, respectively, and they are the vehicles that translate the initial partial equilibrium effects of trade policy, for example, at the bilateral level to country-specific effects on consumer and producer prices.⁴

The trade costs, $\left[\frac{t_{ij}}{\Pi_i P_j} \right]^{1-\sigma}$, are pivotal to our analysis of the structural gravity model, as they significantly influence the volume of trade. Its natural interpretation is that it captures the total effects of trade costs that drive a wedge between the actual trade and the frictionless trade (hypothetical level of trade if there were no trade costs). It consists of the bilateral trade frictions, t_{ij} , inward multilateral resistances P_j and outward multilateral resistances Π_i . Therefore, trade costs encompass all costs incurred in getting a good from the producer to the final consumer, excluding the production cost. These costs may include the geographical distance—often proxied for transportation (both freight costs and time costs)—, policy barriers (tariffs, non-tariffs trade restrictions), information costs, currency exchange, legal and regulatory costs, cultural differences (language, colonial ties), and so on. A widely used concept in the literature, which we adopt in our analysis, is the modeling of trade costs as 'iceberg costs' (Samuelson 1952), where only a fraction of

⁴ See Anderson and van Wincoop (2003) for a detailed discussion of the inward and outward multilateral resistance terms.

goods is traded⁵ and can be directly incorporated as an augmentation of the distance or trade cost term. More importantly, when integrated into structural gravity models, iceberg trade costs enable us to conduct counterfactual analyses to assess the potential impact of changes in trade policies on trade flows and welfare. By adjusting the magnitude of the iceberg costs, we can simulate various scenarios—such as the effects of reducing transportation costs or eliminating tariffs—and measure the consequent changes in trade volumes and output.

Each country i produce a single differentiated good and under the assumption of perfect competition, the factory-gate price, p_i , equals:

$$p_i = \left[\frac{Y_i}{Y} \right]^{\frac{1}{1-\sigma}} \frac{1}{\alpha \Pi_i} \quad (11)$$

Finally, the trade deficit of a country equals the difference between its income and expenditure. That is,

$$E_i = \varphi_i Y_i = \varphi_i p_i Q_i \quad (12)$$

where $Q_{i,t}$ is the value of total endowment (that is, quantity supplied) of the good in the origin country i ; and the exogenous parameter φ_i defines the relation between the value of output and aggregate expenditure in country i , so that it faces a trade deficit if $\varphi_i > 1$, and runs a trade surplus when $0 < \varphi_i < 1$.

The structural gravity framework outlined in equations (8)–(12) facilitates the decomposition of the various channels through which trade policy and other key determinants influence trade. It also allows for an assessment of the relative significance of these channels in shaping the overall impact on trade flows. The analysis presented below examines illustrative fragmentation scenarios and explores potential policy measures to mitigate the adverse effects of fragmentation or capitalize on emerging opportunities. Such measures include reducing trade barriers, upgrading infrastructure, and enhancing the regulatory framework.

Illustrative Fragmentation Scenarios

Based on insights from recent IMF research,⁶ we consider three illustrative scenarios to characterize the potential impact of geoeconomic fragmentation on trade and economic output. The illustrative Scenario 1 entails the European Union and the United States halting all trade with Russia, while trade among other countries continues as usual (in line with the “strategic decoupling” scenario in Bolhuis, Chen, and Kett (2023)). Scenarios 2 and 3 depict a world divided into three blocs: an Eastern bloc around China and Russia, a Western bloc around the European Union and the United States, and a non-aligned neutral block. In these scenarios, we assume that

⁵ These costs include transportation expenses, tariffs, time costs, and other barriers to trade. Iceberg costs provide a realistic representation of the physical and intangible barriers that affect international trade, allowing economists to model a wide range of trade barriers beyond just tariffs. This includes factors like transportation costs, insurance, logistical inefficiencies, and regulatory burdens, all of which can be conceptualized as ‘melting away’ a portion of the goods in transit. Iceberg trade costs fit naturally into our framework, specifically the structural gravity model, which relies on the assumption that trade flows are proportional to economic mass (GDP) and inversely proportional to distance (serving as a proxy for trade costs).

