

INTERNATIONAL MONETARY FUND

How Vulnerable Is Sub-Saharan Africa to Geoeconomic Fragmentation?

Marijn A. Bolhuis, Hamza Mighri, Henry Rawlings, Ivanova Reyes, and Qianqian Zhang

WP/24/83

IMF Working Papers describe research in progress by the author(s) and are published to elicit comments and to encourage debate.

The views expressed in IMF Working Papers are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

2024
APR



WORKING PAPER

IMF Working Paper
African Department

How Vulnerable Is Sub-Saharan Africa to Geoeconomic Fragmentation?

Prepared by Marijn A. Bolhuis, Hamza Mighri, Henry Rawlings, Ivanova Reyes, and Qianqian Zhang*

Authorized for distribution by Luc Eyraud
April 2024

IMF Working Papers describe research in progress by the author(s) and are published to elicit comments and to encourage debate. The views expressed in IMF Working Papers are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

ABSTRACT: This paper studies the potential effects of geoeconomic fragmentation (GEF) in the sub-Saharan Africa region (SSA) through quantifying potential long-term economic costs. The paper considers two alternative GEF scenarios in which trade relations are fully or partially curtailed across world economies. Our quantification relies on a multi-country multi-sector general equilibrium model and takes a deep dive into the impact across SSA's oil-rich, other resource-rich and non-resource-rich countries. The results are based on a detailed dataset including information for 136 tradable primary commodity and 24 manufacturing and services sectors in 145 countries—32 of which are in SSA. We find that under GEF, SSA could experience long-term welfare losses of approximately 4 percent of GDP, twice the losses of the rest of the world. This strong effect results from the large losses of other resource-rich and non-resource rich countries in SSA, given their high dependence on commodity trade. However, if the world experiences a less severe GEF-induced trade disruption—a strategic decoupling—SSA countries could derive minor gains from the re-shuffling of global market supply, specially in energy products.

RECOMMENDED CITATION: Bolhuis A. Marijn, Hamza Mighri, Henry Rawlings, Ivanova Reyes, and Qianqian Zhang (2023). How Vulnerable Is Sub-Saharan Africa to Geoeconomic Fragmentation?. IMF Working Paper, No. WP 24/83. International Monetary Fund, Washington D.C.

JEL Classification Numbers:	F11, F12, F13, F14, F15, F17, F41, F42, F43, N17, N77, O19, Q17, Q27, Q37, Q43
Keywords:	Sub-Saharan Africa; geoeconomic fragmentation; trade; costs; global integration; commodities; trade diversion
Author's E-Mail Address:	mbolhuis@imf.org , hmighri@imf.org , hrawlings@imf.org mreyespequero@imf.org , qzhang@imf.org

* The author(s) would like to thank Jack Chen, Wenjie Chen, Luc Eyraud, Shushanik Hakobyan, Anna Ilyina, Benjamin Kett, Catherine Pattillo, and colleagues from the IMF Geoeconomic Fragmentation Working Group and the IMF African Department Asia-Africa Group for their helpful comments and suggestions. All errors are ours.

WORKING PAPERS

How Vulnerable Is Sub-Saharan Africa to Geoeconomic Fragmentation?

Prepared by Marijn A. Bolhuis, Hamza Mighri, Henry Rawlings, Ivanova Reyes, and Qianqian Zhang

Contents

I. Introduction	3
II. Literature Review	5
III. Understanding SSA's Vulnerability to GEF	7
1. The last three decades of Globalization deepened the SSA region Linkages with the World and its shocks.	7
2. Specific SSA characteristics could result in heterogenous transmission of GEF through the trade and financial channels.....	10
IV. Model, Scenarios, and Data	133
1. Modeling Framework.....	13
2. Geoeconomic Fragmentation Scenarios	15
3. Data.....	17
V. Results of the Modeling Exercise	177
VI. Concluding Remarks	20
Reference.....	23

FIGURES

1. SSA Trade and Financial Flows: 1990 – 2021 (% of GDP)	7
2. SSA Trade Shares with the World by Region: 1990 – 2021 (% of Total Trade).....	7
3. Sub-Saharan Africa: Foreign Direct Investment from Selected Regions, 2000–21	8
4. Sub-Saharan Africa: Total External Debt Stock by Source, 2000–20.....	8
5. Sub-Saharan Africa: Composition of Goods Exports and Crude Oil Price, 1990–21.....	9
6. Global Production of Manganese, Cobalt and Copper by Key Areas of the World, 2019 or Latest.....	10
7. SSA Goods Trade Share with Key World Areas by Country Group, 2020.....	12
8. SSA Trade Flows with Key World Areas by Country Group, 2020.....	12
9. Sub-Saharan Africa: Aggregate Economic Linkages Index, 2000–19	13
10. Harmful Trade Restrictions Index, 2009–22.....	13
11. Trade at Risk across World Regions under GEF Scenario.....	18
12(a). GEF Scenario SSA Country Groups and ROW.....	19
12(b) Strategic Decoupling Scenario SSA Country Groups and ROW	19
13. Comparing GEF Output Losses Under Different Bloc-linkage Assumptions.....	20

TABLES

1. Trade Assumptions in the two GEF Scenarios.....	17
--	----

I. Introduction

In recent years, the global economic landscape has witnessed a notable surge in geoeconomic fragmentation, marking a departure from traditional patterns of international economic integration.

A recent IMF Staff Discussion Note defined the Geoeconomic fragmentation (GEF) phenomenon as “a policy-driven reversal of integration, often guided by strategic considerations” (IMF, 2023a). Over the past five years, threats to the free flow of trade and capital have intensified along shifting geopolitical dynamics, trade tensions among major economies, and rising impact of regional economic blocs. As countries increasingly prioritize strategic alliances, emphasize technological sovereignty, and reconfigure partnerships, GEF has begun to reshape global trade, investment flows, and the structure of international relations. This introduces both challenges and opportunities for nations to navigate this evolving economic paradigm. There is limited understanding of the impact that GEF could have on the SSA region and to fill that gap we expand the work initiated in the 2023 IMF Note “Geoeconomic Fragmentation: *Sub-Saharan Africa Caught Between the Fault Lines*” (2023e). We extend this note with a more complete analysis of global integration linkages that explain the region’s current exposure to GEF. We then conduct a comprehensive analysis of the potential welfare losses from different GEF scenarios on the region and its main country groups.

GEF has the potential to generate high global welfare losses, particularly in countries with multidimensional vulnerabilities like those in sub-Saharan Africa (SSA). The reversals of integration that come with GEF, often due to geopolitical divides or security considerations among other drivers, can isolate countries that greatly benefit from the gains of economic integration. As such, small open economies with large dependence in global markets and heavy reliance in commodity trade, as many in SSA, are highly susceptible to forced disruptions in global flows of goods and finance. Geopolitical disputes at the global level that settle in a retaliatory manner are a threat to countries that have limited integration to global value chains and weak logistic infrastructure. This work attempts to illustrate the likely impact of selected scenarios of forced trade disruption under GEF in SSA and heterogeneities in its key country groups, as compared to the rest of the world.

This paper is the first to date to offer a close analysis of the channels that underpin the SSA region’s vulnerability to GEF and the larger impact relative to the rest of the world. The greater vulnerability of the region to GEF when compared to the rest of the world lies first in its higher dependence on food imports and fertilizers, while concurrently grappling with the highest levels of poverty in the world. SSA is also heavily reliant on the export of volatile commodities, has weak intra-regional trade linkages, and is not a strong player in global value chains. A highly indebted region, although at lower levels than in the 1990s, SSA receives considerably smaller financing flows than the rest of the world. This shortfall translates into insufficient progress in physical capital accumulation and financial deepening, thereby inhibiting the development of its substantial growth potential. Furthermore, official development assistance (ODA) to SSA has steadily declined in recent years, exacerbating an already challenging outlook marked by ongoing population expansion and compounding climate-related adversities. Finally, most countries in SSA do not have the fiscal space to face the challenges of an economically fragmented world.

Russia's invasion of Ukraine, the following sanctions, and the blockade of the Red Sea grain transport, have provided a glimpse of the potential implications of GEF for SSA given its existing vulnerabilities. During 2022, SSA faced some of the most adverse repercussions globally, manifested in elevated levels of poverty and heightened food insecurity due to the hike in food and energy prices. According to a nowcasting estimation of poverty by the World Bank, the number of extreme poor in SSA between 2021 and 2022 expanded by an additional 3.2 million people because of Russia's invasion of Ukraine, reaching a total of 463 million people (Gerszon et al, 2022). This expansion in poverty levels came after the COVID pandemic shock, further contributing to a hunger crisis in which at least 123 million people faced acute food insecurity (IMF, 2022a). Nevertheless, the quantification of poverty and food insecurity increases alone do not provide a comprehensive view of the economic re-shuffling that takes place amid forced reduction or enhancement of economic ties with various countries.

