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FROM SANCTIONS TO SUPPLY CHAINS: RETHINKING GLOBAL FINANCE IN THE AGE OF WAR AND GEOPOLITICAL FRACTURES

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ABSTRACT

This paper explores the way sanctions and geopolitical fragmentation are hastening the revolution of international finance and trade. The study combines the Political Economy of Sanctions, Resilience and Sustainability Theory, and Global Value Chain Disruption Theory and relies on qualitative case studies of Russia, Iran, and Sub-Saharan Africa. The information was collected based on IMF data, national policy papers, and development reports, which gave a complete overview of the financial flows, realignment of trade, and institutional adjustment. The results indicate that sanctions have led to the reorientation toward the financial system dominated by the West where countries are decreasing the dollar reserves, increasing the gold reserves, and creating alternative payment systems. The shift in trade of Russia towards Asia and the use of informal networks by Iran are an example of how the supply chains have been restructured to overcome external pressure. Nevertheless, these adaptations have equally brought in new dependencies and increased vulnerabilities in economies that depend on heritage industries and resource exports. Although Sub-Saharan Africa was not directly hit by sanctions, it was indirectly affected by food price shocks and logistic

breakdowns. The paper concludes that the reconsideration of global finance should be based on the sustainability principles to prevent the further inequality growth and the erosion of development objectives. The roles of digital currencies, climate-linked trade shocks and financial inclusion in conflict-affected economies should be explored in future research.

KEYWORDS: Economic Sanctions, Global Finance Fragmentation, Supply Chain Resilience, Heritage Economies, Sustainable Development.

1. INTRODUCTION

This has been reflected in the last one decade where a sharp increase in the number of economic sanctions and supply chain disruptions has been observed following severe geopolitical tensions especially the Russia and Ukraine war and the worsening of the US and China trade rivalry [1]. Such dynamics have presented the fragility of the global value chains that in the past were maintained through liberal interdependence and assumption of friction free across border transactions [2]. The sanctions against Russia after annexing Crimea and further increased after the 2022 invasion of Ukraine affected the commodity trade, limited their financial activities, and hastened export destinations and chain of transportation [3]. The pandemic associated with COVID-19 proved once again the precariousness of the just-in-time supply system and the inability of some key industries to be dependent on a limited number of suppliers [4].

Simultaneously the world of global finance has experienced a radical restructuring of an architecture built around rules of multilateralism and collaborative coalitions into one that is both more multi-polar and strategic in its use of financial networks as a tool of statecraft [5]. One way in which scholars have characterized this trend is to reference what can be termed as a move towards weaponized interdependence whereby states can use central clearing mechanisms and cross-border payments infrastructure to extort their enemies [6]. The central banks and the supranational institutions are struggling to find their way in between sticking to the issue of regulatory neutrality and their initiatives to implement sanctions regimes that can have substantial developmental implications [7]. This trend of financial governance has destroyed predictability of investment, trade and development finance and presented crucial concern over resilience and sovereignty in economies which are highly dependent on external capital flows [8].

Whereas the sanctions as a tool of coercive diplomacy are well researched [9], its general effects on development, especially regarding resource-contributing and heritage-intensive economies, are not fully understood. Sudden sluice or deprivation of market, cross-border financial support and technological relationships can soon eliminate the pillars of economic strength leaving the advancements of poverty abatement and sustainability at danger [10]. At the same time, there is an indication of the development of fragmented trade routes as well as alternative payment solutions, which pose risks of deepening economic divides that

are not compatible with ensuring that Sustainable Development Goals (SDGs) are realized. This paper resolves this gap by studying sanctions and supply chain disruptors with a focus on political economy and concentration on sustainability and inclusivity.

1.1. Research Objectives

- Examine how sanctions and fractured supply chains affect global finance and development sustainability.
- Assess the implications for economic heritage, regional financial sovereignty, and resilience.

1.2. Research Questions

1. How have international sanctions reshaped financial flows and supply chain strategies?
2. What are the sustainability implications for economies heavily dependent on heritage industries or natural resources?
3. What alternative financial or trade mechanisms are emerging in response?

The study offers a contribution to a composite picture of sanctions, supply chain, and sustainable development because it complements the knowledge of international political economy, development studies, and financial governance [11]. The results relate to the attainment of SDG 8 (decent work and economic growth), SDG 9 (industry, innovation and infrastructure) and SDG 16 (peace, justice and strong institutions) [12]. Besides, the analysis provides useful lessons to policymakers, development institutions, and regional organizations that have to meet geopolitical demands and obligations to overall recovery and resilience [13]. Presenting the perspective of economies of having to navigate the systemic shocks to heritage industries and strategic supply chains, this paper identifies the need to reconsider the paradigm of financial architecture and trade policies in the era of ongoing volatility and multipolar competition.

2. LITERATURE REVIEW

This body of the literature on economic sanctions has changed a great deal in the last few decades, relating not only to the classical arguments over whether economic sanctions are effective tools of statecraft but also to wider and more humanitarian and developmental effects. Initial studies tended to focus on sanctions as coercive instruments of diplomacy to effect policy change through economic distress of the target state. Recent studies have however revealed that sanctions usually yield undesired results such as consolidation of authoritarian regimes and interference with

livelihood in vulnerable societies [14]. This school of thought has led to the need of scholars to observe the interaction between sanctions regimes and the sustainable development, especially those economies whose traditional industries and cultural heritage comprise core of the economy in terms of employment and export revenues [15].