⁶ The scenarios presented in this paper are illustrative and hypothetical. They are intended for analytical purposes only and do not reflect the current status quo or predict its near-term evolution. The projections and examples provided should not be interpreted as forecasts or definitive outcomes. Results are presented for groups of countries and may not necessarily apply to individual countries within each group.

trade between countries in the Eastern and Western blocs ceases, while the neutral bloc continues trading with any other partner.

In the illustrative Scenario 2, the Eastern bloc consists of China and Russia, while the Western bloc features the European Union and the United States. All other countries, including CCA and MENA countries and Pakistan, are categorized as part of the neutral bloc. This scenario is conceptually similar to Scenario 1 but would generate stronger trade diversion for MENA and CCA countries.

The illustrative Scenario 3 determines the blocs based on voting patterns in the United Nations General Assembly (UNGA) during the 77th General Assembly Session that began in September 2022, the most recent UNGA session with available voting data. In contrast to previous work that used only the resolution regarding the suspension of Russia's membership in the Human Rights Council on April 7, 2022 (Campos and others 2023; October 2022 *Regional Economic Outlook: Asia and Pacific*), we consider all UN votes during the 77th UNGA session (consistent with the April 2023 *World Economic Outlook*; October 2023 *Regional Economic Outlook: Western Hemisphere*). We compute the ideal point distance measure for all countries following Bailey and others (2017), which measures geopolitical alignment consistently across time. It also has the advantage of not depending on the issues that are being put up for vote in the UNGA. Using this measure, we separate the world into three blocs: those in the top 25th percentile of geopolitical distance from G7 countries are assigned to the Eastern bloc, the Western bloc consists of the European Union and the United States. All other countries form the neutral bloc. Trade between the Western and Eastern bloc is assumed to cease, while neutral bloc countries remain able to trade with any bloc.

5. Data and Calibration

The core trade and geographic data used for estimating the model are from CEPIL's Gravity dataset (Conte and others 2023). The sample period includes yearly observations from 2000 to 2019, covering all 32 countries in the MENA and CCA regions. Additional data include macroeconomic variables, such as GDP per capita, and geographic factors, including distance, border contiguity, common language, and landlocked status. Indicators of trade barriers include tariffs and nontariff barriers, as well as measures of regulatory quality to evaluate government effectiveness in promoting trade. Infrastructure quality is measured using the World Bank's Logistics Performance Index (LPI).⁷ The Annex provides a detailed description of data and sources. We calibrate the elasticity of substitution (σ) as equal to 7, which implies a trade elasticity of 6. This corresponds to the mean value of long-run trade elasticities surveyed in Bolhuis and others (2023). In the short run, however, the elasticity of substitution is likely lower, suggesting that trade and GDP losses could likely be larger.

⁷ The LPI is a composite measure of countries' physical infrastructure, customs performance, logistics quality, and logistics efficiency. As such, it captures the trade-related aspects of infrastructure better than alternative measures such as length of roads and railway systems.

6. Results

Reduced-form Model

The first stage of the structural estimation consists of estimating a reduced-form gravity model following equation (8). We estimate a separate reduced-form gravity model for each of the three scenarios. The key structural parameters for the different policy counterfactuals are reported in Table 1. As anticipated, higher trade barriers, as measured by the Measure of Aggregate Trade Restrictions (MATR) index, reduce trade. Quantitatively, a one standard deviation reduction in trade barriers results in an average increase of 104 percent in bilateral trade, highlighting the significant impact of trade restrictions. Moreover, the restrictive impact of non-tariff barriers (NTBs) is significant, with most trade gains attributed to changes in NTBs (see Table A1 in the Appendix). Conversely, better infrastructure or a better regulatory environment are associated with higher trade flows. A one standard deviation improvement in the infrastructure of the exporting country correlates with an average increase in bilateral trade of 8.7 percent. These gains are compounded if both importer and exporter improve their infrastructure simultaneously. Additionally, a one standard deviation enhancement in the regulatory environment is associated with an average increase of 12 percent in bilateral trade. The model also underscores the significant role of traditional gravity variables, including income, distance, contiguity, common language, and landlocked status (Table A1). The results further suggest that while infrastructure improvements are essential, their impact on exports may be limited unless accompanied by broader measures to address systemic trade barriers.