To better quantify the net gains or losses from GEF to the region and drive policy, we use a multi-country, multi-sector general equilibrium framework. We focus our analysis on the economic costs of GEF through the trade channel, and the model accounts for specific demand and supply characteristics of commodities and cross-border trade intermediate inputs. Our main finding is that SSA is the region of the world that would experience the largest output losses in a bifurcated global economy. In a scenario in which the world splits into two trading blocs around the European Union (EU) and the United States (US) versus China, SSA would lose access to key export markets and experience higher import prices. The median sub-Saharan African country would face a permanent decline of 4 percent of real GDP after 10 years relative to a no-fragmentation baseline.

The strong potential effect of GEF on the SSA region is largely attributed to its almost evenly divided trade between the US-EU versus China and other world partners. In the last two decades, the region has expanded its economic ties beyond historical partners—the EU and US—through increased interactions with emerging markets, led by China. Riding on the tailwinds of China's rapid integration into the global economy, the value of exports from SSA to China increased tenfold since the early 2000s, largely driven by oil exports. Consequently, in terms of trade alone, SSA is now almost equally connected with long-standing partners and newly emerging ones. And while multilateral donors still play the largest debt financing role in SSA, but at a lower level than in the past, China is now the largest official bilateral creditor for the region.

A key contribution of this paper is the distinction of the GEF impact across the main country groups in SSA, which suggests dissimilar effects depending on commodity trade patterns. SSA's non-oil resource-rich exporters, for example, experience the greatest losses from GEF, followed by non-resource rich countries. Oil exporters experience the smallest losses as they can better cope with GEF disruptions through a within-bloc expansion of energy supply. Under a more benign GEF scenario—strategic decoupling—oil exporters could, under certain conditions, have overall macroeconomic gains from GEF due to market share re-shuffling in the energy sector.

To mitigate the losses from GEF, SSA countries need to build resilience and develop coping mechanisms for potential economic disruptions. Building resilience requires strengthening regional integration and expanding the pool of domestic resources to counter potential external shocks. Overall, the proliferation and diversification of economic linkages in the past two decades has benefited SSA. Still a

small player in global markets and value chains, the region should work on a strategic plan aimed at elevating its position and reaping the benefits of trade integration. A continuous commitment of SSA countries to actively participate in the implication of the African Continental Free Trade Area (AfCFTA) would be instrumental in achieving this objective. In addition, countries in SSA should aim to diversify their set of trade partners and position themselves strategically to benefit from trade diversion and new capital inflows for much-needed investment. Fostering the accumulation of human capital and technology is paramount for enhancing the region's resilience. Concurrently, enhancing the business environment and reducing domestic policy uncertainty could yield significant economic benefits. In sum, SSA's proactive pursuit of these multifaceted strategies would reinforce its ability to navigate economic challenges and unlock its trade potential.

The paper is organized as follows: Section II provides a discussion of the recent literature on GEF. Section III discusses the drivers of GEF amplification in SSA and current signs of geoeconomic fragmentation spilling into the region. Section IV explains the modeling framework, scenarios of analysis, and data used to estimate the potential impact of GEF. Section V summarizes the findings, and Section VI concludes with policy recommendations.

II. Literature Review on the Impact of GEF

Recent research suggests that increasing GEF tensions around the world could greatly affect developing countries. GEF-related barriers, such as the ones imposed on Russia in response to the 2022 invasion of Ukraine, become more binding in small economies that are highly dependent on commodity trading and cannot rely on domestic markets for smoothing the impact of imposed barriers. The work of Bolhuis et al. (2023), when evaluating different GEF potential scenarios, corroborates this amplification of GEF in low-income countries (LICs) relative to advanced economies. Using disaggregated commodity trade data, the authors quantify the output losses in a GEF scenario relative to a 2019 global trade barriers baseline and find that low-income countries stand to lose the most when GEF leads to a world split into two trading blocs.

Studies evaluating the impact of severed economic linkages resulting from geopolitical tensions started in the early 2020s in response to the US-China trade wars. In 2018, as the US reduced selected imports on Chinese products retaliating for intellectual property theft and in support of security matters, the world economy started seeing a return to protectionism. At the time, Fajgelbaum et al. (2020) evaluated the 2018 US tariff hikes and their impact on domestic consumers, importing firms, and producers. Relying on a general equilibrium model, the authors found that the losses to consumers and importing firms in the US amounted to 0.27 percent of GDP. The aggregate real-income loss for the country declined to only 0.04 percent of GDP after accounting for tariff revenue and the gains of domestic producers shielded from foreign competition. The tariff created distortions in US counties, disproportionately affecting workers in labor-intensive tradeable sectors, mostly agricultural workers. On a similar note, Fajgelbaum and Khandelwal (2022) summarized studies quantifying the pass-through from tariffs to prices during the US-China trade war and found there was complete pass-through. This means that consumers received the burden of the protectionism measure in the US.

Further geopolitical disputes motivated studies analyzing the impact of GEF with a strong focus on quantifying welfare losses arising from the trade transmission channel. One of the first studies on this area is Cerdeiro et al. (2021) which studies the effect of a technological separation—or decoupling—across countries within a sectoral breakdown in a general equilibrium model. The technological decoupling in their model means the halt of trade in high-tech goods and services. In an extreme scenario, where the world separates in two distinct blocs that do not trade among each other, the losses can amount to up to 5 percent of a country's GDP. Javorcik et al. (2022) pivot to an evaluation in which countries start aligning in blocs with similar values—or “friendshoring”—rather than suddenly breaking ties with partners to avoid costs of GEF from political tensions. Relying on a model with inter-country and inter-industry linkages, they find that real GDP losses from “friendshoring” amount to up to 4.6 percent of global GDP.

More recently, general equilibrium frameworks to model the effects of GEF through trade show important extensions. The model of Bolhuis et al. (2023) is the first to include a commodity breakdown in a multi-country and multi-sector general equilibrium model. The authors find greater output losses than other studies when accounting for commodity markets. Goes and Bekkers (2023) includes a dynamic sector-specific knowledge diffusion dimension to a multi-sector and multi-region model, which better characterizes losses from constrained idea sharing. Their results show welfare contractions as large as 12 percent in some regions. They also find that the losses are larger in LICs, but this time due to the impediments to knowledge spillovers rather than commodity dependency.

Research on the impact of GEF to the world economy also extends to evaluating the transmission through international financial capital markets. Bianchi and Sosa-Padilla (2023) provide a theoretical approach to the application of financial sanctions. The authors evaluate the resulting equilibrium for the US dollar as reserve currency from the expectation of financial sanctions, as well as the probability of default conditional on freezing reserves of the sanctioned country, among other scenarios. In IMF (2023b), authors analyze how GEF transmits through the reallocation of foreign direct investment (FDI). Their findings indicate that FDI flows are increasing their concentration among geopolitically aligned countries.

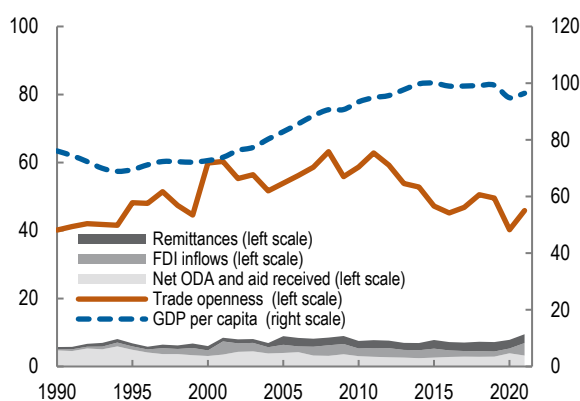
While existing work addresses the impact of GEF on LICs, no other research provides an in-depth analysis of SSA vulnerabilities to GEF nor its within-region heterogeneities. The work of Bolhuis et al. (2023) quantifies the overall effect of GEF in the SSA region when conducting a cross-regional comparison. However, it does not dive deep into the reasons that drive the high impact of GEF on SSA nor into the effects by country groups. The current literature includes the SSA region as part of broad regional or income aggregates, without acknowledging the unique vulnerabilities to GEF among many of its countries. Instead, we provide an explanation of the high vulnerability to GEF of SSA, while offering an analysis of the main channels of transmission and how long-term trends have re-structured these mechanisms. In sum, this paper is the first to raise awareness of the potential severe impact of selected GEF scenarios on SSA.

III. Understanding GEF within the SSA Context

1. Three decades of the Region's Integration in the Global Economy

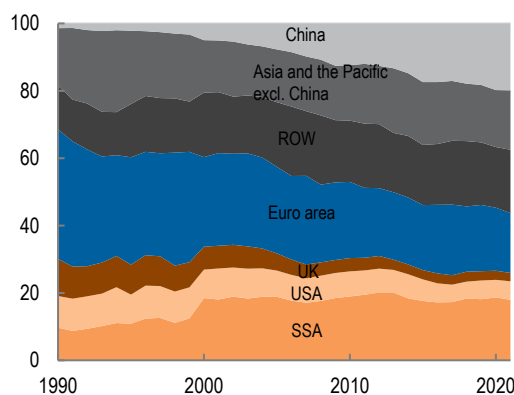
Greater global economic integration has moderately raised living standards in SSA during the past 30 years, mostly through a trade channel that remains highly vulnerable to global shocks. Since the early 1990s, trade openness has increased in the region and has reached 50 percent of GDP in 2021 (Figure 1). Financial linkages including FDI and remittances also rose to a relatively smaller 10 percent of GDP, offsetting a declining trend in ODA. Since 1990, the greater trade integration has been accompanied by a moderate expansion of GDP per capita, despite rapid population growth in the region. Even though SSA is now more open to trade, the region has not kept pace with other emerging markets. Consequently, today SSA's trade only captures about 2 percent of the global share, in contrast with the rapid expansion of other regions like Latin America and the Caribbean or emerging Asia (excluding China and India) which capture about 6 and 7 percent, respectively.¹ Additionally, trade is greatly affected by fluctuations in commodity markets—the leading exports in half of the countries—and a concentration in the production of low value added goods. In fact, SSA has the lowest economic complexity—the ability to export goods with high knowledge content—of the world.² These three factors—low share in global trade, commodity export dependence, and low value added of export—make the trade of goods linkage very vulnerable to GEF driven disruptions.