Meanwhile, researchers have turned to the changing architecture of international finance as a result of weaponization of financial infrastructure. The growing dependence on the international payments system as a means of geopolitical coercive power has given the globe worries regarding predictability and fairness of financial rule [16]. As an example, the removal of the Iranian and Russian banks from the SWIFT system was discussed as a pivot in the financial flows politicization and it has shown how a strategically segmented case can stir across the trade, investment, and monetary policies [17]. Such tendency highlights the rise of multipolarity in the financial systems and alternative channels created to bypass the western-dominated ones, such as bilateral currency swaps, regional settlement mechanisms and digital payment solutions [18].

The literature on supply chain vulnerability within a conflict zone has equally become quite active in the recent past. Global value chains where efficiency and cost savings were previously touted as one of their primary advantages have gradually been identified as creating systemic risk, especially given geopolitical upheavals in the delivery of critical products [19]. Origins of the COVID-19 pandemic and the Russia Ukraine war have drawn attention to how grain, energy and technology supply chains disruption can cause spill over effects on food security, inflation and political stability [20]. Such observations have played into arguments about friendshoring and regional diversification as a resiliency tool, although it is also possible to see half of the evidence pointing to friendshoring and regional diversification as cost-raising and leading to heightened inequality in smaller economies [14].

In this respect, researchers have stated that financial sanctions are not only economic interventions, but they represent a small fragment of an assemblage of regulatory and normative practices reconstituting international order [15]. In development economists, there is fear that prolonged sanctions may demolish the social basis of development especially in places where the heritage industries and smallholder agriculture form an important livelihood [16]. This fear has been cemented on the basis that sanctions may cut off

access to climate finance, slow the spread of sustainable technologies, and scuttle efforts to achieve Sustainable Development Goals [17].

Another area that is of interest is the role that sanctions play in terms of the informal economic networks. There is a resultant emergence in numerous sanctioned economies of elaborate barter systems, informal credits as well as regional trade arrangements that exist independently of traditional financial systems [18]. Although these changes may limit some sources of short-term consumption and production fluctuations, they may hamper transparency, regulatory competence, and inequality [19]. To pick an example, the informal trade networks in Iran have been the topic of research finding a rise in transaction cost and loss of accountability in industries vital to economic resilience caused by the use of opaque intermediaries [20].

Moreover, high degrees of scholarly resistance have been raised in favor of a subtle view of the impacts that sanctions, supply chain upheavals have on growth paths. On one hand, some economies have taken opportunities in using crises to fast-track innovation and boost domestic production, and on the other, others have languished in the stagnatory inertial patterns of dependency [14]. The difference in results highlights the strategic role of institutional capability, good governance and regional collaboration in tempering the developmental shock of external shocks [15].

Generally, this literature body explains that sanctions, financial fragmentation, and supply chain vulnerabilities are processes that are entangled because they combine forces to redefine the future of sustainable development. Nevertheless, an integrative study that puts these dynamics into a coherent framework of analysis toward resilience, sovereignty, and heritage economies is still necessary [16]. This article develops them by exploring extensively the nature of geopolitical fissures that destabilize existing trends in the global financial and trade trends and determine their ramifications upon the process of development in countries that are extremely vulnerable to debt financing and foreign investments [17].

3. CONCEPTUAL FRAMEWORK

3.1. Integrated Approach

The proposed study will use an integrated conceptual approach concerning three complementary views to explain how sanctions and geopolitical cleavages re-define development and financial trajectories across the world. Both theoretical strands provide unique perspective

through which to view the behavior of states, their process of institutional change and reconfiguration of trade systems in the conditions of prolonged external pressure.

The Political Economy of Sanctions gives a base of the study of the formation of economic coercion of the states to follow geopolitical goals and affect policy decisions of target states. The approach emphasizes the interaction of state forces and markets and clarifies the possibility of sanctions to provoke tactical action between firm financial policy and the establishment of parallel banking systems. This is partly because by considering sanctions not as discrete policy instruments but rather as a part of a whole cluster of regulatory techniques and normative projects that recreate international order, this addresses sanctions as embedded in a wider system of modes of regulation. It also highlights the unintended effects of economic warfare such as the degradation of regime trust, the entrenchment of black markets and the readjustment of trade ties in manners that supersede the original crisis.

Going further, the Resilience and Sustainability Theory provides an insight on how various institutions, economies, and infrastructures respond to shocks within timeframes. Such view focuses on how systems can be characterized by their ability to absorb the effects of disruption, rearrange functions on a systemic level and be persistently stable without

losing long-term sustainability. Considering the sanction and supply chain disruptions, resilience is not only survival but can reorganize production systems, in protecting social welfare and maintaining developmental process. The sustainability theory also highlights the possible trade-offs of crisis adjustment to include whatever may go wrong like the threats of environmental degradation, inequality and cultural loss where resilience measures are placed on the primary economic security with little attention on inclusive growth.

Lastly, the Global Value Chain Disruption Theory gives an account of the transmutation of the organization of the international production and place of trade with conflicts and sanctions. The thinking serves to demonstrate that the dependence on globalized supply networks can generate resiliency and fragility at the same time, whereby essential inputs are concentrated within the few nodes that are highly exposed to geopolitical shocks. It is also related to the disruption theory which places emphasis on the the processes of trade localization and reconfiguration as companies as well as states attempt to shorten reliance on contested paths and markets. It underlines that although the improved stability can be achieved through diversification strategies, they may entail the expense of the additional transaction complexity and loss of economies of scales.

