The Ripple Effects of Red Sea Trade Disruptions: Energy Prices, Supply Chains, and Economic Growth in Emerging Markets

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Abstract

The Red Sea represented one of the most important maritime trade corridors connecting global markets and facilitating the transportation of energy resources and commercial goods. Recent geopolitical tensions and security challenges disrupted shipping operations in the region and raised concerns about their economic consequences for emerging markets. This study examined the effects of Red Sea trade disruptions on energy prices, supply chain performance, and economic growth. A quantitative research design was employed, and data were collected from a sample of 300 professionals working in international trade, logistics, supply chain management, and energy-related sectors. Statistical analysis was conducted using descriptive statistics, correlation analysis, and multiple regression techniques. The findings revealed that Red Sea trade disruptions significantly increased energy prices and negatively affected economic growth. Correlation results indicated strong relationships between Red Sea trade disruptions and energy prices ($r = .782$, $p < 0.01$) and between supply chain performance and economic growth ($r = .758$, $p < 0.01$). Regression analysis demonstrated that Red Sea trade disruptions exerted a significant negative effect on economic growth ($\beta = -0.341$, $p < 0.001$), while energy prices also negatively influenced economic performance ($\beta = -0.287$, $p < 0.001$). Supply chain performance emerged as the strongest positive predictor of economic growth ($\beta = 0.428$, $p < 0.001$). The regression model explained 71.6% of the variation in economic growth ($R^2 = 0.716$). The study concluded that maritime trade disruptions posed substantial economic challenges by increasing energy costs and weakening supply chain efficiency. Strengthening energy security, supply chain resilience, and trade route diversification remained critical for supporting sustainable economic growth in emerging markets.

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Keywords: Economic Growth, Emerging Markets, Energy Prices, Red Sea Trade Disruptions, Supply Chain Performance, Trade Resilience

Introduction

The Red Sea was one of the most significant maritime routes for global trade, linking Asia, Europe, and Africa via the Suez Canal. It was an important trade route, handling some 12-15% of global trade and a significant share of oil and liquefied natural gas (LNG) exports. Escalating geopolitical tensions and security incidents in 2023 and 2024 disrupted shipping in the Red Sea, prompting many ships to reroute around the Cape of Good Hope. Diversions resulted in delays in shipping, increased freight, insurance, and operational costs in international supply chains. The Red Sea crisis disrupted shipping networks and had significant consequences for maritime connectivity, port operations, and trade efficiency (Khan et al., 2024; Wang et al., 2025). The chaos created raised significant questions about the resilience and fragility of global trade networks and their impacts on the economies of the developing and emerging world.

Maritime trade was disrupted not just in trade itself, but it also had a direct impact on the world energy markets. Energy imports were a major factor for emerging economies, making them even more sensitive to other transport costs and supply uncertainty. Research suggested that disruption to key shipping lanes led to price volatility of energy, as it increased the costs of logistics operations and decreased energy distribution systems' efficiency (Yadav & Mahalik, 2024). The Red Sea trade disruptions also caused significant operational hardships for companies in their supply chains. This reduced supply chain efficiency, caused shipping delays, created congestion at alternative ports, and increased the uncertainty faced by manufacturers and retailers. Research has shown that geopolitical risks negatively impact supply chain resilience by disrupting logistics infrastructure, causing freight rate volatility, and decreasing operational efficiency at critical logistics nodes (Li et al., 2026).

Background of Study

International transport by sea provided the lifeline of global trade, supplying goods, energy resources, and industrial inputs to land, connecting continents. The Red Sea and Suez Canal route became an important trade route connecting Asia's manufacturing centers with Europe and Africa. The importance of this route increased, as it eliminates distances to be travelled by sea and reduces transportation costs compared with other routes around Africa. Maritime conflicts and security issues in 2023 and 2024 jeopardized the security and continuity of this sea lane, revealing weaknesses in the transport system (Khan et al., 2024).

The disruption of sea travel had an immediate effect on global supply and distribution chains. Advanced supply chains were run using very different, highly interconnected networks, requiring timely supply and regular transport timetables. The Red Sea crisis also intensified shipping congestion, delivery delays, and stock shortages across various industries. Al Naimi et al. (2021) argue that supply chain resilience was a key factor in buffering the impact of unforeseen shocks, especially in emerging economies with relatively limited logistics flexibility.

Maritime disruptions also had a significant impact on energy markets, as a large share of oil and gas shipping worldwide traversed the Red Sea corridor. Higher transport and insurance costs, added to rising energy prices, increased market uncertainty. The former industries had to deal with rising production costs, and the latter governments faced inflationary pressures and energy security concerns. The research suggested a positive relationship between the dependency on imported energy and vulnerability to external shocks and transportation disruptions in emerging economies. The research found a positive relationship between the reliance on imported energy and vulnerability to external shocks and transportation disruptions in emerging economies. The scholars pointed out that geopolitical risks and sea disruptions posed substantial challenges to sustainable economic growth, as they negatively affected supply chain efficiency and increased economic uncertainty (Li et al., 2026).

Research Problem

The disruptions to the Red Sea trade caused significant problems for global trade, including rising transportation costs, delays, and disruptions in energy supply chains. While several

studies examined disruptions in the shipping network, port resilience, and supply chain management, little empirical evidence was found to account for the multifaceted impact of such disruptions on energy prices, supply chain performance, and economic growth in emerging market economies. Maritime instability and geopolitical risks have limited the understanding of the wider economic impact due to the lack of integrated research. Emerging economies were especially on the losing side as they relied heavily on imported energy resources, international trade, and global supply chains. Reduced competitiveness in trade, reduced energy system productivity, and macroeconomic stability were at risk due to continued supply chain disruption and rising energy costs. A thorough examination of the effects of Red Sea trade disruption on energy prices, energy supply chain efficiency, and the role of energy in economic growth in emerging markets was necessary.