Figure 1. Sub-Saharan Africa: Trade and Financial Flows, 1990–2021
(Percent of GDP) (Index, 2015 = 100)



Source: World Bank World Development Indicator Database.
Note: SSA here refers to the World Bank definition of sub-Saharan Africa—this adds Mauritania, Somalia, and Sudan to the 45 IMF country list.

Figure 2. Sub-Saharan Africa: Trade Partners, 1990–2021
(Percent of total trade)



Source: IMF Direction of Trade Statistics
Note: ROW=Rest of the World, UK = United Kingdom, USA = United States, SSA = sub-Saharan Africa.

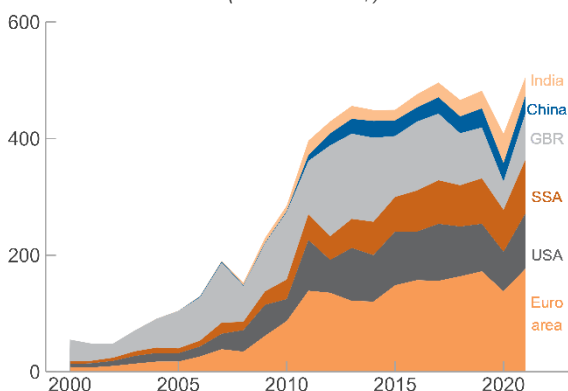
¹ Figures on trade shares come from the IMF Direction of Trade Statistics.

² Figures on economic complexity come from The Observatory of Economic Complexity, 2021.

Trade integration has benefited SSA through increasing welfare and strengthening its resilience to economic shocks, but it can expose the region to risks from decoupling and fragmentation. Over time, the economic integration pattern of SSA with the world has pivoted away from a concentration of economic relationships with European countries and the US towards emerging markets, with China on the lead. Currently, this shift turned the SSA region from EU-US trade centric integration, into an almost perfect split between the latter and China and other EMs. Given the recent waves of GEF, the new balance among potentially antagonistic blocs exposes the region to high risks of output and trade losses. Figure 2 illustrates the evolution of trading partners of SSA: in the 1990s, trade with the EU and US represented almost three-quarters of total trade for SSA, while in recent years it has declined to closer to one-third. Trade with regions outside of the US and EU now has increased significantly. Even intra-regional trade has increased though it is still hindered by the nature of SSA's export products that are mostly non-complimentary, which leads to higher trade with external partners (IMF, 2023b).

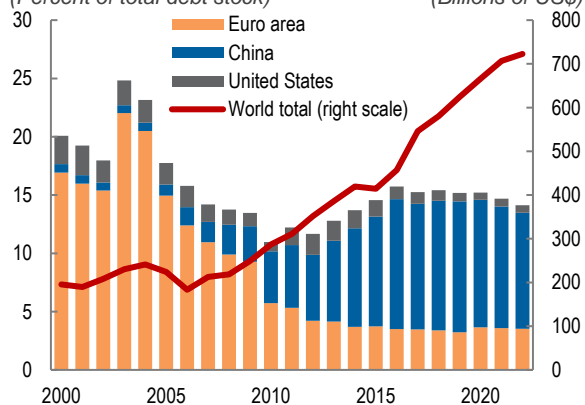
While not as strongly as trade, SSA has also diversified its partner linkages in investment, debt, and aid, further increasing the risk of losses if these linkages are constrained under GEF. Although most financial flows to the region—FDI, portfolio and remittances—are still a low share of output, during the past 20 years some have considerably expanded. FDI increased consistently before the COVID pandemic, and portfolio flows also became more relevant. Both have promoted local productivity growth and expanded countries' financing options. While new partners such as India and China have increased their role in FDI flows to the region, the stock of FDI predominantly came from the EU and US (Figure 3). On debt financing, the composition of SSA's growing external debt has increasingly shifted away from Paris Club members to China, which has emerged as the single largest bilateral lender, accounting for almost 60 percent of the region's total official bilateral debt. However, in 2022, only about 10 percent of SSA's total external debt came from China since the region's debt still comes largely from multilateral creditors (Figure 4).

Figure 3. Sub-Saharan Africa: Foreign Direct Investment from Selected Regions, 2000–21
(Billions of US\$)



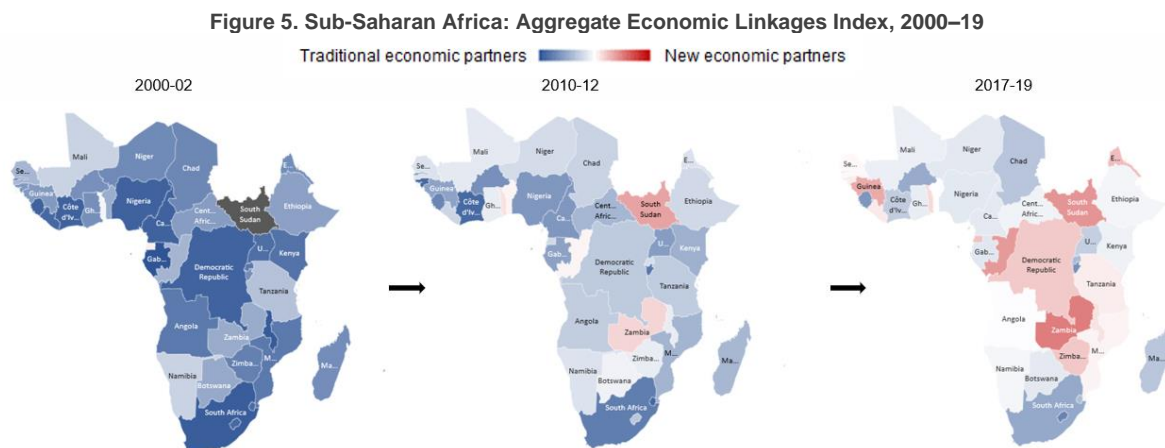
Sources: UN Comtrade; and IMF staff calculations.
Note: Euro Area's definition excludes Croatia. GBR = United Kingdom; SSA = sub-Saharan Africa; USA = United States of America.

Figure 4. Sub-Saharan Africa: Total External Debt Stock from Selected Regions, 2000–20
(Percent of total debt stock)



Source: World Bank, International Debt Statistics.
Note: Total external debt is the sum of public, publicly guaranteed, and private nonguaranteed long-term debt, use of IMF credit, and short-term debt. EU = European Union.

Considering these various dimensions, we construct an economic linkage index with the EU-US and the China-EM blocs to reflect the evolution of SSA economic relationships. Based on this index, which comprises three economic dimensions—trade openness, external flows (FDI inflows and ODA), and total external debt—the region shows a transition of economic linkages from highly concentrated with traditional economic partners to new economic partners over the past two decades (Figure 5). This change in the composition of economic partners poses opportunities and risks. It allows for risk diversification in the region’s export markets and higher investment flows, particularly benefiting countries that have received limited FDI from the US and EU. However, in the face of rising geo-political tensions, being almost equally open to two potentially antagonistic blocs makes the region more susceptible to rising tensions and tussle for influence. This is a concern in an increasingly uncertain global landscape, especially for a region striving to fortify its institutions and production framework to attract foreign investors.



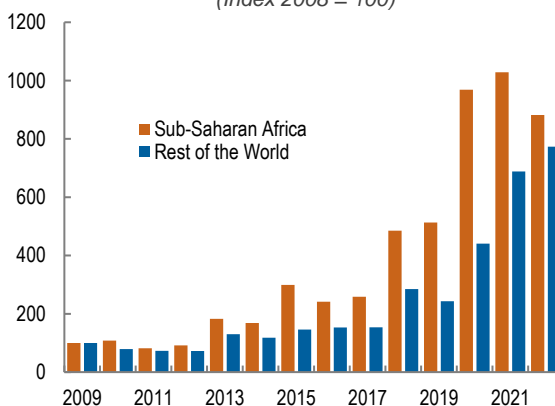
Sources: IMF, World Economic Outlook database; Coordinated Direct Investment Survey database; World Bank, International Debt Statistics database; Organisation for Economic Co-operation, and Development Official Development Assistance, and IMF staff calculations.

Note: The index comprises three economic dimensions—trade openness, external flows (foreign direct investment inflows and official development assistance), and total external debt, each representing one-third of the total weight. Each dimension is calculated in percent of total linkages to China, the EU, India, Russia, Saudi Arabia, UAE, and the US, which are the largest economic partners. The darker the color, the more strongly sub-Saharan Africa is linked with the respective group of partners; the lighter the color, the more equally the region is linked with each group.