Table 1. Gravity Models – First Stage Results

Parameter	Value
$\hat{\beta}_{MATR}$	-.2274*** (.0159)
$\hat{\beta}_{infrastructure}$.1533*** (.0300)
$\hat{\beta}_{regulation}$.1223*** (.0443)

Sources: IMF staff calculations

Notes: Table reports parameter values for elasticity of trade with respect to MATR (an index of trade restrictions), infrastructure, and regulatory index. Standard errors are in parentheses. *** indicates significance at the 1% level.

The results presented in Table 1 come from gravity models with importer and exporter fixed effects, thus absorbing several of the traditional explanatory variables in gravity models. Appendix Table A.1 contains more detailed gravity estimates, including those from models with less stringent fixed effects that include more covariates. Overall, those results corroborate the evidence shown in Table 1.

General Equilibrium Results

Under Scenario 1, CCA and MENA countries and Pakistan would, on average, get unintended spillovers from increased trade flows, resulting in modest gains in export shares (Figure 4).⁸ Specifically, the CCA would see export gains of about 1 percent, while MENA economies and Pakistan would experience average gains of approximately 0.5 percentage point.⁹ Under Scenario 2, CCA and MENA countries could serve as neutral connectors (Gopinath and others 2024) for trade between blocs with strained trade relations, leading to trade and output gains that exceed those under Scenario 1. In this scenario, exports across CCA and MENA countries and Pakistan would increase by 2–3 percent, with output growing by an average of 0.25–0.4 percent. Under Scenario 3, which is potentially more severe, several CCA and MENA countries and Pakistan would experience trade and GDP losses. These losses would be particularly large for MENA countries outside of the GCC.

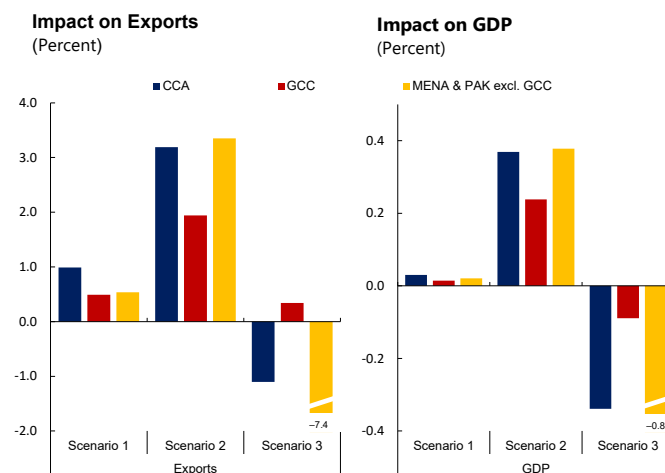
Impact of trade policies

This subsection assesses the trade and growth impacts of policies across the three illustrative fragmentation scenarios discussed above. We first consider the impact of reducing trade restrictions.¹⁰ Next, we consider the easing of regulatory constraints and, finally, an upgrade of infrastructure. Policy actions are calibrated to achieve a 20 percent reduction in policy gaps compared to advanced economies.

Under illustrative Scenario 1, lowering trade restrictions could boost exports by 14 percent for CCA countries and over 15 percent for non-GCC MENA countries and Pakistan, relative to the baseline (Figure 5). Upgrading infrastructure could enable economies to increase exports by about 7 percent in the CCA and 8 percent in non-GCC MENA countries and Pakistan, driven by improved intra- and interregional trade flows. Furthermore, improving the regulatory environment could lead to a more than 3 percent increase in exports for the CCA and around 6 percent increase for non-GCC MENA countries and Pakistan. These export

gains under various policy actions could also translate into higher annual output in the CCA (between 1 and 2 percent) and among non-GCC MENA countries and Pakistan (between 1 and 3 percent). In contrast, the average impact on exports and GDP in the GCC is smaller, as these countries are already closer to the global frontier in terms of trade restrictions, infrastructure quality, and the regulatory environment.

Figure 4. Baseline Impact on Exports and GDP



Sources: CEPII Gravity data set; and IMF staff calculations.