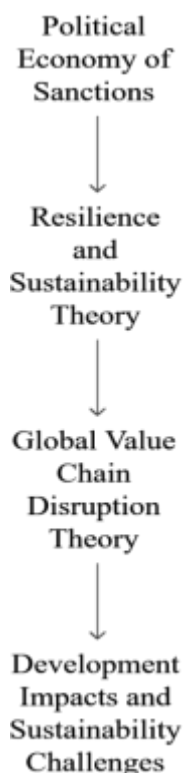


Figure 1: Integrated Conceptual Framework for Sanctions.

In Figure 1. The combined conceptual map of the relationships between state-led sanctions, resilience strategies, and global value chain disruptions in the development pathways.

3.2. Model Application

The combination of these three approaches makes up an extensive analytical framework which informs this research. Political Economy of Sanctions framework sheds some light on the intentions underlining the use of coercive action, as well as the counter actions it causes. The theory of Resilience and Sustainability assists in explaining the reason why certain economies can keep vital operations in case of long periods of isolation intact and developmental gains intact whereas others fail to sustain the system. The theory of Global Value Chain interruption gives a window to follow the way trade movements and production configurations reorganize economic dependencies and create new forms of vulnerability.

This model used together would allow conducting a layered examination of the economic restructuring after a sanction. It represents not only macro changes in the rebalancing of the financial systems, but also the micro, that of the reorientation of firms and communities under disrupted supply chains. It is also conducive to making a critical evaluation of whether new adaptation strategies will be acculturated to the ideals of sustainable development, regional collaboration and preserving heritage. By combining all these approaches, the research will provide a subtle idea of how the geopolitical rifts are reshaping the field of global finance and trade, further reaching beyond the frames of the active conflict and sanctions.

4. METHODOLOGY

4.1. Research Design

The research goes by a qualitative case-based research design to explore and examine how sanctions and geopolitical rifts reorganize worldwide finances, trade patterns, and development patterns in the subject economies. Due to its ability to embrace multiple types of evidence and account of the dynamics of economic restructuring occurring over time under the external pressure, a case-based approach is particularly good to use in this particular context and provide an integration of historical, institutional, and quantitative evidence as a part of a coherent analytical story.

4.2. Data Sources

The study is mainly based on secondary data provided by global organizations in authority, policy documents, and scholarly journals.

The empirical basis of the given analysis has been developed based on the data and resources introduced below:

- **IMF Direction of Trade Statistics (DOTS):** This gives information on bilateral patterns of trade flows in order to track the changes export and imports habits before and after sanctions and disruptions caused by conflicts.
- **IMF Balance of Payments Statistics (BOPS):** The IMF provides current account balances, changes in reserve assets and flows of capital, which demonstrate how financial exclusion and reallocation of reserves affect its members.
- **IMF International Financial Statistics (IFS):** Contains data on exchange rate developments, inflation indicators, and money aggregates to provide a set of contexts of macroeconomic volatility that occur during sanctions.
- **IMF Financial Access Survey (FAS):** Provides the quantitative measures of domestic financial infrastructure, e.g. the volume of commercial bank branches and automated teller machine (ATM), to measure resilience of financial inclusion.
- **IMF World Economic Outlook (WEO):** The report provides a time-series data of annual changes in percentages in exports and imports so one can identify the direction of the trade fall and subsequent upgrade simply.
- **UNCTAD and World Bank reports:** Support IMF data by providing ideas on development, trends of investment and sectoral vulnerability.
- **National Policy Papers and Central Bank Publications:** Offer specific information on the environment on the strategies of economic adaptation, regulatory changes, and domestic policies in response.

Value added analysis of these sources allows a detailed analysis of the quantitative trends of the inquiry as well as the qualifying dynamics of the policies linked to the cases.

4.3. Case Selection Criteria

The selection of cases was based on purposive criteria to demonstrate the variance in the magnitude of sanctions, the extent of financial exclusion, and the magnitude of heritage industries to economic resilience. The criteria used are:

- **Long-term exposure to sanctions:** Just those countries have been selected where multi-year

sanctions regimes had been imposed so that it could be determined whether structural adaptation took place over the years.

- **Heritage effectiveness (economically):** Cases were selected in which conventional industries or export cultural sectors have the centre of employment and identity.
- **Data availability:** Only those countries were included into consideration in which enough financial and development indicators could be found among the IMF and related institutional databases.
- **Geopolitical significance:** Contingent cases incorporate varying regional settings and geopolitical associations to increase the level of generalizations of results.

The use of these criteria identified Russia, Iran, and a group of Sub-Saharan African economies only indirectly reflected by the Russia-Ukraine conflict.

4.4. Analytical Approach

The patterns of adaptation across the chosen cases are identified and interpreted by using thematic content analysis and descriptive statistical analysis in the research.

The methodological procedures entail:

1. **Compilation of Trade and Finance Data:**
 - Extraction of DOTS datasets allowed to trace the changing levels in terms of trade volume and exports and imports redirection annually.
 - The analysis of balance of payment trends and the growth rates in trade were analyzed using BOPS and WEO datasets.
 - To identify the change in domestic financial service structure o FAS indicators were examined.
2. **Contextual Analysis:**
 - National policy documents and the reports of the central bank were analyzed to get an idea about country responses to sanctions and supply chains disruptions.
 - UNCTAD and the World Bank development indicator were also incorporated to test the implication on poverty reduction and sustainability.
3. **Comparative Synthesis:**
 - Results of the individual cases were synthesized to have an overview of the similarities in ways of resilience and deviations in the outcome.
 - The outcomes were analyzed in terms of the combined conceptual framework entailing the Political Economy of Sanctions, Resilience and Sustainability Theory, and Global Value Chain

Disruption Theory.