The recent rise in global tensions is already spilling into SSA.

Rising geopolitical tensions have generated an increase in policy uncertainty, potentially deterring trade and investment (IMF, 2023a). “Friendshoring”—the reconfiguration of supply chains through reshoring with friends—has become more acute, making trade more regionalized and confined to blocs (IMF, 2023b). The recent increase in protectionism, including in SSA, is threatening to unravel earlier gains from integration (Figure 6). Extreme poverty in SSA is forecasted to grow under the COVID-19 pandemic and Ukraine war scenario. There is also early evidence of a decline and reorientation of cross-border capital flows, including an increase in restrictions on capital flows, and FDIs flowing to countries that are geopolitically aligned (IMF, 2023a; 2023b). For several SSA countries currently facing aggravated debt vulnerabilities, the road to debt restructuring has been marked by coordination problems among a diverse group of creditors that could worsen if geoeconomic fragmentation deepens.

Figure 6. Harmful Trade Restrictions Index, 2009–22
(Index 2008 = 100)



Sources: Global Trade Alert (2022); and IMF staff calculations. Note: Harmful trade restrictions include measures that deter international trade, including contingent trade-protective measures, subsidies (excluding export subsidies), tariff measures, non-automatic licensing, quotas, and trade-related investment measures. “Global” is the total number of harmful restrictions implemented in the world. “Sub-Saharan Africa” is the total number of global harmful trade restrictions that affect at least one country in the region. Both totals were normalized to 100 in the base year 2008.

2. Transmission of GEF through Trade and Financial Channels

The Trade Transmission Channel

Trade is the main channel through which GEF could affect SSA countries. A reconfiguration of supply chains and “friendshoring” could reduce SSA’s trade with the rest of the world, impeding export-led growth, technology transfer, and access to cheap imports.³ Trade restrictions and supply chain disruptions could also exacerbate food and fuel shortages and lead to worsening external balances in the region and increasing financing needs.

On the import side, the high dependence on foreign staples and other goods could result in higher domestic prices and supply shortages. As SSA is heavily dependent on the import of food, agriculture products, and fertilizers from key selected destinations, trade disruptions pose high costs specially in countries with small domestic markets. Countries cannot substitute foreign supply with domestic production as easily as in other world regions. During the 2020-22 period, due to the COVID pandemic, global value chain disruptions and Russia’s war in Ukraine, sudden trade disruptions added an additional 40 million people to the pre-2020 acutely food insecure population in SSA (IMF, 2022c). This led to an estimate of at

³ “Friendshoring” makes reference to the establishment of off-shored production lines in foreign allied countries, to avoid potential geopolitical disruptions. The practice increases foreign direct investment in the “friendshoring” recipient, but also may expand trade linkages between the host and the recipient as a second order effect.

least 123 million people—two-thirds of the worldwide food insecure population—living without enough food in 2022 (Ibid.). The high pass-through from global to local food prices—quantified by Okou et al. (2022) as close to unity among many SSA countries—is an important amplifier of food insecurity in the region.

On the export side, the effect of GEF varies across countries depending on their endowment in energy and mining wealth. Countries rich in natural resource wealth could see positive gains if GEF triggers higher demand for energy and mining within a bloc. In some cases, such gains could offset income losses from disrupted trade linkages in other areas. A total of 23 out of the 45 countries in SSA are classified as resource-rich: eight are oil exporters and 15 are rich in non-oil energy or mining production.⁴ In a perfectly divided two-world economy, as our model later shows, the losses from disrupted trade in key areas, such as food and agriculture, are not offset by gains in market access for resource rich countries within a bloc. However, under selected GEF scenarios in which SSA resource-rich countries could displace some suppliers to selected global destinations, this forced gained market access could mitigate other losses.

The Financial Transmission Channel

GEF could potentially disrupt access to financial inflows and limit financing options for countries to foster long-term economic growth. Declines in financial inflows means less external financing options and investment in SSA, a vital source of development, productivity growth, and knowledge spillovers (IMF, 2011; Alley and Poloamina, 2015). Less capital mobility could also interrupt progress towards financial openness (Adeniyi et al, 2015; Mlachila et al, 2016). According to IMF staff estimates, in a world where countries were to cut off their capital flow ties with either bloc consistent with the preceding severe scenario, the region could lose about \$10 billion of FDI and official development assistance inflows, equivalent to about half a percent of GDP a year, based on an average 2017–19 estimate (IMF 2023e).

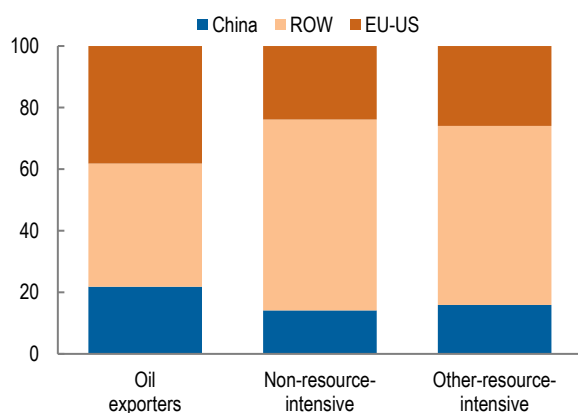
As one of the manifestations of GEF could be through “friendshoring”, the impact on financial flows can also vary depending on the country’s market exposure to such shocks. Similarly, as in the trade channel, the reshuffle of supply chains could reduce foreign direct investment in trade related sectors and in the domestic economy. Investors also tend to become more risk-averse and seek a safer, or more politically aligned, investment environment. The uncertainty can delay investment decisions, leading to a self-reinforcing cycle of negative sentiment and reduced financial flows to regions not strategically placed in a “friendshored” partnership. GEF can also lead to increased volatility in the currency market. For SSA, this can result in depreciating currencies, making it more costly to service foreign debt and leading to inflationary pressure. A weaker currency can deter foreign investors who fear currency losses on their investment. Furthermore, higher costs of imports under GEF would reduce profit for domestic and foreign investors, creating disincentives for investment.

⁴ *Oil exporters:* Angola, Cameroon, Chad, Republic of Congo, Equatorial Guinea, Gabon, Nigeria and South Sudan. *Other resource-intensive countries:* Botswana, Burkina Faso, Central African Republic, Democratic Republic of Congo, Ghana, Guinea, Liberia, Mali, Namibia, Niger, Sierra Leone, South Africa, Tanzania, Zambia and Zimbabwe.

Differences in GEF Transmission across a Diverse SSA Region

Energy exporters in SSA are likely to show more resilience to the effects of GEF given their current trade relations with global partners. Currently, oil exporters in SSA have stronger trade linkages with China and EU-US countries than other groups in the region (Figure 7). This alignment means that under extreme GEF—should oil exporters be forced to choose a bloc—they could expand energy exports within their bloc of choice. This relative greater resilience would manifest through both the trade and financial channels as weaker linkages with some partners could be offset by stronger linkages with others, as long as global demand for oil remains. On the contrary, non-resource rich countries and non-oil exporters present a more diversified trade pattern, where the rest of the world (ROW) represents around 60 percent of trade flows with these two groups as opposed to just 20 percent in oil exporters. The greater trade partner diversification among these non-oil exporting countries means that the impact of GEF could bear more variance than in the case of oil exporters, mainly given the different possibilities of trade and financial diversion.

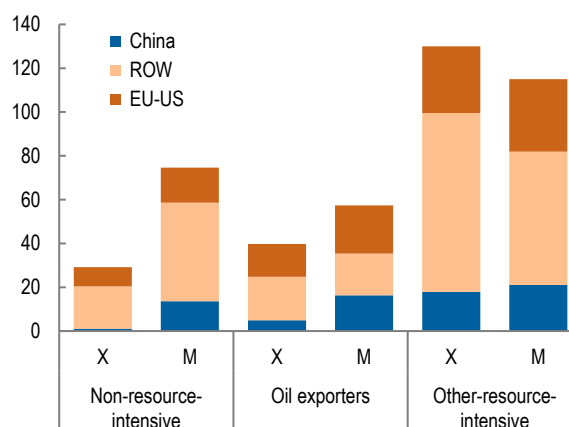
Figure 7: Sub-Saharan Africa: Trade Partner Composition by Country Group, 2020
(Percent of total trade)



Source: UN Comtrade.

Note: Trade includes exports and imports of goods. ROW = Rest of the World.

Figure 8: Sub-Saharan Africa: Trade Flows with Key World Areas by Country Group, 2020
(Millions of US\$)



Source: UN Comtrade.

Note: Trade includes exports and imports of goods. ROW = Rest of the World. X = exports; M = imports.

However, energy exporters' resilience to GEF can be affected by high volatility of commodity prices.