Research Objectives

1. To examine the impact of Red Sea trade disruptions on energy prices in emerging markets.
2. To investigate the effect of Red Sea trade disruptions on supply chain performance.
3. To analyze the relationship between energy prices and economic growth in emerging markets.

Research Questions

Q1. How did Red Sea trade disruptions affect energy prices in emerging markets?

Q2. What impact did Red Sea trade disruptions have on supply chain performance?

Q3. How did energy price fluctuations influence economic growth in emerging economies?

Significance of the Study

This research builds on the ongoing body of literature on geopolitical risk, maritime trade disruption, and development. It analyzes the cascading impacts of Red Sea trade disruptions on energy prices, supply chains, and development. The study deepened understanding of the problem by bringing this plurality of variables into a generally coherent, analytical framework, while outlining the empirical aspects of how disruptions impact the economies of emerging markets. The results were also of practical importance to public servants, trade and logistics officials, and energy planners. Key trade disruptions had economic implications, prompting

the development of plans to strengthen supply chain resilience, diversify trade corridors, expand energy security, and reduce susceptibility to external shocks. The study also contributed to the development of policies by governments and companies supporting sustainable and resilient economic development in the context of a more uncertain geopolitical environment and volatile international trade.

Literature Review

Red Sea Trade Disruptions and Energy Price Volatility

Maritime shipping lines were a cornerstone of the smooth movement of oil, natural gas, and other strategic energy commodities around the world. When maritime routes were disrupted, markets were uncertain about the availability of supplies and delivery efficiency, which heightened volatility in energy markets. We found that geopolitical tensions strongly influenced both the vulnerability of energy markets and the instability of energy supply systems, especially in countries that rely on imported energy resources (Zhao et al., 2024; Yilmazkuday, 2024). Results indicated that transportation disruptions and geopolitical conflicts raised market uncertainty and changed energy pricing in international markets.

One immediate effect of geopolitical events that disrupted maritime transportation networks was a rise in energy prices. During periods of shipping disruptions, shipments would have to take longer routes and pay higher transportation premiums. The effects of geopolitical risks have been reported to have significant spillover consequences for crude oil, natural gas, and coal markets, leading to high volatility and market vulnerability (Zhao et al., 2024; Ha, 2025). These ups and downs created uncertainty in energy planning and industrial production, both in energy-producing and importing nations.

Among emerging economies, a few remained especially vulnerable to crude oil price fluctuations due to their reliance on imported energy and oil exports. Higher energy prices, affecting both domestic industries and the economy at large, were seen as a source of inflationary pressure, having made industries less competitive and lowering the economy's performance. The findings suggested that geopolitical risks adversely affected energy security and energy supply networks, thereby making the country's economy more vulnerable to

external shocks by affecting trade openness and energy security (Zhao et al., 2025; Antonakakis et al., 2023).

Disruptions and trade performance in supply chains

The food-producing, raw-material, and export units rely heavily on maritime transportation for the movement of goods and finished products. The disruption of key shipping lanes led to longer transportation routes, higher logistics costs, and uncertainty in international supply chain operations. Scholars suggested that the role of the supply chain in managing crises and ensuring business continuity during times of geopolitical uncertainty was highlighted with greater prominence (Ivanov & Dolgui, 2022; Queiroz et al., 2022). These studies highlighted that disturbances in transport systems had a considerable impact on the efficiency of transport networks, resulting in reduced performance of the transport chain from the organization's perspective.

Completing an increasing number of global value chains exposed companies to maritime disruptions and logistical bottlenecks. There was a shortage of inventory, production schedules were slow, and deliveries were slow, which impacted customer service. Studies emphasized the importance of flexibility, agility, and adaptive responses for organizations to adjust to disruptions and remain operational as features of resilient supply chains (Ponomarov & Holcomb, 2023; Belhadi et al., 2024).

Infrastructural limitations and limited technological expertise in emerging economies posed further difficulties. Backups and delays in supply chains led to losses of critical resources, lower production rates, and higher running costs. Empirical studies indicate that SC Resilience positively impacts organizational sustainability and competitiveness, thereby mitigating shocks from the external environment that firms may face (Sarkis, 2023; Dubey et al., 2023).

Economic Growth Implications of Energy and Supply Chain Shocks

Economic growth in emerging markets continued to follow the pattern of international trade flows, energy availability, and supply chain efficiency. Disruptions in maritime transportation led to increased production costs, reduced availability of inputs, and diminished export market competitiveness, creating economic uncertainty. Researchers found that energy insecurity's

significant impact on the economy was exacerbated by geopolitical tensions, especially in developing and emerging economies where reliance on international markets is higher (Adebayo et al., 2025; Le & Nguyen, 2025). The results indicated that geopolitical instability was seen as a major impediment to sustainable economic development.

The effect of energy prices on economic growth was multifaceted, including the production cost, inflation, investment choices, and other factors related to household consumption. Increased energy prices affected energy-intensive production and economic competitiveness in the economies that relied on trade. In this case, the increase in energy prices affected the productivity of industries and the economic competitiveness of economies reliant on trade. The study's findings revealed that energy insecurity and geopolitical tensions negatively affected macroeconomic performance by increasing uncertainty and reducing business confidence (Balcilar et al., 2023; Su et al., 2024).

The efficiency of the supply chain was also at the heart of the economic performance. Successful supply chains enabled trade expansion, better resource allocation, and industrial development. More recent studies point to the positive effects of supply chain resilience and trade connectivity on economic growth by bolstering economies' ability to withstand external threats and maintain productive activity when uncertainty arises (Ahmed et al., 2024; Khan et al., 2024).

Research Hypotheses

H1: Red Sea Trade Disruptions have a significant positive effect on Energy Prices.

H2: Red Sea Trade Disruptions have a significant negative effect on Supply Chain Performance.

H3: Energy Prices have a significant negative effect on Supply Chain Performance.

H4: Supply Chain Performance has a significant positive effect on Economic Growth.

H5: Red Sea Trade Disruptions have a significant negative effect on Economic Growth.