4. Visual Representation:

- To demonstrate the volatility of trade, time-series charts were drawn based on data of export and import growth of WEO.
- Descriptive tables were prepared to provide major macroeconomic measures and structural transformations in supply chains organizations.

5. CASE STUDIES AND RESULTS

This portion provides exact case studies of Russia, Iran, and Sub-Saharan Africa to present how sanctions, monetary exclusion, and supply events have redesigned economic forecasts, monetary policies, and development. And as well This portion gives the results of the investigation of the chosen cases, Russia, Iran, and Sub-Saharan Africa, using information of international monetary financial funds, national policies also, and affiliated institutional information. The findings show the impacts and repositioning of trade flows, financing systems, and institutional strength by sanctions and supply chain interruptions.

5.1. Case Study 1: Russia (2014–Present)

Sanctions on Russia after the annexation of Crimea in 2014, and sanctions following the invasion of Ukraine in 2022, turned out to be a watershed in the history of economic statecraft. One of the most notable included the partial disconnection of large Russian banks to the software platform SWIFT interbank payments system that severely limited the cross border financial transactions that prompted a search of a new alternative financial infrastructure. Russia in turn has deepened its relations with the BRICS financial bloc, preferring to settle trades in local currencies and contributing to talks of creating common reserve fund that would be capable of avoiding dollar-based systems of payment settlement. This portfolio diversification of reserves involved cutting the percentage of USD and euro holdings and of raising allocations to gold and yuan. Russia commodities were also seriously affected by the sanction's regime. Other countries had to avert an oil and gas export crisis due to sharp contracting of markets in Europe that caused quick shifts in trade flows to China and India. The IMF Direction of Trade Statistics shows that by 2022 the portion of Russian goods that was targeted towards the Asian market rose to over 54 per cent since it was about 36 per cent in 2018. Such adjustment required new investments in pipeline, port infrastructure and overland transport corridors. Agricultural exports, especially

the export of wheat, were also subjected to bottlenecks of logistics and fluctuation of the foreign exchange earnings which also indicates intensification of geopolitical and fragility of the commodity dependent economies with regard to unexpected disturbances.

5.2. Case Study 2: Iran

The case of Iran is one of the most protracted and broadest in the modern history under economic sanctions. There have been back-to-back waves of restrictions on oil, banking system, and importation of technology since the revolution in 1979. These pressures were further heightened when Iran was excluded by the SWIFT service, and US secondary sanctions were re-imposed in 2018, basically cutting Iranian banks out of the international financial system. Iranese responded to this by developing a thick layer of informal trade and barter agreements in order to keep imports to a critical level and continue some export activity through regional cooperation and middlemen and women.

This process of informalization of trade was coupled by tremendous changes in domestic market dynamics. The declining European demand brought heritage industries such as Persian carpets, saffron, and handmade craft industry to focus on regional and diaspora markets. Although these adjustments meant the maintenance of some level of work and cultural consistency, there also emerged new challenges pertaining quality assurance, market fragmentation, and the loss of high-end export markets.

Markedly, the long isolation also fuelled innovation and local manufacturing of some industries. Government and the private industries invested in local productions of pharmaceuticals, petrochemicals, and agricultural inputs in order to limit its reliance on unstable external suppliers. Such efforts were partly successful but limited by lack of technology and capital access as well, depicting how enforced self-reliance is a matter of trade-offs.

5.3. Case Study 3: Sub-Saharan Africa (Conflict-Adjacent Impacts)

The RussiaUkraine conflict created significant spillover effects, which revealed structural weaknesses in most Sub-Saharan African economies, though they were not directly hit by the sanctions.

Most African nations depend on the grain imports of Russia and Ukraine, and Black Sea shipping is also the primary way of transporting grain-based products to Africa, creating the direct food security crises. Regional reports indicate that skyrocketing wheat and fertilizer prices added to other pressures of drought, inflation and fiscal limits.

This uncertainties in the world commodity markets because of the crisis triggered a few governments to re-think of the reliance on long supply chains on basic staples. Policy responses in turn began to focus more on the returned use of more conventional agricultural methods, regional investment in local food production and regional storage infrastructure. The re-localization, besides improving the resilience, also sought to impact the social unrest that normally followed food price shocks.

One of the most important regional coordination frameworks became the African Continental Free Trade Area (AfCFTA). Efforts towards streamlining tariffs, refining logistics infrastructure and easing intra-African trade was fast-tracked and this came as a realization that overdependence on far-flung suppliers amounts to building systemic risks. Nonetheless, the progress is uneven throughout the region, which is limited by its fiscal capacity, issues of governance, as well as the lack of external funding to finance infrastructure improvements.

These cases taken together show one coherent theme to adaptive strategies: they all diversified trading partners, invested in their own production and tried to build alternative sources of finance. However, at the same time, they leave one to reflect on unresolved dilemmas, such as how to continue the development process, preserve heritage industries, and safeguard food systems in the age of weaponized interdependence and globalization stitching.