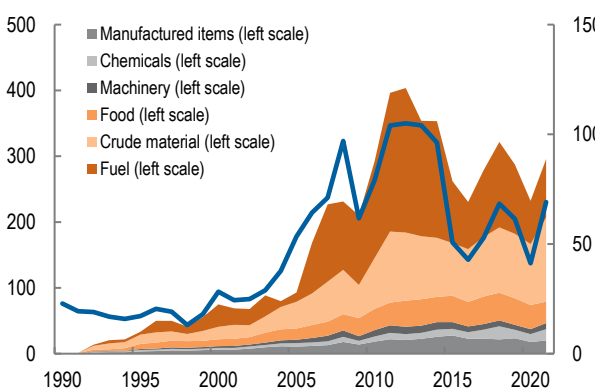
Figure 10 illustrates the large relative role of fuel and other commodity exports in total exports of the region. While these goods represent most of the export value in the region, they are also heavily vulnerable to price volatility, which would impact the net effect of GEF. In other words, the resilience that we expect from oil exporters is linked to volatile prices in a still unknown context for the degree of GEF for the medium term.

Countries endowed with critical minerals may cope relatively better than the rest of SSA in the face of GEF. Security concerns are one of the prime triggers of GEF, one of which being countries seeking critical minerals for renewable energy and sustainable production. Technology for renewable energy—such as batteries, electrical vehicles, and semiconductors—rely heavily on minerals for their components (IEA,

2023). Some of the world's largest mines for these critical minerals are found in SSA, notably cobalt and manganese, where SSA represents more than half of global production (Figure 9). Global demand to secure supply of critical minerals already boosted exploration investments by 20 percent globally in 2022, especially for lithium and nickel deposits in Africa and Latin America (IEA, 2023). Demand will only increase as the world aims to limit global warming to 1.5 degrees Celsius by 2030, crystalizing SSA's role as a central partner for all. The strategic importance of this type of wealth in future cutting-edge technology gives critical mineral rich countries a potential advantage when it comes to the effects of GEF relative to the rest of the region.

Figure 10. Sub-Saharan Africa: Composition of Goods Exports and Crude Oil Price, 1990–21

(Billions of US\$) (US\$/barrel)

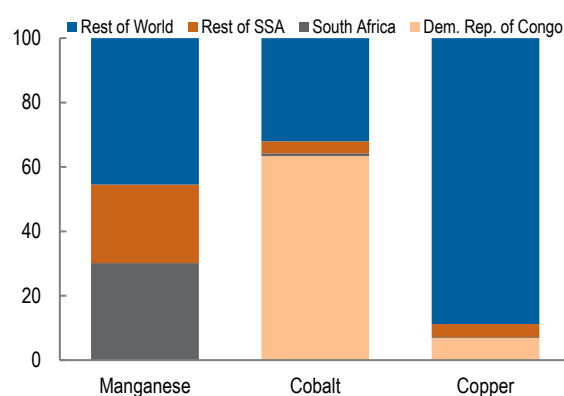


Source: UN Comtrade.

Note: Crude material exports refers includes mining and non-fuel energy.

Figure 9: Global Production of Manganese, Cobalt, and Copper, 2019 or Latest

(Percent of global production)



Source: British Geological Survey, 2021.

IV. Model, Scenarios, and Data

1. Modeling Framework

We use the recently developed multi-country, multi-sector, general equilibrium model of Bolhuis et al. (2023), which accounts for the unique demand and supply characteristics of commodities, as well as cross-border trade of intermediate inputs. We summarize the main building blocks of the model here and refer the reader to Bolhuis et al. (2023) for details.

Model environment. Consider N countries, indexed by n and m . There are two types of sectors: commodity sectors and non-commodity sectors. Commodities are used as intermediate inputs to produce non-commodities, while the latter are both consumed as final goods and used as intermediate inputs. Local commodity producers use labor and intermediate inputs for production while local non-commodity producers use labor, intermediate inputs, and commodities for production. For each non-commodity sector, downstream demand is inelastic because commodities and other inputs are imperfect substitutes. In each

country and sector, a representative trading firm combines local products from different countries into a composite sectoral good. The composite sectoral good is not tradable. Trade is subject to iceberg trade costs. In each country, there is a representative household that exogenously supplies labor and consumes the final good. Households receive and send exogenous international transfers; such that household income equals labor income plus the trade balance.

Interpreting and simulating trade fragmentation. We interpret trade fragmentation as policy-driven increases in non-tariff barriers that raise the price of imported goods and services. As is standard in the quantitative trade literature, the model simulates the impact of changes in trade barriers using *exact hat algebra* (Dekle et al., 2007), which means that it can estimate the impact of changes in trade barriers on output without the need to estimate model fundamentals such as initial trade costs and productivity levels.

Rules of thumb for the impact of fragmentation on domestic prices and output. Consider two blocs of countries that erect trade barriers such that any trade between the blocs is eliminated in a given sector. The (log) change in the local price index of a country in that sector k can be approximated as:

$$d \ln P^k = \frac{1}{\theta^k} \ln \frac{1}{1 - \pi_{other}^k} \quad (1),$$

where π_{other} is the share of initial expenditures of country on goods from countries in the other bloc. θ^k is the trade elasticity, which reflects the ease at which importers can switch to domestic suppliers and foreign suppliers that are in the same bloc. Prices thus increase more in countries that lose access to a larger share of their initial supplies, being forced to source additional products from more expensive suppliers. This effect is scaled by the inverse of the trade elasticity, as a lower elasticity makes it more costly to switch suppliers. Moreover, the (log) change in output (real GDP) of a country n due to fragmentation can be approximated as:

$$\frac{1}{\theta^k} \overline{\ln(1 - \pi_{n,other}^k)} + \frac{\alpha_n(1 - \mu_n)}{1 - \alpha_n} \frac{1}{\theta^k} \overline{\ln(1 - \pi_{n,other}^k)} + \frac{\alpha_n \mu_n}{1 - \alpha_n} \frac{1}{\theta^j} \overline{\ln(1 - \pi_{n,other}^j)} \quad (2),$$

where $\alpha_n(1 - \mu_n)$ is the country's average expenditure share on intermediate inputs from non-commodity sectors and $\alpha_n \mu_n$ is the country's average expenditure share on intermediate inputs from commodity sectors. $\overline{\ln(1 - \pi_{n,other}^k)}$ and $\overline{\ln(1 - \pi_{n,other}^j)}$ are the average (log) shares of initial expenditure of country n on non-commodity and commodity goods from countries that are in the *same* bloc.⁵

Equation (2) shows that, up to a first order approximation, all the effects of trade fragmentation on output can be summarized by three terms. The first term captures the direct effect on prices of final goods: losing access to more initial supplier raises domestic prices, leading to lower real GDP. The second term captures the indirect effect through input-output linkages: countries that use more intermediate inputs (i.e. with 'deeper' supply chains) are more affected through this channel. The third term then captures the effect of access to commodities. For all terms the effect is increasing in the average share of initial expenditures on countries in the same trading bloc and decreasing in the average trade elasticity.

⁵ In all cases, these are weighted averages with expenditure shares as weights.

Model limitations. The model does not reflect the full effects of global economic fragmentation, as some of the important channels, including trade-induced technology spillovers and uncertainty, are not explicitly modeled. Moreover, the range of possible effects for a given scenario captures some, but not all, of the possible outcomes for the magnitude and coverage of the trade barriers as well as possible policy responses. How countries decide between joining trading blocs (if necessary), would depend on many factors that go beyond their historical trade relations or geopolitical alignment. Scenarios explored using the models should therefore be viewed as illustrative.

2. Geoeconomic Fragmentation Scenarios

This paper quantifies the potential trade and production losses in SSA under two possible GEF scenarios, relative to a baseline of no GEF, while considering within regional heterogeneities. The two GEF scenarios are defined as in the paper of Bolhuis et al. (2023) with core assumptions summarized in Table 1. The first scenario provides an extreme view of fragmentation putting in perspective the costs of a world perfectly divided in two separate country blocs that trade freely within but are totally closed across. The second scenario helps quantify the effect of selected forced trade barriers among key partners resulting from geopolitical disputes. The choice of both scenarios is arbitrary, and we refrain from assigning any probability of occurrence to either. They are illustrative of potential effects and meant to drive policy should outcomes like this are ever close to materializing. The shock in the two GEF scenarios is contrasted against a baseline in which countries maintain the same bilateral trade relations as in end-2019. Anchoring the baseline on the pre-pandemic period reduces noise arising from COVID-induced global value chain disruptions and temporary alterations in the global supply and demand.

In the first scenario the paper presents the extreme case of trade separation into a two-world economy, for simplicity denominated *geoeconomic fragmentation (GEF)*. Countries in the GEF scenario are forced into two separate trading blocs, where there is free trade within blocs but no trade between blocs, one centered around the US and another around China⁶. SSA countries that trade, based on their imports and exports in 2019, more with the US than with China are put in the US-centered bloc, and vice versa. The allocation of countries to either bloc is based on existing trade shares with the US or China prior to 2020 to avoid the effect of post-pandemic changes in trade flows. This means that countries that traded a larger value of goods with the US than China before 2020 will be automatically assigned to the US bloc, and vice versa. There is no trade across the two blocs in this scenario; all trade relations happen within a bloc. The GEF scenario facilitates an understanding of the aggregate losses for the world economy and SSA, which is more harmed than any other world region, of an autarky-like outcome. For a representative SSA country under this scenario, existing trade relationships will just prevail with countries that are part of its bloc. This may mean that some SSA countries will not trade with neighboring countries in the same geographic region if they are in opposite blocs.