Conceptual Framework Model

This study's conceptual framework was designed to test the direct and indirect impact of Red Sea Trade Disruptions on Economic Growth, mediated by the Energy Prices and Supply Chain Performance. The framework is based on the assumption that geopolitical tensions and increased trade disruptions in the Red Sea will eventually translate into higher transportation costs, shipping delays, and market uncertainty, which in turn affect global energy prices and the efficiency of energy supply chain operations. The transition to higher energy costs is likely to affect production and transportation costs, whilst the supply chain's performance will influence logistics, inventory management, and operational continuity. These interrelated factors ultimately impact economic development through business performance, industrial productivity, and trade-sector activities. The model proposes that the impact of Red Sea Trade Disruptions on Economic Growth is direct and indirect, and that the effects on Energy Prices, Energy Supply Chain Performance, and the proposed levels of Economic Growth are significant, and that the model provides a complete picture of how external trade shocks will ripple through a regional economy.

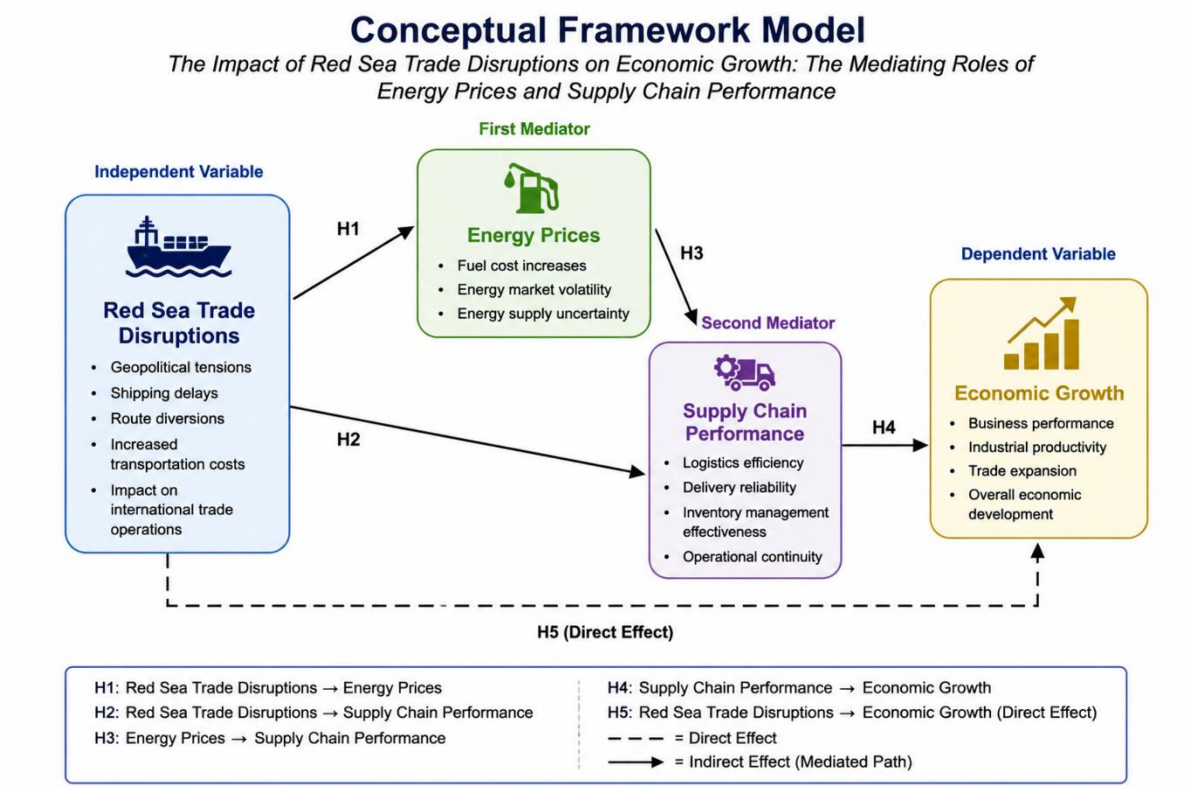

Figure 1. Conceptual Framework Model

Research Methodology

Research Design

This study used a quantitative research design to analyze the impact of Red Sea disruptions on the trade flows of energy commodities, the performance of the energy supply chain, and economic growth in emerging markets. The study employed a quantitative research design it analyze the impact of Red Sea trade disruptions on energy prices, the energy supply chain, and economic growth in emerging markets. The quantitative method provided the researcher with a systematic approach to measuring the relationship between the variables in the study and to statistically analyzing the specific relationships between them based on their effect sizes. The study used a positivist research philosophy because it aimed to study the economic indicators that could be observed and objective numerical data. An analytical design using cross-sectional data was used to analyze relationships among variables, based on respondents from organizations involved in international trade, logistics, shipping, energy and supply chain management.

Population and Sample

The target group was professionals employed in import-export companies, logistics companies, shipping agencies, supply chain management departments, energy-related companies and trade regulation bodies in developing economies. These respondents had pertinent knowledge on international trade activities, supply chain business activities, energy market dynamics and economic performance. The number of respondents for this study is 300 to achieve statistical representativeness and reliability. The sample comprised managers, supervisors, analysts, logistics experts and trade personnel, all engaged directly in international business activities.

Sampling Technique

Purposive sampling was the primary sampling technique used in the study. This approach, it enabled the identification of individuals with specialized knowledge and experience in maritime trade, energy markets, and energy operations within maritime supply chains. The participants were selected based on their job positions and involvement in international trade and logistics activities. The information obtained was representative of informed attitudes

regarding the effects of Red Sea trade disruptions on organizational and economic performance, as obtained through purposive sampling.

Data Collection Method

A structured questionnaire was used for primary data collection, developed based on a literature review and the study's objectives. The questionnaire comprised two parts. First, the demographic data such as gender, age, educational qualifications, professional experience and organizational sector were collected. The second section examined the constructs of interest, including the extent of disruption in Red Sea trade, energy prices, supply chain performance, and economic growth. The five-point Likert scale was used to record the responses, from 1 (Strongly Disagree) to 5 (Strongly Agree). The questionnaire was sent via email and via online survey platforms to facilitate data collection from respondents across various emerging economies.