5.4. Trade Flows and Supply Chain Realignment

Russia external trade illustrate that in 2022; the contraction of exports and imports was significant after the increase in sanctions. The activities of trade have experienced medium fluctuations in the past, although trade so far regained a bit in 2021 as the pandemic-related disturbances ended. But with the successive curbs on finances and logistics, exports were highly hit as well as imports were much reduced.

Table 1. Russia Annual Export and Import Growth Rates (%)

Year	Export Growth (%)	Import Growth (%)
2019	-3.3	+2.8
2020	-4.4	-11.8
2021	+0.6	+16.6

2022	-8.4	-13.9
2023	-11.6	+7.1
2024*	-2.0	+17.7

The table 1 reveals in the above that exports decreased drastically in the year 2022, also experiencing reductions after that period in the year 2023, whereas imports were volatile with a sharp decline and a recovery as well. This tendency means sanctions did not only affect the current trade flows but they also established constant uncertainty hampering recovery.

After such steps, Russia fast tracked the realignment of exports of energy and strategic commodities towards the Asian countries. The diversification of export corridors allowed reducing the reliance on the European markets as buyers and introduced new logistical channels and payment systems. Simultaneously, importers experienced

difficulty gaining access to essential inputs caused by the currency curbs and limitations in shipping insurances, leading to attempts of seeking alternative sources of such supplies with the assistance of intermediaries within the region.

5.5 Balance of Payments and Reserve Assets

Review of external asset holdings indicates calculated policy implementations to transform reserve make ups in Russia and Iran (Table 2). The ratio of reserves in US dollar decreased, even though the presence of gold as well as other currencies was slightly increased to secure sovereign assets against the possibility of freezes and seizures of assets.

Table 2: Reserve Asset Composition, Selected Years.

Country	Year	USD Reserves (%)	Gold Reserves (%)	Other Currencies (%)
Russia	2019	46.0	20.0	34.0
Russia	2022	39.0	25.0	36.0
Iran	2019	60.0	15.0	25.0
Iran	2022	48.0	22.0	30.0

The trend is a tactical change to circumvent portfolios and create a stronger barrier to curb global sanctions. These realignments also affected the domestic monetary policy where the central banks embarked on a project aimed at stabilizing the exchange rates against external forces.

5.6 Financial Access and Institutional Resilience

The research was conducted to measure the responsiveness of financial systems to isolation with indications of measuring financial access and structural capacity in a country where sanctions lasted long, Iran. Core financial service networks continued to operate even with the external limitations and a few indicators reflected marginal growth.

Table 3: Selected Financial Inclusion Indicators, Iran (2016–2018).

Indicator	2016	2017	2018
Commercial Banks (number)	30	29	30
Automated Teller Machines (ATMs)	43,924	47,374	54,765
Insurance Corporations (number)	29	32	32

In table 3 shows that the ATMs have also grown considerably showing that there was ongoing attempt to modernize payment system even with external restrictions as the number of commercial banks remained constant. Such adaptation would have contributed to keeping the trust of the population in domestic banking, but it would also demand the modification of the regulatory frameworks and supply chains of financial equipment.

5.7 Trade Diversification and Commodity Dependence

Comparison between the shares of Russian export destination prior and post sanctions escalation show that there is a significant change toward the abandonment of European markets. The policy pull and the demand push were the driving factors of the reconfiguration because conventional consumers bought less and logistical restrictions increased.

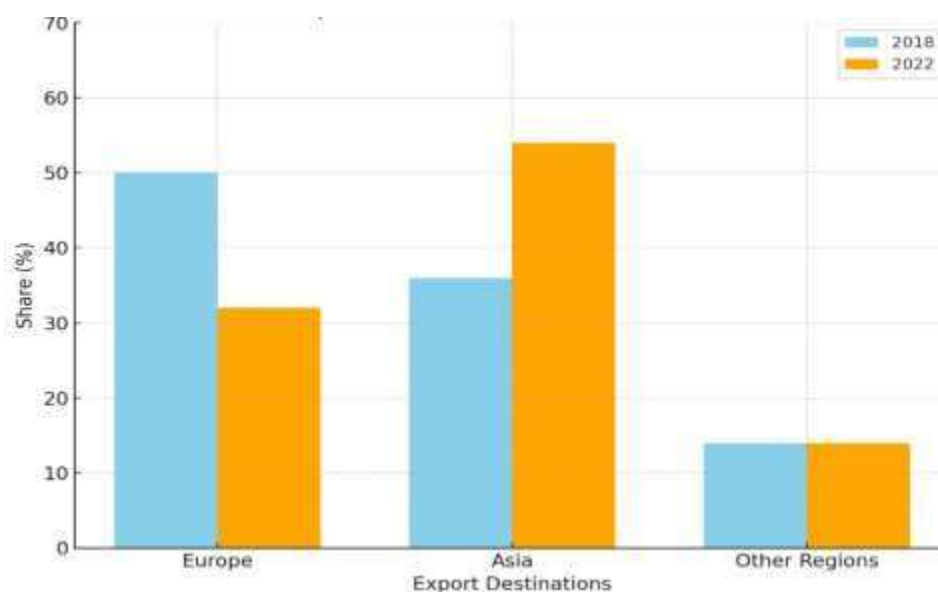


Figure 2: Bar Graph: Russia's Export Destination Shares (2018 Vs. 2022).