⁶ For simplicity, all counterfactual scenarios assume the introduction of infinite trade costs for the specific sectors mentioned. This assumption ensures zero trade occurs between the relevant countries/groups without making additional arbitrary assumptions on the size of imposed import or export tariffs, or non-tariff barriers.

While in the GEF scenario we assume an allocation across blocs based on existing trade relations, geopolitical alignments rather than economic ones could also drive final outcomes. To measure the impact of GEF when countries align due to geopolitical relations, we conducted an alternative robustness check. Under this alternative approach countries are assigned to blocs based on political ties (or foreign policy similarities) rather than economic interests following the ‘Ideal Point Distance’ estimates in Bailey et al. (2017), previously used as a robustness check by Bolhuis et al. (2023). The ‘Ideal Point Distance’ provides a measure of preferences towards foreign policies that adequately captures regime changes on historical UN votes by states. For our GEF scenario, bilateral IPD scores (averaged over 2017-2021) are calculated for all countries with respect to both the US and China. Every country in the world is then ranked based on their closeness to US or China. If a country is more highly ranked for the US than China, it is “assigned” to the US bloc, and vice versa.⁷

In the second scenario, denominated *strategic decoupling (SD)*, we assess the potential impact of selected tariffs imposed by a reduced number of partners due to geopolitical considerations. Under SD, the model assumes the US and EU impose barriers to prohibit trade of all goods from Russia and vice versa. Another assumption of the SD scenario is the imposition of trade barriers in high-tech sectors between the US-EU and China. Both assumptions reflect recent tensions between the selected partners. The rest of the world including SSA countries trade freely under SD.⁸ This latter point is the reason why some SSA countries may gain under this scenario if they can absorb a share of the global market where some countries are banned from. Therefore, the likely effects of the SD scenario on output would transmit through a substitution of partner supply and demand in the disrupted markets. For SSA, given its current trade composition, most of the effects under SD are driven by its energy exporters displacing the supply of oil and gas by Russia into the EU.

We do not attempt to provide any insights or probability on the likelihood of either of the two goeconomic fragmentation scenarios –GEF or SD. It is uncertain whether any of these scenarios could take place, they have been chosen with the sole purpose of illustrating the potential effects of a goeconomically fragmented world. The difference in the impact across country groups is attributed to the composition of traded goods and the elasticity of substitution between foreign and domestic products. In countries where this elasticity of substitution is large, so that more expensive foreign products are easily substituted by domestic production, the impact of GEF is lower. But in cases where this elasticity is low, as in the case of smaller market economies that are greatly dependent on foreign products, the impact of GEF will be larger. Due to the strong dependence on foreign supply markets for food, agriculture and fertilizers, in many SSA countries this elasticity is low and therefore the potential costs of extreme GEF quite high as we show in our results.

⁷ We make two manual reassignments, moving Russia and Mali from the US group into the China group. Mali is the only country that would have been placed in the US group based on the IPD measure that voted against the United Nations General Assembly Resolution on Ukraine (A/ES-11/L. 7). There is also a small number of economies outside sub-Saharan Africa for which no IPD is available. We assign these manually as in Bolhuis et al. (2023).

⁸ Following Cerdeiro et. al. (2021) and Bolhuis et al. (2023), high-tech sectors are defined using the classification in OECD (2011), which is based on sectoral R&D intensities. The two high-tech sectors in the Eora database are Electrical and Machinery Equipment and Transport Equipment.

Table 1: Trade Assumptions in the two GEF Scenarios

Scenario	Assignment to a Bloc based on:	Bloc I	Bloc II	Assumptions
Geo-Economic Fragmentation (GEF)	Global Trade Share in Goods+ (GEF - Global Fragmentation)	US-Centered Bloc	China-Centered Bloc	<ul style="list-style-type: none"> ▪ Free trade within blocs ▪ No trade between blocs
	Geopolitical Closeness IPD ++ (GEF – Geo-Blocs)		Bloc	
Strategic Decoupling* (SD)	Not Applicable	USA and EU	Russia	No trade between bloc and partner
			China	<ul style="list-style-type: none"> ▪ Trade barriers on High-Tech sectors ▪ Free trade between bloc and partner in non-high-tech sectors.
		ROW	<ul style="list-style-type: none"> ▪ Free trade between ROW and partners in all goods. 	

+Assign to US-centered bloc if larger trade share up to 2019 with this country; otherwise, assign to China-Centered Bloc.

++Assign to US-Centered bloc if higher IPD rank with US; otherwise assign to China-centered bloc.

*The strategic decoupling scenario does not require an allocation of countries to any bloc.

Note: For more details on the scenarios, please refer to Bolhuis et al. (2023).

3. Data

The model uses bilateral trade data (including self-trade) for all sectors, along with detailed disaggregation of commodity sectors, for a wide range of countries. For details, we refer the reader to Bolhuis et al. (2023), who construct a new dataset based on both international trade data and production data for 2019, the latest year before the COVID pandemic. The resulting dataset contains observations in values (USD) at the exporter sector/commodity-importer level for 24 aggregated (manufacturing and services) sectors, 82 agricultural commodities, and 54 mining commodities for 145 countries, 32 of which are in SSA.

Our analysis dives into providing details on the economic costs of fragmentation in a highly heterogeneous SSA region. For simplicity, we measure the differentiated GEF impacts in just three country groupings: Oil exporters, other resource-intensive countries, and non-resource-intensive countries. The oil exporters are countries where net oil exports make up 30 percent or more of total exports. The other resource-intensive countries are those where nonrenewable natural resources represent 25 percent or more of total exports. The non-resource-intensive countries refer to those that are not classified as oil exporters or other resource-intensive countries.

V. Results of the Modeling Exercise

The SSA region is the area of the world with the highest percentage of international trade at risk of losses under GEF. This result comes from a combination of low intra-regional trade and almost even split among potential blocs under a more severe GEF scenario. In such a case, SSA could face considerable disruptions on trade flows. As shown in Figure 11, almost half of SSA's international trade would be at risk from shifting trade blocs. The likely impact is larger than the estimates of around 40 percent of trade at risk

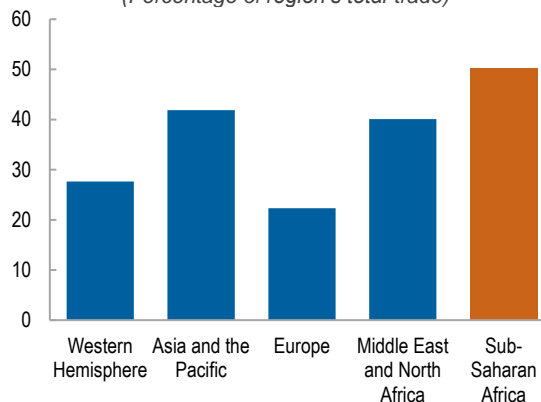
for both Asia and the Pacific and the Middle East and North Africa under an extreme split GEF scenario. On the contrary, the trade at risk of GEF related losses is the lowest in the Western Hemisphere and Europe due relative larger domestic markets.

Our model results indicate that SSA could experience a permanent decline of 4 percent of real GDP over 10 years under GEF compared to a baseline scenario of no fragmentation. The large losses for SSA result from a combination of its large trade share at risk of GEF and its reliance on commodity trade. The latter tends to make countries more vulnerable to output losses in the face of trade barriers⁹. In relative terms, this means that potential GEF losses for the SSA region are twice as much those in the rest of the world (Figure 12(a)). Nevertheless, there are within regional divergences in these results driven by the different trade composition across country groups.

The model results differ between oil exporters and the rest of SSA, with the latter coping the best in either the GEF or the Strategic Decoupling Scenarios. Net Losses under the GEF scenario are the largest in resource exporter countries and lowest among oil exporters since increasing energy exports within a bloc help them cope with the trade losses in other sectors. Non-oil resource-rich exporters are expected to lose almost 5 percent of GDP in the long-term, followed by 4.2 percent in non-resource rich countries and lastly by estimated losses of 1.6 percent among oil exporters (Figure 12(a)). The relevance of energy production for oil exporters is so important that the aggregate losses of this group are even lower than those in the rest of the world, as energy exports help cope with GEF.