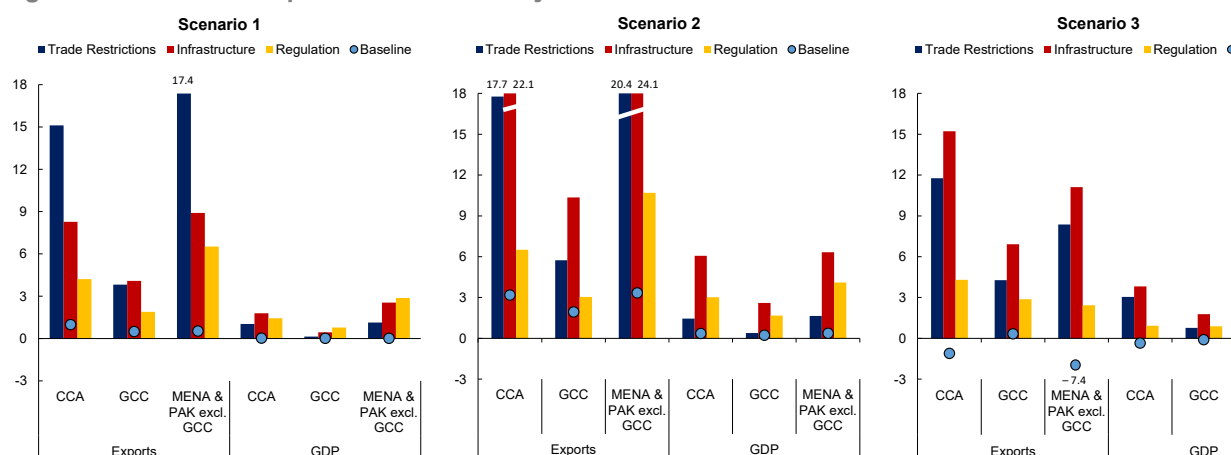
Note: CCA = Caucasus and Central Asia; GCC = Gulf Cooperation Council; MENA & PAK = Middle East and North Africa and Pakistan.

⁸ Across all scenarios, the impact on GDP is roughly an order of magnitude smaller than the impact on exports, a finding consistent with Bolhuis and others (2023). This discrepancy reflects two forces. First, exports constitute a relatively small share of GDP for many MENA and CCA countries, reflecting elevated trade barriers in many countries and geographic factors. Second, there is a substitution effect: as higher trade barriers make imports relatively more expensive, domestic consumption tends to rise. While this can partly offset the decline in exports, it also reduces consumer welfare since consumers prefer a differentiated consumption basket.

⁹ The structural gravity model only incorporates direct trade between an exporter and an importer but not trade that is intermediated through a third country in a fragmentation scenario. Hence, results may represent a lower bound for countries that may emerge as trade intermediaries in a fragmentation scenario. Gopinath and others (2024) discuss the emergence of “connector” countries while noting that this “does not necessarily increase diversification, strengthen supply chains, or lessen strategic dependence.”

¹⁰ Based on a composite index of trade and non-trade barriers (MATR index by Estefania-Flores and others 2022).

Figure 5. Trade and Output Gains from Policy Actions



Sources: CEPII Gravity data set; and IMF staff calculations.

Note: CCA = Caucasus and Central Asia; GCC = Gulf Cooperation Council; MENA & PAK = Middle East and North Africa and Pakistan. Blue dots represent baseline change in exports and GDP under fragmentation as shown in Figure 4. Bars represent changes to GDP and exports in the respective fragmentation scenario if, additionally,

Similarly, under illustrative Scenario 2, reducing trade barriers would result in export increases of more than 17 percent for CCA countries, over 20 percent for non-GCC MENA countries and Pakistan, and 6 percent for GCC countries. Additionally, upgrading infrastructure would yield export gains of 22 percent for CCA countries, 24 percent for non-GCC MENA countries and Pakistan, and 6 percent in the GCC. Improvements in the regulatory environment would boost exports by 3, 11, and 6 percent, respectively. The additional gains in exports from policy actions also translate into extra output gains, ranging from 0.4 to 6.3 percent, especially for CCA and non-GCC MENA countries and Pakistan.