In figure 2 The bar graph will represent how patterns of exports of Russia have changed since 2018 to 2022. During this time, the proportion of exports to Europe also dropped drastically by two thirds to 32 percent and the proportion of exports to Asia went up by sizable margin by two thirds to 54 percent. The export to other regions was not changing too much. This massive shift in trade to Asian markets came along with investments in new transportation routes and putting in place trade finance arrangements to ensure continued supply of oil, gas and agricultural products. Nevertheless, such redirection has brought

about higher transaction cost and made Russia rely on fewer number of buyers.

5.8. Trade Volatility Over Time

The richness of the geopolitical shocks introduced in conjunction with pandemic shocks is reflected in data showing annual growth in trade. Export and imports have been rising and falling drastically in the period between 2016 and 2023, with some areas recovering but in a generally volatile state.

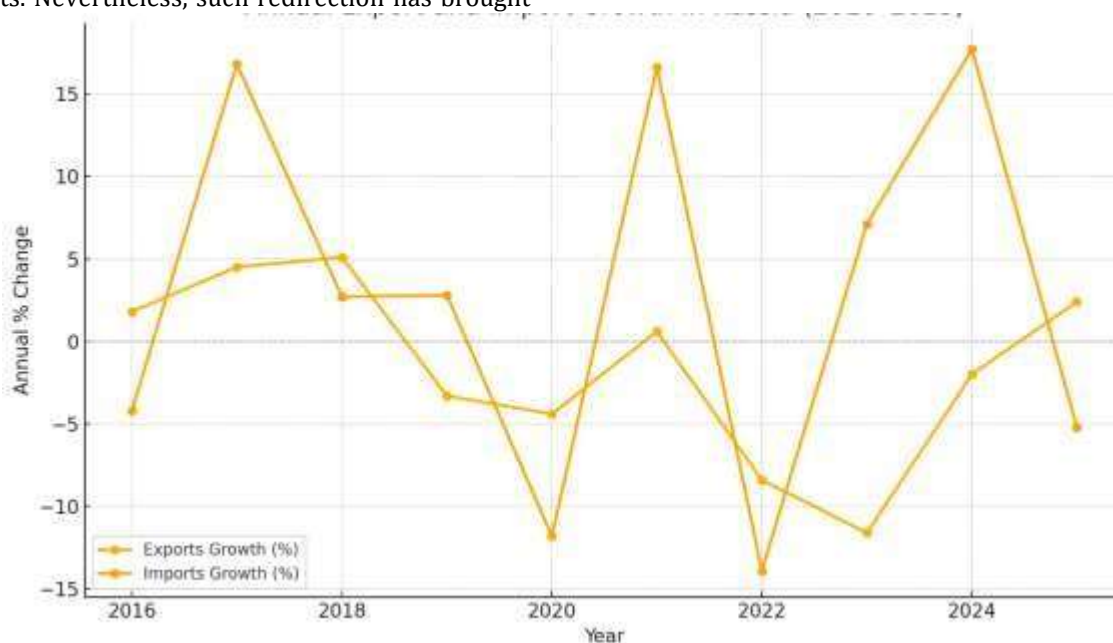


Figure 3: Line Chart: Annual Export and Import Growth in Russia (2016-2025).

Figure 3 presents the line chart illustrating that

Russian exports are showing moderate development

until 2020, after which they dropped in connection with the pandemic, then slightly improved in 2021, and shrank by a substantial margin in 2022. By contrast, imports were even more volatile, falling sharply in both 2020 and 2022, and followed by sometimes inconsistent recoveries. This trend underlines how sanctions aggravated pre-existing weaknesses in the trade regime and resulted in cyclical episodes of contraction and partial stabilization that will probably continue into the medium term.

5.9. *Synthesis of Findings*

On balance, there is proof that sanctions and geopolitical divisions have initiated significant realignment of trade, change in the administration of reserves, and discretionary change of financial infrastructure. The reaction of Russia and Iran to the externalities included mixing trading partners, making shifts in the reserves, and maintaining the main financial services by using the internal modernization and informal links. Though these actions neutralized certain short-term dangers, they also created additional dependence and the artificial nature of economies dependent on super-concentrated export markets and supply chains.

The indirect impact experienced by the Sub-Saharan African economies involved in the study was associated with increased food import prices and logistical problems since the shortage of grain and shipping delays were observed. Such pressures increased weaknesses in areas that had low fiscal abilities to absorb external shocks.

In combination, the findings affirm the theoretical framework, and that the combination of the elements of geopolitical disruption, financial fragmentation, and supply chain reconfiguration results in sustainable structural changes. This highlights the adequacy of creating policies as well as support systems that are capable of balancing between short-term stabilization and long-term sustainability and inclusion.

6. DISCUSSION

6.1. *Comparative Analysis*

The case analyses of Russia, Iran, and Sub-Saharan Africa indicate the convergence of systems and the key divergences in the adaptation of an economy to sanctions and geopolitical rifts

- **Commonalities**

Throughout the whole setting, there is a clear tendency overall of becoming financially independent and trade redistribution. Russia and Iran re-balanced the structures of reserves,

decreasing the dollar-based assets and rising the volume of gold and other currencies [2]. The two nations created other payment systems and local settlement schemes to lesser the risk of being exposed to the Western dominated systems [3]. In Sub-Saharan Africa, regional agreements were examined to stabilize importation of food by their governments [19]. Both situations also exhibited the attempts to diversify trade relations and enhance the production at the domestic level.