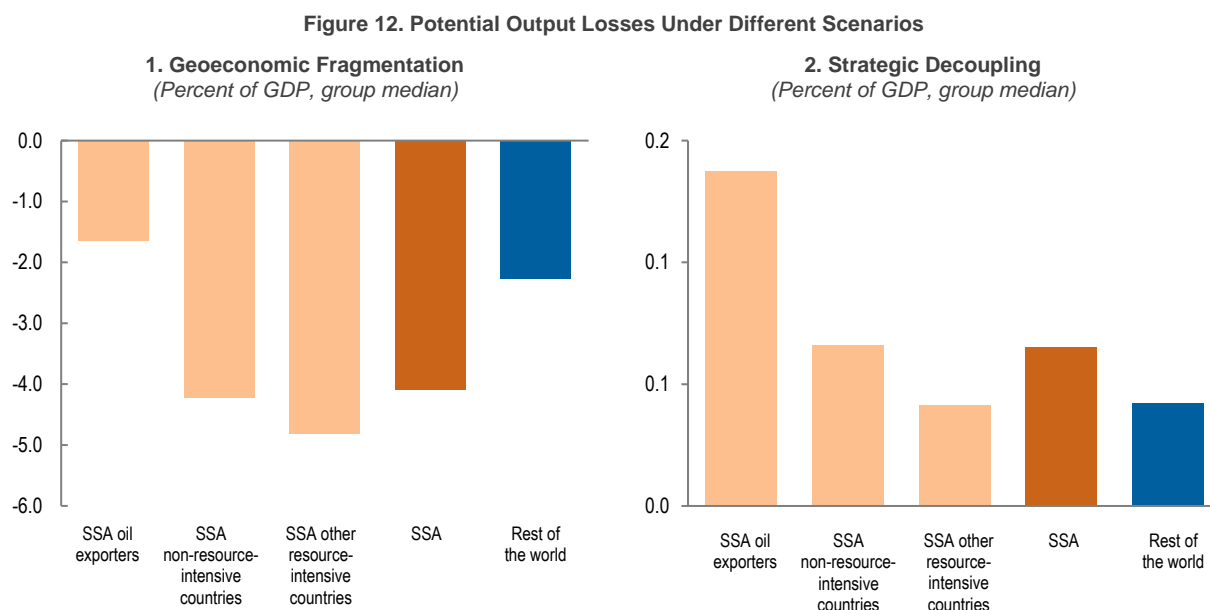
Should a less severe scenario play out, with SSA still engaging in free-trade with the rest of the world, the region may experience a slight benefit from trade diversion overtime. Specifically, the typical SSA country experiences almost no change in GDP over 10 years in the SD scenario (Figure 12.1). As great powers move to secure supply chains in critical or high-tech sectors, they open new markets to those still engaged in free trade. SSA countries may see a rise in exports and enjoy cheaper imports. Again, commodity exporters are particularly of interest in this scenario as demand for key inputs such as metal or fuels increases due to European countries ceasing trade with Russia. In this scenario, GDP for the median SSA oil exporter increases by 0.14 percent after 10 years compared to 0.07 percent in other resource rich exporters and an almost negligible impact among non-resource rich exporters of 0.04 (Figure 12.2). In this scenario, the reshuffling of markets in the rest of the world would also provide minimal, estimated at 0.04 percent of GDP, gains for the rest of the world.

Figure 11. Trade at Risk Under GEF Scenario
(Percentage of region's total trade)



Sources: Eora Global Supply Chain database; and author's calculations based on Bolhuis et al. (2023) model.
Note: Trade at risk refers to exports and imports to and from another bloc under a scenario of "Geoeconomic Fragmentation" where all trade is cut off between countries in US/EU- and China- centered blocs. Countries that trade more (imports and exports in 2019) with the US than with China are put in the US/EU-centered bloc, and vice versa.

⁹ Fally and Sayre (2019) provide a detailed discussion on why higher trade barriers are particularly costly for trade in commodities.



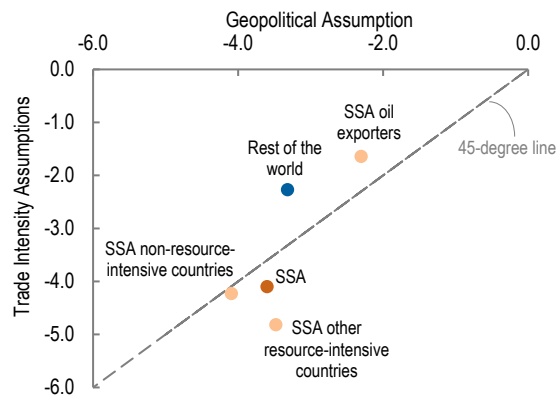
Sources: Author's calculations based on model of Bolhuis et al. (2023).

Note: Bars highlight annual losses for median country after 10 years relative to a no-fragmentation baseline. Under a severe "geoeconomic Fragmentation" (GEF) scenario, all trade is cut off between countries in US/EU- and China-centered blocs. Countries that trade more (imports and exports in 2019) with the US than with China are put in the US/EU-centered bloc, and vice versa. Under a less severe scenario of Strategic Decoupling, trade ties are cut only between Russia and the US/EU, and all trade ceases between the US/EU and China in high-tech sectors, leading to some diversion of trade flows towards Africa.

The main takeaway from the small net positive gains for SSA under the more benign strategic decoupling scenario needs to be treated with caution. If the world experiences a moderate fragmentation of trade flows in which developing countries can gain larger global market access as other major actors are constraint from trading, there could indeed be aggregate gains. Nevertheless, some of these gains could provide incentives away from diversification and long-term sustainable development. Indeed, in the case of small developing economies that experience a higher demand for primary products, global trade fragmentation could trigger over-expansions of lower value-added sectors. Further, in energy and mining exporting countries an over-expansion of production in these goods due to higher global demand could be detrimental for the thriving of the rest of the economy. In the long-term, a global structure that changes the production composition of developing countries may seem in the model as positive but indeed may not be sustainable.

As a robustness check to our trade grouping assumption, we examine how sensitive these estimates are to using an alternative country grouping based on geopolitical “closeness”. When we assign countries to blocs based on political ties (or foreign policy similarities) rather than economic interests, output losses in this GEF Geopolitical scenario amount to 3.6 percent of GDP for the median SSA country, slightly less than under the original GEF scenario (4.1 percent) in which blocs are based on trade (Figure 13). Median losses in the rest of the world increase from -2.3 percent of GDP with trade shares assumptions to -3.3 when blocs form based on geopolitical ties. This same outcome also takes place in oil exporters, which experience larger losses when the bloc alignment is based on geopolitical closeness. This means that choosing trading relations based on economic interests –trade intensities– generates less losses for the rest of the world and oil exporters than bloc splits driven by geopolitical closeness. However, in non-resource and other resource rich countries the model suggests smaller losses when the GEF scenario assigns countries according to geopolitical closeness.

Figure 13. Comparing GEF Output Losses Under Different Bloc-linkage Assumptions (Percent of GDP, group median)



Source: Author’s calculations based on Bolhuis et al. (2023). Note: Points highlight annual losses for median country after 10 years relative to no-fragmentation. Under a severe “geoeconomic Fragmentation” (GEF) scenario, all trade is cut off between countries in US/EU- and China-centered blocs. GEF with geopolitical assumption relies on the Ideal Point Distance political alignment measured to assign countries to a bloc. GEF with trade intensity assumptions relies on trade shares with blocs to assign countries.

VI. Concluding Remarks

The paper intends to provide the first in-depth analysis of SSA’s unique vulnerabilities to GEF, including the heterogeneities within the region. By introducing the region’s economic linkages over the past two decades, the paper takes a deep dive into the channels of transmission from GEF on trade through direct effects of import prices, amplification from input-output linkages, and effects on commodity prices, and illustrates how different scenarios of GEF could potentially enforce the change in trading relationships of SSA countries and its impact on economic outputs. The region’s large susceptibility to commodity market fluctuations, heavy import dependence on crucial staples, and re-composition of economic partners over time have underpinned the results of the analysis.

In the most severe scenario of a world fully split into two isolated trading blocs, SSA would be hit especially hard because it would lose access to a large share of current trade partners. Our work shows that half of the region’s value of current international trade would be affected in a scenario in which the world is split into two trading blocs. As the region loses access to key export markets and experiences higher import prices, the median sub-Saharan African country would be expected to experience a decline of 4 percent of output. These estimated losses are smaller than the losses during the COVID-19 pandemic but larger than those during the global financial crisis, and importantly, are permanent. Declines are larger

in countries that are more integrated into global trade and in countries that initially traded more with the bloc from which they are severed. They are also larger for non-oil resource-rich countries, reflecting the extent to which they are forced to cease more trade under such scenario, more than what trade diversion within each bloc can benefit them. The result is reaffirmed by the robustness check using IPD, where losses are estimated to be similar but smaller.

However, not all is bleak, and shifting geopolitics may create new trade partnerships for the SSA region. In a more benign scenario –where ties are cut only between Russia and the US/EU while SSA countries continue to trade freely with all global partners– trade diversion to the world and within the region could provide net gains. As some SSA countries benefit from access to new export markets and cheaper imports, the region could benefit with oil exporters supplying energy to Europe gaining the most.