Measurement of Variables

The independent variable measured in this study was Red Sea Trade Disruptions (RTD), which reflected the impact of geopolitical tensions, shipping delays, route diversions, and increased transportation costs on international trade operations. Energy Prices were the inaugural mediator, and the attitudes measured related to fuel price rises, energy market fluctuations, and uncertainty towards energy supplies. Supply Chain Performance was used as a second mediator and measured using the following items: logistics efficiency, delivery reliability, inventory management effectiveness, and operational continuity. Economic Growth was the dependent variable, and it measured respondents' perceptions of business performance, industrial productivity, trade expansion, and overall economic development. For each construct, multiple items from the relevant literature were used and adapted to the research context.

Data Analysis Techniques

Data were coded and analyzed using the Statistical Package for the Social Sciences (SPSS) version 29. Descriptive statistics, including frequencies and percentages, means, and standard deviations, were used to present the respondents' characteristics and the distribution of

variables. The Pearson correlation method was used to explore the relationships among Red Sea trade disruptions, energy prices, supply chain performance, and economic growth. A multiple regression analysis was conducted to test the effects of the independent variable on the mediating and dependent variables and to assess the explanatory power of the proposed model. The level of statistical significance was set at 0.05.

Results and Analysis

Demographic Profile of Respondents

Table 1. Demographic Characteristics of Respondents (N = 300)

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	176	58.7
	Female	124	41.3
Age Group	21–30 Years	88	29.3
	31–40 Years	114	38.0
	41–50 Years	67	22.3
	Above 50 Years	31	10.4
Education	Bachelor's Degree	102	34.0
	Master's Degree	145	48.3
	PhD Degree	53	17.7
Experience	Less than 5 Years	71	23.7
	5–10 Years	129	43.0
	More than 10 Years	100	33.3

The demographic results showed that there were more male respondents than female respondents, with 58.7% male and 41.3% female. The distribution was designed to ensure both

sexes were represented, providing a range of professional perspectives on the problems caused by disruptions to maritime trade and economic performance. Including both male and female respondents helped to make the collected data more comprehensive and minimize the potential for gender bias in the responses. The age distribution showed that the 31–40 years age group had the largest percentage (38.0%) of respondents, while the 21–30 years age group had the second-largest percentage (29.3%). The 41- to 50-year-old population accounted for 22.3% of the respondents, and those over 50 years accounted for 10.4%. It was observed that 48.3% had master's degrees, 34% had bachelor's degrees, and 17.7% had doctorate degrees. Besides, 43.0% of the respondents had a professional training period of 5-10 years, and 33.3% had over 10 years of experience.

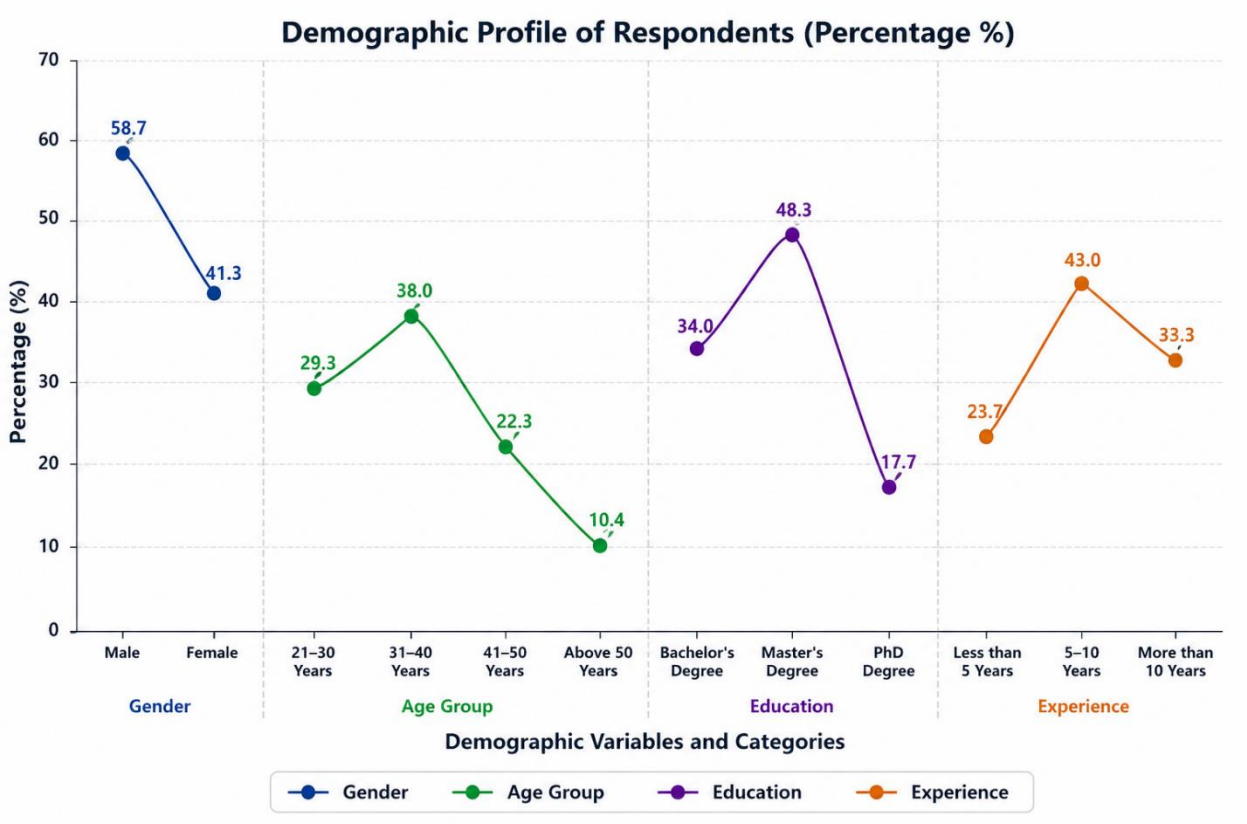

Figure 2.Demographic Characteristics of Respondents (N = 300)