- **Differences**

Besides these parallel patterns, two major disparities were witnessed in the ability of institutions to uphold resilience and innovation. More proficient adjustment and up-sizing of substitute trade routes was possible due to Russia operating a relatively large set of fiscal reserves and a well-developed industrial foundation [18]. By comparison, the historic reliance of Iran on informal networks and the use of barter relations created long-run risk elements in terms of transparency and regulatory control [16]. The economies of Sub-Saharan Africa, not being on the list of direct sanction targets, nevertheless experienced indirect interference with a scarcer number of fiscal and institutional resources available to enable effective responses [19].

6.2. *Broader Implications*

Restructuring of global finance and trade implies immense significance of the development priorities and institutional stability [6]. The predictability of cross-border transactions is being damaged by economic and financial fragmentation and financial decoupling and raising the cost of compliance of businesses [8]. The shrinking in the size of trade and a subsequent re-allocation of reserves witnessed in Russia and Iran are examples of the wider dangers of being over-reliant on the Western financial structure [3].

Simultaneously, new opportunities with regard to regional cooperation and alternative trade patterns are on the rise to appear owing to the emergence of multipolar financial systems [5]. The emergence of the bilateral currency swaps, alternative payment systems and regionally based trade agreements is an indication of increasing opinion that diversification has become a requisite to resilience beyond what is given by older institutions of finance.

6.3. *Impact on Heritage Economies*

In heritage rich economies, the combination of sanctions, financial parcelling and disruption of supply chains poses new challenges [7]. The

traditional sectors, craft production and resource-based industries tend to rely on unchanging export connections and availability of special sources of input [10]. European demand for heritage industries had declined on Iranian carpets and handicrafts, which had to seek new customers in the region that are less predictable [18]. In the same way, Sub-Saharan African rural producers suffered fluctuations in the cost of inputs as well as export proceeds that are associated with the global cycling of commodity prices [19].

However, the bottlenecks also present an opening to localized sustainability projects and de-centralized trade instruments. The preservation of heritage economies under such changes ought to be an endeavor that comprises of relevant financial support, investments in modernized infrastructure, and protection of cultural assets.

the results highlight that the geopolitical divisions that shake up the current epoch are not temporary interruptions but the changes that alter the very mode of interaction between trade, finance, and development. The experience of the comparison between Russia, Iran and Sub-Saharan Africa show both dangers and compensatory strategies that are determining the lines of a multipolar world economy. The need to address the fact that such transitions contribute to resilience and sustainability will become one of the most burning tasks of policymakers and development practitioners in future years.

7. POLICY IMPLICATIONS

These findings show how this study brings the requirement of multi-level strategies that would work against structural consequences of sanctions and geopolitical fragmentation. The ideal policy response must neither only stabilize in the short-run nor only maintain long-term sustainable development, cooperation in the region and resilience.

7.1. For Sanctioned States

- **Build Internal Financial Infrastructure and Regional Trade Ties**

States under continuing sanctions have tried to put more resources into domestic systems of payment and alternative settlement methods to limit their publicity to overseas disturbances [3]. The regional trade agreements should be expanded to increase exports markets and more reliable supply chains in times of geopolitical tension [9].

- **Promote Innovation in Traditional and Heritage Industries for Domestic Resilience**

This has been proved because heritage industries tend to meet sudden contractions under sanctions since the market tends to be closed and the costs of transactions increase [18]. Some economies have been able to retain cultural exports and thread employment through the support of modernizing and product certification [10].

7.2. For Global Policymakers

- **Avoid Over-Reliance on Coercive Economic Tools That Jeopardize Development Goals**

There is evidence that shows that widespread sanctions may destroy efforts to decrease poverty and destroy vital services in the state of interest [4]. The use of humanitarian exemptions as well as the introduction of transparent processes of monitoring can assist to reduce unintentional effects against the civilians [13].

- **Encourage Cooperative Trade Mechanisms That Support SDGs**

At the multilateral level the development finance flows and access to essential imports have been highlighted by the institutions at the time of crisis [15]. Readjusting terms of trade and aligning them with Sustainable Development Goals may be used to enhance resilience of fragmentation-affected economies [12].

7.3. For Development Institutions

- **Support Alternative Financial Systems and Innovation in Supply Chain Resilience**

Strength in enhancing stability during sanctions has also been apparent in programs to increase digital payment systems and regional financial infrastructure [5]. Technical support and concessionary financing has been efficient in aiding such transitions [16].

- **Assist Post-Sanction States with Re-Integration and Heritage Economy Revival**

It has been found that re-integration initiatives are most effective where they incorporate some form of targeted credit support as well as export facilitation [17]. Heritage industries can be revived through investments in skills and market links to restore capacity to produce [7].

In these policy suggestions, the given issues of the geopolitical thinking should be balanced against the values of the sustainable development, inclusive growth, and cultural preservation. To achieve this, national governments, international, and development agencies will need to work collaboratively into designing a set of effective responses that can support resilience in a world where the global economy is becoming increasingly

divided.

8. CONCLUSION

This paper has discussed that through sanctions and geopolitical fragmentation the reconfiguration of global finance and trade is increasing at a rapid rate. The case evidence provided on Russia, Iran, and Sub-Saharan Africa evidences that there are some drastic changes in the financial strategies under long-term economic coercion such as reserve diversification, alternative payment systems, its elaboration, regional realignment in trade. Although such adaptations have the potential of enhancing resilience in the short-term, it also breeds some new dependencies and reveals some structural weaknesses especially in the economies that rely on commodity exports and heritage industries.