Under illustrative Scenario 3, policy actions can help prevent economic losses over the medium term and improve trade and output outcomes, although the improvements are generally less pronounced than those observed in Scenarios 1 and 2. By reducing trade restrictions, the CCA and the non-GCC MENA and Pakistan groups could see their exports rise by more than 11 percent and about 8 percent, respectively, effectively eliminating any output losses due to fragmentation under the baseline results. Furthermore, upgrading infrastructure would similarly boost both exports and output across the region. Improving regulatory quality would also contribute to export and output gains, reversing the adverse effects experienced by the CCA and the non-GCC MENA and Pakistan group without policy actions under Scenario 3.

7. Conclusion

The findings of this paper underscore the impact of geoeconomic fragmentation on trade patterns and economic outcomes in the CCA and MENA regions. The analysis indicates that while trade diversion may yield modest gains in exports and economic output, more severe fragmentation scenarios can result in significant trade and output losses. In detail, while in the first scenario of the three considered in this paper the CCA and MENA regions and Pakistan get unintended spillovers from some limited trade diversion due to targeted restrictions on larger economies, in the second scenario such gains are stronger, resulting in a 2-3 percent increase in exports and up to a 0.4 percent rise in overall output. Conversely, in the third scenario, both the CCA and MENA regions and Pakistan could suffer potential trade and output losses, with the CCA experiencing a 1.1 percent decline in exports and the MENA group (excluding GCC) facing a more significant 7.4 percent decrease. These outcomes highlight the dual nature of geoeconomic fragmentation, presenting both risks and spillovers for the affected regions, and that its economic impacts depend on the specificities of the scenario considered. Moreover, the paper shows that coordinated policies in MENA and CCA—especially when countries maintain neutrality in geopolitical tensions—yield stronger and more lasting economic gains by fostering stability and trust, which previous regional integration efforts failed to achieve.

The empirical evidence underscores the importance of proactive policy measures to mitigate the adverse effects of fragmentation. Strategies such as reducing trade barriers, easing regulatory constraints, and enhancing infrastructure investment are essential for boosting trade flows and economic resilience. Lowering trade barriers could increase exports by 14 percent for CCA countries and over 15 percent for non-GCC MENA countries. Additionally, infrastructure upgrades could further raise exports by 7–8 percent, while regulatory improvements could contribute 3-6 percent. These measures could also lead to an increase in annual economic output, rising by 1–2 percent in CCA economies and 1–3 percent in non-GCC MENA economies. In the second scenario, reducing trade barriers could boost exports by over 17 percent for CCA economies, more than 20 percent for non-GCC MENA economies, and 6 percent for GCC economies.

Infrastructure upgrades could further raise exports by 6 percent in GCC economies, 22 percent in CCA economies, and 24 percent in non-GCC MENA economies. Regulatory improvements would also boost exports by 6 percent, 3 percent, and 11 percent, respectively. These export gains would translate to output increases ranging from 0.4 percent to 6.3 percent, particularly benefiting CCA and non-GCC MENA economies and Pakistan. In the scenario involving stronger economic shocks, policy actions can help mitigate economic losses and improve trade and output outcomes, although the effects may be less pronounced. For example, reducing trade restrictions could raise exports by over 11 percent in the CCA and around 8 percent in the non-GCC MENA group, eliminating potential output losses from fragmentation. Upgrading infrastructure and enhancing regulatory quality would also contribute to increased exports and output across the region, counteracting adverse effects.

In conclusion, the paper emphasizes the need for agile and forward-looking policy responses in light of increasing geoeconomic uncertainties. By recalibrating trade policies, diversifying market outreach, and fortifying infrastructure frameworks, economies in the CCA and MENA regions and Pakistan can better address the challenges posed by geoeconomic fragmentation.