Descriptive Statistics

Table 2. Descriptive Statistics of Study Variables

Variable	Mean	Standard Deviation
Red Sea Trade Disruptions	4.31	0.56
Energy Prices	4.25	0.59
Supply Chain Performance	4.18	0.61
Economic Growth	4.09	0.63

The descriptive statistics showed that the mean for Red Sea Trade Disruptions was 4.31, with a standard deviation of 0.56. This response indicated that the respondents strongly agreed that the disruptions in the Red Sea had a significant effect on international trade. The moderate standard deviation indicated a uniform distribution of responses among participants regarding the impact of maritime disruptions. The mean score for Energy Prices was 4.25, and the standard deviation was 0.59. The result showed that the respondents estimated that the level of disruption to maritime transportation routes was likely to lead to significant increases in energy costs. The result mirrored broader concerns about fluctuations in energy markets and transport constraints on energy prices and security. The mean Scores for Supply Chain Performance and Economic Growth are 4.18 and 4.09, respectively. The findings from these values showed that respondents were aware of the negative effects of trade disruptions on supply chain efficiency and economic development. The moderate level of standard deviation indicated good consistency across responses and validated the concurrence in responses regarding the consequences of economic disruptions to Red Sea trade.

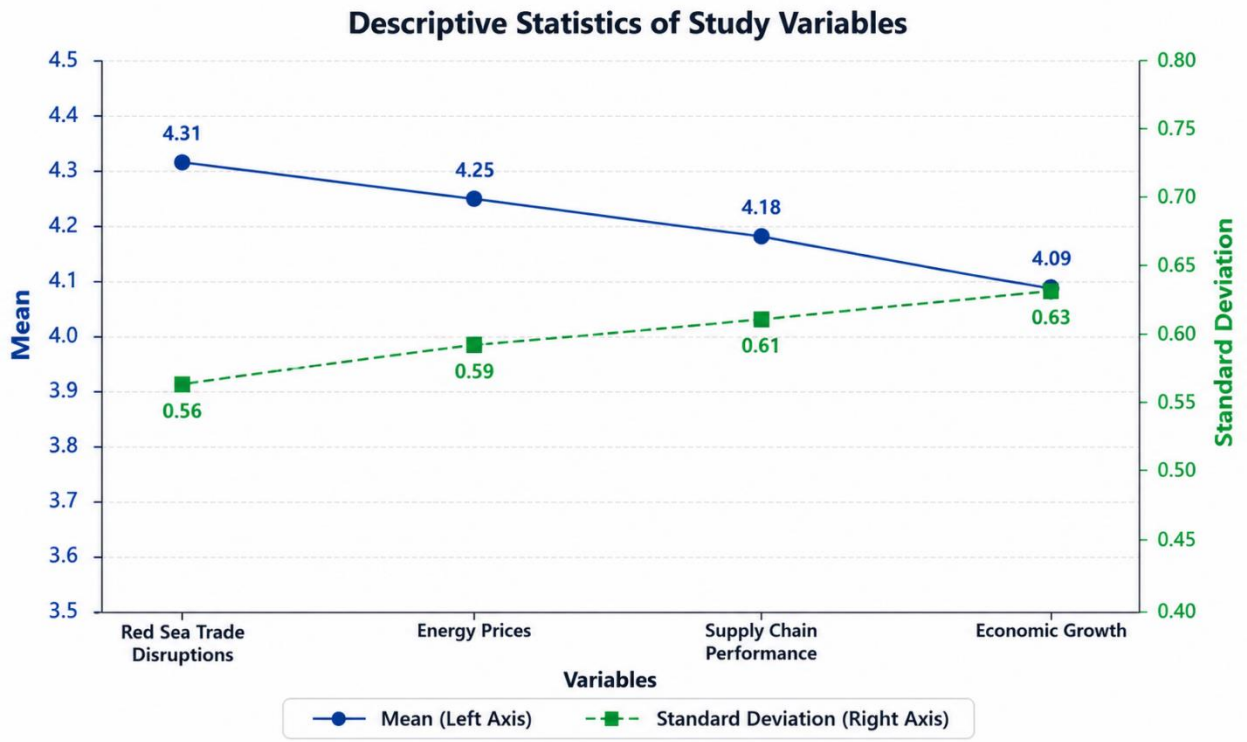

Figure 3. Descriptive Statistics of Study Variables

Reliability Analysis

Table 3. Reliability Statistics

Variable	Cronbach's Alpha
Red Sea Trade Disruptions	0.884
Energy Prices	0.869
Supply Chain Performance	0.891
Economic Growth	0.876
Overall Scale	0.905

The results indicated high reliability for all constructs, with all above 0.70. The internal consistency of the red sea trade disruptions items was good, with a Cronbach's Alpha coefficient of 0.884. The Energy Prices and Economic Growth indices had reliability scores of 0.869 and 0.876, respectively. These coefficients showed high consistency among the survey items in

measuring the constructs. The supply chain reliability subscale had the highest reliability coefficient (0.891), and the overall scale had a coefficient of 0.905. These findings validated the instrument's reliability and verified its appropriateness for further analysis using correlation and regression.