The discussion brings out that sanctions are diplomatic tools of pressure, and agents of systemic change with far-reaching implications of development. In many cases, traditional industries and artisan producers are more at risk than the rest of the market when market access shrinks and compliance become expensive. Concurrently, the

development of multipolar financial systems and the decentralized trade networks indicate a necessity to review traditional models of interdependence and regulatory coordination.

The need to reconsider global finance in the context of sustainability is becoming an urgent necessity and to make sure that the strategies of resilience do not increase the gap between the wealthy and the poor, as well as undermine long-term development objectives. The policymakers, development bodies and regional groupings need to formulate their own responses that attune the geopolitical agenda with the pledge of inclusive developments, cultural and environmental conservation.

In future studies, it is important to investigate how digital currencies are used to evade sanctions, the impact of climate-related trade oscillations to vulnerable economies, as well as the nature of financial inclusion in the war-torn territories. These kinds of insights will be vital towards the development of adaptive policies that could handle the intricacies of more fragmentation of the global order.\

REFERENCES

- A. Tooze, *Shutdown: How Covid Shook the World's Economy*. London, UK: Penguin UK, 2021.
- B. Eichengreen, *Globalizing Capital: A History of the International Monetary System*. Princeton, NJ: Princeton University Press, 2019. P. Oskarsson, K. Lahiri-Dutt, and P. Wennström, "From Incremental Dispossession to a Cumulative Land Grab: Understanding Territorial Transformation in India's North Karanpura Coalfield," *Development and Change*, vol. 50, no. 6, pp. 1485–1508, 2019. <https://doi.org/10.1111/dech.12513>
- C. He, A. Milne, and M. Zachariadis, "Central Bank Digital Currencies and International Payments," 2022.
- C. Zilioli, "The Role of Central Banks in the Application of International Financial Sanctions: The Case of the ECB and the Sanctions Against Russia," in *International Sanctions: Monetary and Financial Law Perspectives*, Brill Nijhoff, 2024, pp. 251–274. https://doi.org/10.1163/9789004705708_013
- D. Gabor and S. Brooks, "The Digital Revolution in Financial Inclusion: International Development in the Fintech Era," in *Material Cultures of Financialisation*, Routledge, 2020, pp. 69–82.
- D. Gasper, "Rethinking Human Development and/as Human Security for the Anthropocene: An Analysis of the United Nations Development Programme Trilogy of Reports 2020–2022," *Int. J. Soc. Qual.*, vol. 12, no. 2, pp. 1–24, 2022. <https://doi.org/10.3167/IJSQ.2022.120202>
- F. V. T. Volcker, "IMF Monetary Policy Doctrine and Practice," in *Oxford Handbook of the International Monetary Fund*, Oxford University Press, 2024, pp. 301.
- H. Farrell and A. L. Newman, "Weaponized Interdependence: How Global Economic Networks Shape State Coercion," *International Security*, vol. 44, no. 1, pp. 42–79, 2019. https://doi.org/10.1162/isec_a_00351
- I. Korhonen, H. Simola, and L. Solanko, "Sanctions, Counter-Sanctions and Russia: Effects on Economy, Trade and Finance," BOFIT Policy Brief, no. 4, 2018.
- J. D. Sachs, G. Schmidt-Traub, M. Mazzucato, D. Messner, N. Nakicenovic, and J. Rockström, "Six Transformations to Achieve the Sustainable Development Goals," *Nat. Sustain.*, vol. 2, no. 9, pp. 805–814, 2019.
- M. L. O'Sullivan, *Shrewd Sanctions: Statecraft and State Sponsors of Terrorism*. Lanham, MD: Rowman & Littlefield, 2004.
- M. R. Farzanegan and E. Batmanghelidj, "Understanding Economic Sanctions on Iran: A Survey," *The Economists' Voice*, vol. 20, no. 2, pp. 197–226, 2024.
- N. T. Owusu-Pepurah, "World Development Report 2022: Finance for an Equitable Recovery," *World Bank*

- Publications*, Washington, DC, 2022.
- P. Antràs, "De-globalisation? Global Value Chains in the Post-COVID-19 Age," Natl. Bureau Econ. Res., Working Paper No. w28115, 2020.
- R. Baldwin, *The Great Convergence: Information Technology and the New Globalization*. Cambridge, MA: Harvard University Press, 2016.
- R. Saner, "The WTO, Climate Change and Sustainable Development," *Int. J. Sustain. Dev.*, vol. 27, no. 4, pp. 501–525, 2024. <https://doi.org/10.1504/IJSD.2024.140704>
- S. E. McWilliam and B. B. Nielsen, "Global Value Chains and Development: Redefining the Contours of 21st Century Capitalism: Gary Gereffi Cambridge University Press, Cambridge, 2018," *J. Int. Bus. Stud.*, vol. 51, no. 8, pp. 1451–1453, 2020.
- S. Kvasha, P. Andrei, M. C. Mancini, and V. Vakulenko, "Food Security in Ukraine Today's Conditions," *Int. J. Food Sci. Nutr.*, vol. 75, no. 6, pp. 622–636, 2024.
- T. G. Benton, A. Froggatt, L. Wellesley, O. Grafham, R. King, N. Morisetti, et al., "The Ukraine war and threats to food and energy security," *Chatham House – International Affairs Think Tank*, vol. 4, pp. 1–46, 2022.