Appendix I

Variable	Description	Source
GDP	GDP (in thousands of US\$, unilateral)	CEPII
Trade Flows	Trade flow (in thousands of US\$)	CEPII BACI
Tariffs	Average of effectively applied rates weighted by the product import shares corresponding to each partner country	World Bank, World Development Indicators
Nontariff barriers	Aggregate measure of trade restrictions based on the unweighted sum of IMF's AREAER binary variables related to (i) exchange measures; (ii) arrangements for payments and receipts; (iii) imports and imports payments; (iv) exports and exports proceeds, and (v) payment and proceeds from invisible transfers and current transfers.	IMF, Measure of Aggregate Trade Restrictions
Infrastructure	The Logistics Performance Index reflects perceptions of a country's logistics based on efficiency of customs clearance process, quality of trade and transport-related infrastructure, ease of arranging competitively priced shipments, quality of logistics services, ability to track and trace consignments, and frequency with which shipments reach the consignee within the scheduled time. The index ranges from 1 to 5, with a higher score representing better performance.	World Bank, Logistics Performance Index
Regulatory Quality	Regulatory quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. It is measured in units of a standard normal distribution, with mean zero, standard deviation of one, and running from approximately -2.5 to 2.5, with higher values corresponding to better regulatory quality.	World Bank, Worldwide Governance Indicators
Distance	Population-weighted average distance between the most populated cities of each country, arithmetic mean, in km bilateral.	CEPII
Contiguity (Dummy)	1 if the countries are contiguous (neighbors), bilateral.	CEPII
Common Language (Dummy)	1 if countries share common official or primary language, bilateral.	CEPII
Landlocked (Dummy)	1 if country is landlocked.	CEPII

Appendix II

Partial Equilibrium: Trade Potential and Determinants of Trade

Investigating the trade potential and determinants of trade using a reduced form gravity model is crucial before embarking on the general equilibrium analysis of the impact of geoeconomic fragmentation on trade and output. By understanding these determinants, we can identify the baseline trade patterns and potential barriers that might arise from geoeconomic fragmentation. This preliminary analysis ensures that the subsequent general equilibrium models are grounded in realistic assumptions, enhancing the accuracy and reliability of their predictions. Furthermore, it highlights specific channels through which fragmentation can alter trade dynamics, thereby providing a comprehensive foundation for analyzing its broader economic impacts. Hence, we follow the trade literature (Anderson and van Wincoop 2003; Baier and Bergstrand 2007; Yotov and others 2016; among others) and estimate a theory-consistent state-of-the-art structural gravity equation, a simplified version of equation (8), using bilateral trade data from CEPII gravity dataset with the following specification (Conte, Cotterlaz, and Mayer 2022):

$$X_{ij} = \exp[\theta_i + \omega_j + \gamma_{ij} + \beta_1 Z_{ij}] \eta_{ij} \quad (13)$$

where the dependent variable X_{ij} refers to the gross bilateral trade flows between exporter country i and importer country j , Z_{ij} is a vector of variable(s) either facilitating or restricting trade between countries i and j (trade restrictions, infrastructure, regulatory quality, etc.).¹¹ The dependent variable X_{ij} includes domestic trade when $i = j$.¹² θ_i and ω_j are exporter and importer fixed effects, respectively, which absorb country-level co-variables such as GDP, population, and whether countries are landlocked, etc., and, as explained by Anderson and van Wincoop (2003), represent the theory-consistent way of controlling for multilateral trade costs discussed below. γ_{ij} indicates exporter-importer fixed effects, which is used to account for trade imbalances and asymmetric trade costs (Vaugh, 2010). Including an extensive set of fixed effects in θ_i and ω_j enable us to absorb importer and exporter invariant heterogeneity. β_1 is a vector of unknown parameters (elasticities) to be estimated and η_{ij} is a lognormally distributed error term, assumed to be statistically independent of the regressors and have constant a variance of σ_i^2 .

Following the trade literature, we use the Poisson Pseudo-Maximum Likelihood (PPML) estimator introduced by Santos Silva and Tenreyro (2006) to estimate multiple versions of equation (8). The sample used in our analysis covers the period 2000–19 and considers trade flows where data for both exporters and importers exist. The estimated elasticities of our main policy variables, which measure how trade flows respond to trade restrictions (tariffs and non-tariffs), infrastructure, and regulatory environment, in the baseline model above, are used to calibrate the general equilibrium model. Results are reported in Table 1 below.

¹¹ Traditional determinants of trade flows: geography, population size, preferential trade agreements, tariffs, export subsidies, non-tariff measures, WTO membership, common currency, and currency unions, FDI, immigration, cultural and colonial ties, language, etc. More Exotic Determinants of trade flows: institutional quality, foreign aid, Covid, Export Promotion, Taxes, Mega sporting events (Olympic games, world cup, etc.), embargoes and sanctions, conflict and wars, etc.

¹² See Yotov (2022) for the rationale of including domestic trade flows in the estimation of the structural gravity model.