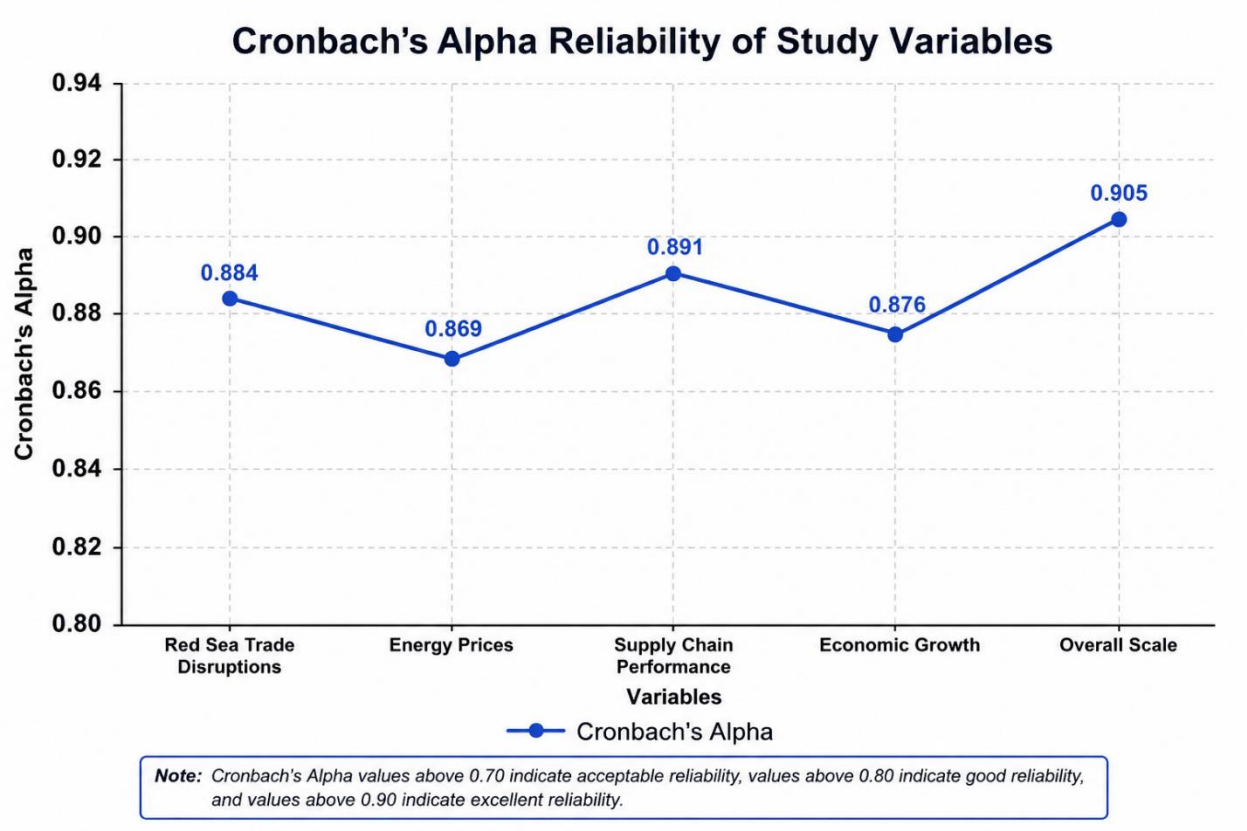

Figure 4. Reliability Statistics

Correlation Analysis

Table 4. Correlation Matrix

Variables	1	2	3	4
1. Red Sea Trade Disruptions	1			
2. Energy Prices	.782	1		
3. Supply Chain Performance	.741	.716	1	

Variables	1	2	3	4
4. Economic Growth	-.698	-.645	.758	1

The correlation analysis showed a very high positive correlation between Red Sea Trade Disruptions and Energy Prices (r = .782), with a significance level of $p < 0.01$. This finding indicated a relationship between energy prices and greater maritime disruptions. This discovery showed that, however, a significant portion of energy price volatility in emerging markets could be attributed to transportation difficulties and route diversions. There was a significant correlation between Red Sea Trade Disruptions and Supply Chain Performance (r= .741). There was a positive correlation of .716 in Energy Prices and Supply Chain Performance. Economic Growth had negative correlations with Red Sea Trade Disruptions (-.698) and Energy Prices (-.645); however, it showed a strong positive correlation with Supply Chain Performance (.758). The findings indicated that when disruptions and energy costs increased, economic growth was negatively affected, and when supply chain performance improved, its impact was positive.