Our main recommendation is that countries in SSA should build resilience to GEF to mitigate the impact of trade disruptions. This may entail:

- **Strengthening regional trade integration, such as under the African Continental Free Trade Area (AfCFTA)¹⁰, to expand market access.** This will require reducing within-region tariff and non-tariff trade barriers, strengthening efficiency in customs, leveraging digitalization, and closing the infrastructure gaps. Prioritizing improvements in the quality of institutions, especially the regulatory framework, is an effective way to help promote private participation in infrastructure.
- **Improving the region's integration into global value chains (GVC).** GVC integration is associated with more stable trade flows in case of shocks through enhanced diversification (Comunale et al, 2022). Increasing the value-added content of trade and to be more relevant in the global value chain are paramount to levelling up the region's resilience to global shocks.
- **Devising policies to reduce the strong dependency on food imports by tapping the region's agricultural potential.** Promoting sustainable agricultural practices and farming techniques, investing in infrastructure to increase agricultural productivity, and improving access to finance especially for subsistence farmers are important mechanisms (IMF, 2022c).
- **Enhancing and investing in trade in services.** Services are an important part of the global economy, generating more than two-thirds of the global GDP, and employing most workers (OECD, 2020). Yet, SSA's services trade lags far behind that in other regions (Loungani and others, 2017). Policies should target both traditional services such as tourism and hospitality, as well as "modern" services such as transport and communications, financial intermediation, and business services. The former may require lower degrees of state intervention such as lowering or removing regulatory barriers to entry, while the latter will require a more extensive package of measured and targeted industrial policies to address market failures and raise incentives. The benefits, however, can be large. Some countries may be able to "leapfrog" from primary-goods-export-led economies to such tech-driven services (Hallward-Driemeier and Nayyar, 2017).
- **Building buffers through deepening domestic financial markets, upgrading cross-border payments infrastructure, and improving domestic revenue mobilization.** Developing local

¹⁰ IMF (2023c) finds that comprehensive reforms combined with the AfCFTA implementation could increase the median merchandise trade flow between African countries by 53 percent and with the rest of the world by 15 percent, and as a result raise the real per capita GDP of the median African country by more than 10 percent.

financial markets can broaden the sources of financing and lower the volatility associated with excessive reliance on foreign inflows. By upgrading domestic financial market infrastructure—including through digitalization, increased transparency, regulation, and expanding financial product diversity—SSA countries can expand financial inclusion, build a broader domestic investor base, and increase attractiveness to a larger set of external investors. On the other hand, improving domestic revenue mobilization is critical to reducing the share of commodity-linked fiscal revenues and alleviating constraints on social and infrastructure expenditures. Successful revenue mobilization efforts require both revenue administration and tax policy reforms, such as expanding the base for value-added taxes and leveraging digitalization in tax collection.

In light of the simulation results, countries in the region could also consider positioning themselves strategically to benefit from trade diversion and FDIs. In practice, this could be achieved by:

- ***Creating the right environment to attract FDI.*** This would allow countries to take advantage of friendshoring, whereby countries reconfigure global supply chains by choosing like-minded partners. These efforts could be supported by improvements in the business environment such as lowering entry, regulatory, and tax barriers. Reducing domestic policy uncertainty including by improving governance could reduce the country's perceived risk level and help attract more foreign capital investment.
- ***Identifying and nurturing the sectors that may benefit from trade diversion.*** For instance, commodity exporters in the region could potentially displace much of Russia's energy market share in Europe. Countries can also rely on trade promotion agencies to help identify potential opportunities, build the necessary skills and capacity for exporters, and eventually re-orient production to take advantage of new trade flows. On the contrary, considering potential outcomes of "friendshoring", whereby countries reconfigure global supply chains by choosing like-minded partners, efforts to build trade partnerships could be supported by improvements in the business environment such as lowering entry, regulatory, and tax barriers.

Multilateral institutions need to ensure that economic integration continues to act as a growth catalyst for all countries. Institutions should focus on reversing damaging restrictions on trade and capital flows and promote active engagement and dialogue between policymakers from all countries, including in multilateral forums. They should also push for multilateral cooperation in areas of common interests, including food security, climate change, and debt resolution.

Reference

- Adeniyi, O., K. Ajide, and A. Salisu. 2015. "Foreign Capital Flows, Financial Development, and Growth in Sub-Saharan Africa." *Journal of Economic Development*, 40 (3): 85–103.
- Alley, I., and I. Poloamina. 2015. "Private Capital Flow Shocks and Sub-Saharan African Macroeconomic Performance." *Journal of International Economic Studies*, 29: 61–84.
- Bailey, M., A. Strezhnev and E. Voeten. 2017. "Estimating Dynamic State Preferences from United Nations Voting Data." *Journal of Conflict Resolution*, 61 (2): 430–456
- Bianchi, J. and C. Sosa-Padilla. 2023. "The Macroeconomic Consequences of International Financial Sanctions." *AEA Papers and Proceedings*, 113: 29–32.
- Brown, T., N. Idoine, C. Wrighton, E. Raycraft, S. Hobbs, R. Shaw, P. Everett, E. Deady, and C. Kresse. 2019. *World Mineral Production 2015-19*. British Geological Survey, Keyworth, Nottingham.
- Bolhuis, M., J. Chen and B. Kett. 2023. "Fragmentation in Global Trade: Accounting for Commodities." IMF Working Paper 073/2023. International Monetary Fund, Washington DC.
- Cardeiro, D., J. Eugster, R. Mano, D. Muir, S. Peiris. 2021. "Sizing Up the Effects of Technological Decoupling." International Monetary Fund. IMF Working Paper 21/69. International Monetary Fund, Washington DC.
- Comunale, M., and G. Felice. 2022. "Trade and structural change: An empirical investigation." *International Economics*, 171, 58-79.
- Comunale, M., J. Dainauskas and P. Lastauskas. 2022. "." International Monetary Fund, Washington DC.
- Dekle, R., J. Eaton, and S. Kortum. 2007. "Unbalanced trade." *American Economic Review*, 97 (2):351–355.
- Fajgelbaum, P., P. Goldberg, P. Kennedy, A. Khandelwal. 2020. "The Return to Protectionism." *Quarterly Journal of Economics*. 135(1):1–55.
- Fajgelbaum, P. and A. Khandelwal. 2022. "The Economic Impacts of the US-China Trade War." *Annual Review of Economics*, 14: 205–28.
- Fally, T., and J. Sayre. 2019. "Commodity Trade Matters." NBER Working Papers 24965, National Bureau of Economic Research. Accessed September 26, 2023. [Link](#)
- Gerson, P., M. Ravallion, and S. Chen. 2022. "Pandemic, Prices, and Poverty." World Bank Blogs, September 26. Accessed September 26, 2023. <https://blogs.worldbank.org/opendata/pandemic-prices-and-poverty>
- Goes, C., E. Bekkers. 2022. "The Impact of Geopolitical Conflicts on Trade, Growth, and Innovation." WTO Staff Working Papers ERSD-2022-9. World Trade Organization (WTO), Economic Research and Statistics Division.
- Hallward-Driemeier, M., & G. Nayyar. 2017. "Trouble in the making? The Future of Manufacturing-Led Development". World Bank Publications.

- International Energy Agency. 2023. Critical Minerals Market Review 2023. July 2023. IEA, Paris. [Link](#).
- International Monetary Fund. 2011. Regional Economic Outlook for Sub-Saharan Africa. International Monetary Fund, Washington DC. April 2011.
- International Monetary Fund. 2022a. Regional Economic Outlook for Sub-Saharan Africa. International Monetary Fund, Washington DC. October 2022.
- International Monetary Fund. 2022b. Regional Economic Outlook for Asia and the Pacific. International Monetary Fund, Washington DC. October 2022.
- International Monetary Fund (IMF). 2022c. "Building A More Food-Secure Sub-Saharan Africa." In Regional Economic Outlook: Sub-Saharan Africa— Living on the Edge. International Monetary Fund, Washington, DC. October 2022.
- International Monetary Fund. 2023a. Geoeconomic Fragmentation and the Future of Multilateralism. International Monetary Fund, Washington DC. [Link](#)
- International Monetary Fund. 2023b. World Economic Outlook. International Monetary Fund, Washington DC. April 2023.
- International Monetary Fund. 2023c. Trade Integration in Africa – Unleashing the Continent’s Potential in a Changing World. International Monetary Fund, Washington DC. [Link](#)
- International Monetary Fund. 2023d. Regional Economic Outlook for Sub-Saharan Africa. International Monetary Fund, Washington DC. October 2023.
- International Monetary Fund. 2023e. "Geoeconomic Fragmentation: Sub-Saharan Africa Caught Between the Fault Lines." In Regional Economic Outlook: Sub-Saharan Africa—The Big Funding Squeeze, Washington, DC, April 2023.
- Javorcik, B., L. Kitzmueller, H. Schweiger, M. Yildirim. 2022. Economics Costs of Friend-Shoring. European Bank for Reconstruction and Development.
- Loungani, P., S. Mishra, C. Papageorgiou, and K. Wang. 2017. "World trade in services: Evidence from a new dataset". International Monetary Fund, Washington DC.
- Mlachila M., A. Jidoud, M. Newiak, B. Radzewicz-Bak, and M. Takebe. 2016. "Financial Development in Sub-Saharan Africa: Promoting Inclusive and Sustainable Growth." Departmental Paper No. 2016/011, International Monetary Fund, September 14, 2016.
- Okou, C., J. Spray, J., and F. Unsal. 2022. "Staple Food Prices in Sub-Saharan Africa: An Empirical Assessment." IMF Working Papers, WP/22/135. International Monetary Fund, Washington DC.
- Organisation for Economic Co-operation and Development. 2020. OECD Statistics on International Trade in Services. Volume 2019 Issue 2: Detailed Tables by Partner Country. OECD Publishing, Paris.



PUBLICATIONS

How Vulnerable Is Sub-Saharan Africa to Geoeconomic Fragmentation?

Working Paper No. WP/2024/083