Table A1. Gravity Models – First Stage Results Detailed

Column1	(1)	(2)	(3)	(4)	(5)
VARIABLES	No Policies	T & NTB	Infrastructure	Regulatory	All Policies
Exporter non_tariffs barriers		0.0195** (0.00990)			0.00640 (0.0168)
Importer non_tariffs barriers		-0.0201** (0.00859)			-0.000551 (0.0158)
Importer Tariffs		0.00645 (0.00835)			-0.0221 (0.0151)
Exporter Infrastructure			-0.0206 (0.0794)		0.402** (0.167)
Importer Infrastructure			0.237*** (0.0732)		-0.176 (0.174)
Exporter Regulatory				-0.0670 (0.0409)	-0.214** (0.0929)
Importer Regulatory				0.105*** (0.0358)	0.151 (0.0937)
Exporter Log gdp	0.850*** (0.0180)	0.847*** (0.0202)	0.843*** (0.0288)	0.853*** (0.0198)	0.806*** (0.0269)
Importer Log gdp	0.815*** (0.0214)	0.811*** (0.0195)	0.768*** (0.0321)	0.802*** (0.0221)	0.802*** (0.0403)
Log_distance	-0.753*** (0.0281)	-0.768*** (0.0340)	-0.704*** (0.0287)	-0.737*** (0.0286)	-0.692*** (0.0319)
Contiguity	0.520*** (0.126)	0.521*** (0.140)	0.555*** (0.125)	0.538*** (0.124)	0.592*** (0.131)
Common language	0.231** (0.0917)	0.211* (0.114)	0.237** (0.0944)	0.219** (0.0894)	0.214** (0.106)
Exporter landlocked	-0.130 (0.0882)	-0.0895 (0.0929)	-0.167* (0.0968)	-0.129 (0.0885)	-0.103 (0.0957)
Importer landlocked	-0.223*** (0.0838)	-0.215** (0.0913)	-0.298*** (0.0951)	-0.247*** (0.0850)	-0.279*** (0.0990)
Constant	-8.548*** (0.520)	-8.385*** (0.445)	-8.914*** (0.561)	-8.662*** (0.468)	-8.758*** (0.651)
Observations	27,867	19,329	20,430	26,174	15,044
R-squared	0.703	0.736	0.687	0.722	0.735

Robust standard errors in parentheses

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

General Equilibrium

This discussion builds upon the methodology developed by Yotov and others (2016) to guide our general equilibrium analysis, demonstrating how each scenario influences a country's exports and output. While their general equilibrium analysis focuses on assessing the impact of a single policy change—namely, regional trade agreements—our analysis extends this approach to consider two dimensions: fragmentation scenarios and corresponding policy responses. Our general equilibrium analysis illustrates how each geoeconomic fragmentation scenario, characterized by the formation of trade blocs, can negatively impact a country's exports and GDP. Such fragmentation increases trade costs, making a country's exports less competitive due to higher prices for foreign buyers. This can decrease export volumes and affect the output of exporting sectors, leading to a reduction in the overall GDP. Moreover, reduced market access limits the ability to diversify exports, increasing vulnerability to market-specific shocks and hindering export growth potential. Lastly, geoeconomic fragmentation may necessitate the reallocation of resources within the economy, leading to adjustment costs and temporary inefficiencies that further impact GDP and export capacity.

Step 1: Solve the baseline gravity model.

Equation (13) is estimated using the PPML estimator to obtain point estimates of the variables of interest in this chapter. We find evidence that trade restrictions (tariffs and nontariff barriers), infrastructure, and regulatory quality matter for boosting trade flows. Next, with the estimated value of importer and exporter fixed effects, we construct the baseline values of inward and outward multilateral resistances terms, P_j and Π_i . Together with data on output and expenditure, these values will be used to calculate the trade costs as well as any other general equilibrium indexes of interest in the baseline. As highlighted earlier, the standard practice suggested in the literature is to proxy for the bilateral trade cost, t_{ij} , by using a series of observable variables most of which have become standard covariates in the empirical gravity specifications (distance, borders, common official language, bilateral tariffs, trade agreement, etc.). For our purpose, the baseline trade costs are calculated as follows:

$$[\hat{t}_{ij}^{1-\sigma}]^{BLN} = \exp \left[\hat{\theta}_i + \hat{\omega}_j + \hat{\beta}_1 Z_{ij} \right] \quad (14)$$

This will enable the estimation of the trade elasticity of substitution, $\hat{\sigma}$. Based on the estimated trade cost (14), we solve the structural gravity system (8) - (12) to obtain values of all indexes, including consumer prices and the (inward and outward) multilateral resistances.