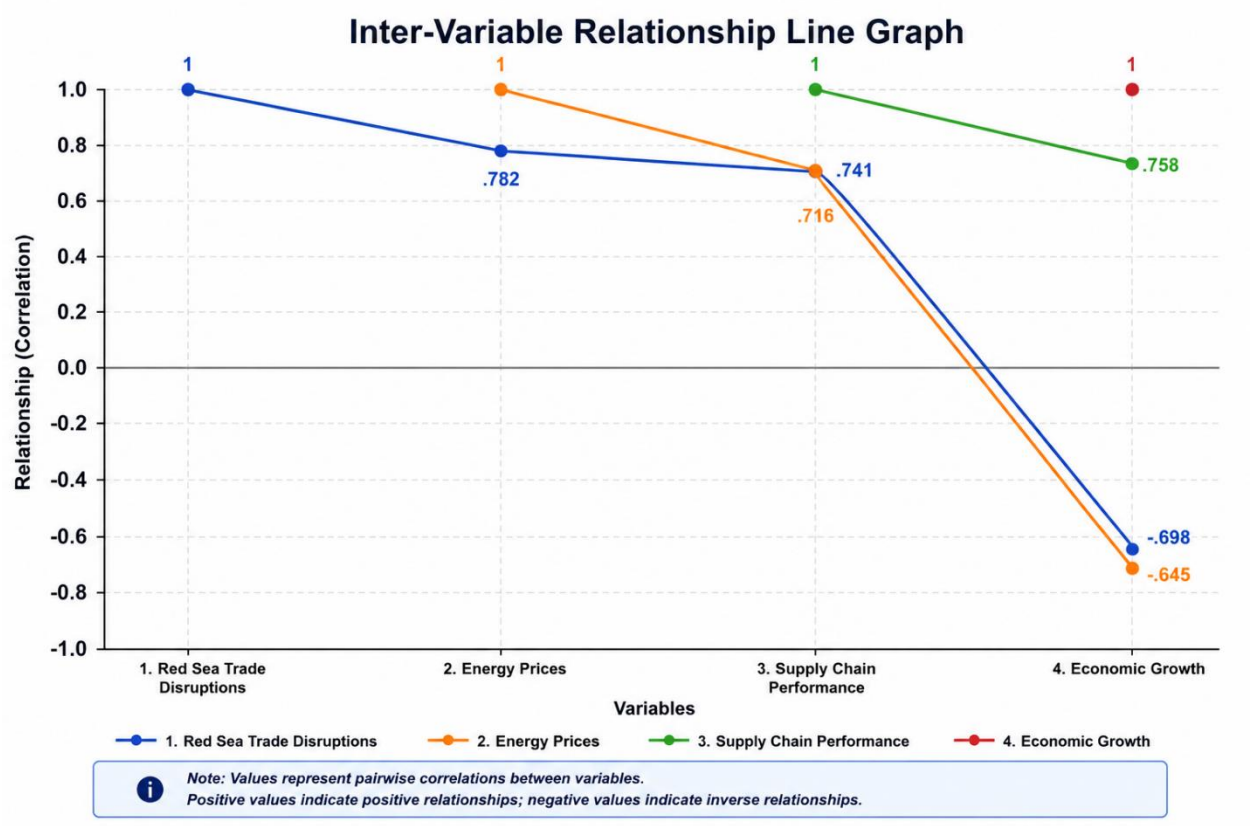

Figure 5. Correlation Matrix

Regression Analysis

Table 5. Multiple Regression Results

Predictor Variable	Beta (β)	t-value	p-value
Red Sea Trade Disruptions	-0.341	-6.884	0.000
Energy Prices	-0.287	-5.719	0.000
Supply Chain Performance	0.428	8.153	0.000

Model Statistics	Value
R	0.846
R^2	0.716
Adjusted R^2	0.712
F-value	248.632
Significance	0.000

The regression results showed a significant negative impact of Red Sea Trade Disruptions on Economic Growth, with a beta value of -0.341 and a p-value < 0.001. The study found that more disruptions in maritime channels reduced economic performance in emerging markets. Similarly, the Economic Growth variable had a significant negative relationship with Energy Prices ($\beta = -0.287$, $p < 0.001$). This revelation implied that industrial productivity had been curtailed, that the profits of businesses involved in manufacturing activities had been compromised, and that the overall economy had lost its expansion potential due to the escalating costs of fuel and energy. The highest positive impact was for Economic Growth ($\beta = 0.428$, $p < 0.001$) in SC Performance. Efficient logistics and resilient supply chains have been particularly important in driving economic development despite external trade pressures, the

results showed. It was found that the model achieved a high R^2 (0.716), indicating strong predictive power and a significant contribution to the study of the economic implications of turbulence in Red Sea trade.

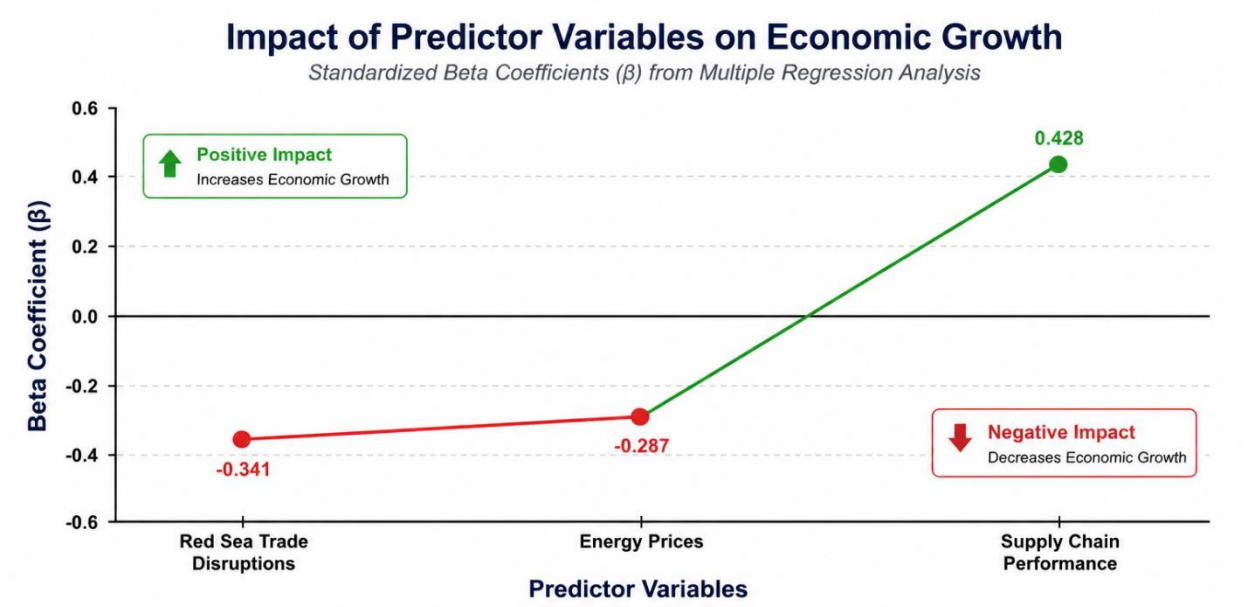

Figure 6. Multiple Regression Results

Discussion

These results showed that the disruption to trade in the Red Sea had a significant effect on energy prices, the performance of energy supply chains, and economic expansion in emerging markets. A summary of the descriptive statistics showed that disruptions in the Red Sea had a significant impact on international trade and economic activities, with strong agreement among respondents. Beyond this, the regression results also showed that trade disruptions had a direct negative impact on economic growth, reduced supply chain efficiency, and made supply chains more volatile with respect to energy prices. The results resonated with the recent study of geopolitical tensions in the strategic maritime corridor, which has far-reaching economic implications, reflected in disruptions to trade connectivity and transportation infrastructure (Khan et al., 2024; Cartenì et al., 2025).