Step 2: Define the counterfactual scenario.

The next step of our general equilibrium algorithm consists of defining our counterfactual exercise. First, we estimate the impact of the fragmentation scenarios described above by raising trade costs between countries that are in opposing geoeconomic blocs. Second, we simulate the hypothetical policy actions in the geoeconomic fragmentation scenarios. Our policy actions consist of reducing the gap in trade restrictions, infrastructure, and regulatory quality between MENA and CCA countries and advanced economies by 20 percent. Although our choice of the 20 percent reduction of the gap is hypothetical, considering a higher gap reduction would be costly and non-feasible for most countries in the region.

Note that all counterfactual policy variables are in the vector Z_{ij} . The adjustment to the variables specified in the structural gravity model (trade restrictions, infrastructure, and regulatory quality) will deliver a new matrix of counterfactual bilateral trade cost (CFL).

$$[\hat{t}_{ij}^{1-\sigma}]^{CFL} = \exp \left[\hat{\theta}_i + \hat{\omega}_j + \hat{\beta}_1 Z_{ij}^{CFL} \right] \quad (15)$$

Step 3: Solve the counterfactual model.

Next, the estimates of step 1 and step 2, and the values of trade elasticities, can be used to solve the structural gravity system in the counterfactual scenario. By doing so, we obtain the values of the counterfactual indexes of interest (that is, exports and output) in the “conditional” (Equations 8–10) and in the “full endowment” general equilibrium (Equations 8–12) assumptions.

The full employment general equilibrium reactions to hypothetical changes in long-standing barriers (trade policy, infrastructure, and regulatory quality) reflect alterations in factory-gate prices. These alterations are due to shifts in outward multilateral resistances, which subsequently affect the value of output and expenditures. Such changes directly influence trade flows and indirectly affect the multilateral resistances.

Step 4: Construct the indexes of interest (change in exports and change in output).

Following the calculation of the conditional and/or full endowment general equilibrium effects on trade cost indexes, the next step is to represent these general equilibrium effects as percentage changes relative to the baseline scenario.

$$\% \Delta \hat{X}_{it} = \frac{\hat{X}_{it}^{CFL} - \hat{X}_{it}^{BLN}}{\hat{X}_{it}^{BLN}} \times 100$$

$$\% \Delta \widehat{GDP}_{it} = \frac{\widehat{GDP}_{it}^{CFL} - \widehat{GDP}_{it}^{BLN}}{\widehat{GDP}_{it}^{BLN}} \times 100$$

The changes in exports and GDP are reported as changes relative to the baseline scenario without policy action. Economically, the impact of the fragmentation scenarios depends on the extent to which countries substitute changes in trade with domestic consumption of domestic production. When fragmentation leads to lower exports (because of higher trade barriers with trade partners), the output losses in the scenarios are typically significantly smaller than the export losses because countries re-allocate their domestic production towards more domestic consumption and less exports for foreign consumption. This is mirrored by a decline in imports as higher domestic consumption of domestically produced output reduces import demand.

Annex III: Trade Interventions

	Intervention	Description
Export Interventions	Export Bans	Government-imposed prohibitions on the sale of certain goods to foreign markets
	Export Quotas	Limits on the quantity of a specific good that can be exported during a given time period
	Export Licensing requirements	Regulations requiring exporters to obtain government authorization before shipping certain goods abroad
	Export Subsidies	Financial support provided by governments to domestic producers to encourage exports, such as direct payments, tax relief, or subsidized credit
Import Interventions	Tariffs	Taxes imposed on imported goods, aimed at making foreign products more expensive to protect domestic industries or generate revenue
	Subsidies	Government financial assistance to local producers, which can indirectly affect trade by making domestic goods more competitive against imports
	Other import restrictions	Non-tariff barriers such as import quotas, technical standards, sanitary regulations, or customs procedures that limit or complicate the entry of foreign goods

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