The most noteworthy results pertained to the positive link between Red Sea trade disruption and Energy prices. There was a positive correlation between rising disruptions to maritime

shipping channels and increases in energy costs in emerging economies, with an $R2 > 0,80$. This finding confirmed the recent studies that geopolitical risks and transportation uncertainties had significant impacts on global energy markets and commodity prices (Zhao et al., 2024; Khurshid et al., 2024). It also found that increases in the prices of energy goods reduced economic growth, as shown by the results. The results of the regression analysis indicated that energy costs and economic performance were negatively related, suggesting that rising energy costs reduced economic activity in emerging markets. The results were consistent with recent literature, which indicated that energy insecurity negatively affects industrial productivity, has an inflationary effect on the economy, and is associated with contraction in the economic expansion of industrial sectors (Adebayo et al., 2025; Le et al., 2025).

The research found that the disturbances in the Red Sea trade had a significant negative impact on the performance of the trade supply chain. The positive correlation between maritime disruptions and supply chain pressures indicates that transport delays, rerouting, and rising freight rates hinder logistics and inventory management. This result aligns with earlier findings suggesting that geopolitical crisis events caused considerable disruptions to global supply chain networks and decreased operational efficiency in the industries concerned (Ivanov et al., 2024; Belhadi et al., 2024). Regression model results indicated that the most important variable for predicting economic growth was supply chain performance. This discovery indicated that effective logistics practices and resilient supply chains played a significant part in economic stability and development. This finding aligns with other studies showing that resilient supply chains reduce the impact of uncertainty, enhance business continuity, optimize resource utilization, and improve organizational competitiveness during a crisis (Dubey et al., 2023; Queiroz et al., 2023).

Through the correlation analysis, it was noted that both energy prices and deterioration in trade in the Red Sea were significant negative factors in the economy's performance. This finding indicated that the impact of maritime instability originating in transportation does not solely affect the transportation sector but also affects other macroeconomic sectors. Preliminary findings on the relationship between geopolitical risks, commodity prices, and economic growth indicated that uncertainty in strategic areas exacerbated economic

vulnerabilities and harmed growth prospects (Antonakakis et al., 2023; Su et al., 2024). The results underscored the interdependencies of the global trading system, with any disruption in one segment of the maritime trade system cascading into the market.

The high explanatory power of the regression model further confirmed the importance of the conceptual framework, which shed light on the above. The model's contribution to economic growth was 71.6%, suggesting that the influence of Red Sea disruption, along with energy prices and supply chain energy performance, was significant for economic outcomes in emerging markets. This finding corroborated recent empirical studies that highlighted the growing importance of geopolitical stability, energy security, and logistics resilience as key drivers of economic growth (Balcilar et al., 2023; Ahmed et al., 2024). Several important facts were also highlighted in the study, including the critical role of energy security for economic growth. Understanding that the main link between energy prices and economic performance increases the vulnerability of countries with higher energy import levels. A recent study also found that geopolitical tensions worsened energy insecurity and that their damaging impact on economic risks was especially felt in developing and emerging economies (Yilmazkuday, 2024; Zhao et al., 2025).

The results also highlighted the importance of ensuring product resilience in the supply chain to reduce the economic impact of a specific trade disruption. Organizations that used adaptive logistics and a diverse supplier network were more flexible in handling transportation issues. In line with the findings of several studies indicating that firms' ability to develop resilience helps them cope with crises, handle shocks, maintain operations, and retain competitive status (Sarkis, 2023; Ponomarov et al., 2023).

Conclusion

The effects of the disruption of trade connectivity with the Red Sea on price levels of energy products, performance of energy supply chains, and economic growth in emerging market countries. The results showed that the disruption to the Red Sea had a notable impact on energy prices and negatively affected the operation of the energy supply chain. The correlation analysis of the study variables indicates a strong association. At the same time, the regression results show that the variables for Red Sea trade disruptions (negative β of -0.341, p-value

<0.001) and energy prices (negative β of -0.287, p-value <0.001) had significant negative impacts on economic growth. On the other hand, the economic growth was positively associated with supply chain performance $\beta = 0.428$, $p < 0.001$). The model achieved a good level of explanatory power for variations in economic growth ($R^2 = 0.716$). The results indicated that the downturn in maritime trade posed economic problems, including rising transportation costs, energy market instability, and logistical inefficiencies. Emerging economies were more sensitive due to their reliance on imported energy resources and on global trade networks. The study found that, in the era of geopolitical uncertainty and sea risks, enhancing energy security and supply chain resilience remained a key element for continued economic growth.

Recommendations

The results revealed that maritime security cooperation should be further strengthened and that policymakers should protect critical international shipping routes. It is recommended that governments have contingency plans and alternative trade routes in place to reduce reliance on a single trade route and mitigate the impacts of future disruptions. Ensuring the uninterrupted transportation of goods, energy resources, and products by enhancing maritime surveillance, strengthening crisis management measures, and diversifying trade routes should be pursued through regional and international collaboration. As organizations that form part of multinational supply chains, it is recommended that companies invest in actions that increase supply chain resilience, such as supplier diversification, digital supply chain technologies, and advanced logistics planning systems. Procedures need to be flexible, and strategic procurement strategies need to be implemented to reduce vulnerability to potential delays and shipping and transportation issues. Integrating predictive analytics and real-time monitoring systems could further enhance supply chain transparency and facilitate prompt decision-making during disruptions.

Future Directions

Further research is needed to expand the geographic scope of analysis and compare the impact of maritime trade disruptions across regions and income groups. Comparative analyses of developed and developing countries may yield a greater understanding of the differing

economic vulnerabilities and economic resilience of countries when facing trade shocks. It is also recommended that future studies consider the long-term impact of trade restrictions on industrialization and investment flows, and that they use a longitudinal research design. These should help clarify the nature of the economic adaptations in the longer term to sustained geopolitical tensions and transport difficulties. Future analyses could be further enriched by adding macroeconomic indicators, such as inflation, foreign direct investment, exchange rates, and trade balances.

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