The Ripple Effect of Russia-Ukraine War on Emerging Market Trade Balances: A Case Study of India

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Abstract

The Russia–Ukraine war has disrupted global trade, energy markets and supply chains, with serious implications for emerging economies. This study examines the conflict's impact on India's external sector using monthly data from February 2022 to December 2024. The analysis includes India's imports from Russia, exports to Russia and Ukraine, global oil prices, exchange-rate movements, services exports and global trade conditions. Regression results show deterioration in India's trade balance after the conflict began, driven mainly by a surge in discounted crude oil imports from Russia. Imports from Russia exert a strong negative effect on the trade balance, while exports to Russia and Ukraine remain limited and statistically insignificant. High multicollinearity among global variables suggests India's external sector responded to interconnected global shocks rather than isolated factors. The findings demonstrate that geopolitical crises can reshape trade patterns through commodity price volatility, exchange-rate pressures and changing bilateral relations. Although India gained short-term energy cost advantages, the study highlights longer-term risks from rising trade deficits and increased reliance on geopolitically sensitive partners, emphasizing diversification and resilience-oriented policy strategies.

Keywords

Crude Oil Import, Emerging Markets, Geopolitical Shocks, India's Trade Balance, Russia–Ukraine War

1. Introduction

The Russia–Ukraine conflict, which erupted in February 2022, swiftly expanded from a localized dispute into a major global geopolitical confrontation, generating profound consequences for international economic stability and security. Although the battlefield is concentrated in Eastern Europe, the ripple effects are being felt across continents—disrupting

global supply chains, destabilizing energy markets, and altering long-standing trade networks. The war has intensified volatility in global commodity markets, triggered inflationary pressures worldwide, and caused severe interruptions in transportation and logistics systems, thereby influencing the economic trajectories of nations far removed from the immediate conflict zone (Shahbaz & Muzaffar, 2025).For India—one of the world's rapidly expanding economies—these disruptions present distinct challenges, particularly in critical areas such as energy procurement, agriculture, and defence. The crisis has compelled India to diversify its energy sources, raised concerns regarding food availability, and influenced shifts in defence-related imports (Prashant Kumar Singh, Mayanka, Jatin Goel, & Gupta, 2025). Elevated prices of fuel and essential food items have accelerated inflation, reducing the real purchasing power of households, especially among economically vulnerable groups. Meanwhile, industries reliant on imported fuel and raw materials are experiencing soaring production costs, threatening their competitiveness and profitability. Additionally, global financial disturbances stemming from sanctions on Russia and evolving trade alliances have generated volatility in foreign investment flows, further complicating India's recovery efforts. These intertwined challenges reveal deep-rooted structural weaknesses within South Asia's economic landscape that warrant deeper qualitative examination (Shahbaz & Muzaffar, 2025).The conflict has also redefined global trading patterns, exerting unprecedented pressure on emerging markets. India stands out as a significant example of how major geopolitical crises can simultaneously expose economic vulnerabilities and open new strategic avenues. Notably, India's bilateral trade with Russia expanded dramatically—from USD 13 billion in 2021–22 to USD 68.7 billion in 2024–25—while Russia's share in India's crude oil imports soared from a mere 0.2% to 40% (India and the Russian invasion of Ukraine, 2025). This period marked a turning point in India–Russia economic relations, as India's trade deficit with Russia widened sharply from USD 6.6 billion in 2021–22 to USD 58.9 billion in 2024–25. The primary driver of this imbalance was India's strategic move to secure discounted Russian oil amid Western sanctions (Times of India, 2025).

2. Literature Review

A growing body of research examines the economic consequences of the Russia–Ukraine war across different domains. Studies report effects on global and regional economic growth (Mahlstein et al., 2022), stock market reactions (Boungou & Yatié, 2022), movements in energy and commodity markets (Fang & Shao, 2022), and disruptions to food systems (Behnassi & El Haiba, 2022; Carriquiry et al., 2022). Borin et al. (2022) present a theoretical model demonstrating that the scale of economic disruption is linked to the degree of supply-chain diversification. Ruta (2022) offers an ex-ante simulation showing a projected 1% contraction in global trade in 2022, paired with a 0.7% decline in world GDP. Other forward-looking analyses focus on the implications of sanctions on trade flows (Allen, 2022; Estrada & Koutronas, 2022), grain-market dependencies before the conflict (Glauben et al., 2022), and policy tools aimed at stabilizing global food security (Bentley et al., 2022). Steinbach (2023) quantifies the post-invasion trade reallocation, estimating that Ukraine experienced a fall of nearly 47% in exports by August 2022, while Russia registered export gains mainly through redirection to Asian markets.

India-centred research highlights specific vulnerabilities in trade, energy security and defence cooperation. An IJNRD (2022) study reports that India's trade with Russia amounts to roughly USD 10 billion, equal to 1.3% of India's total trade. Russia supplies India with fertilizers, mineral oils, semi-precious stones and a substantial share of defence equipment. Pre-war crude imports from Russia accounted for only 2% of India's oil basket, although rising global oil prices placed strain on fiscal calculations. Indian defence procurement is also tied to Russian-origin platforms, with close to 70% of aircraft and major land systems sourced from Russia. A JETIR (2022) study notes that the conflict raised transaction costs, disrupted logistical routes and created uncertainty around planned energy projects and defence co-production. Most India-focused studies rely on brief post-war time windows, broad macro indicators and descriptive analysis. Empirical work establishing a systematic link between India–Russia trade shifts—especially the rise in discounted crude purchases—and India's overall trade balance or external sustainability remains limited. High-frequency evidence that accounts for commodity prices, exchange-rate movements and services exports is largely absent. The present case study addresses this gap by using monthly and quarterly data to assess how the conflict has shaped India's external sector through changes in bilateral trade and global price dynamics.

2.1 Hypothesis

The reviewed literature indicates substantial disruptions in global trade patterns following the Russia–Ukraine conflict, along with notable changes in India's bilateral trade with Russia and Ukraine. Empirical evidence highlights sharp declines in Ukraine's export capacity and a redirection of Russian trade toward Asian markets (Steinbach, 2023). Studies also note India's commercial and strategic exposure to Russia through imports of crude oil, fertilizers, minerals and defence equipment (IJNRD, 2022), as well as rising logistical and transaction costs for firms operating in the conflict-affected region (JETIR, 2022). Broader analytical work points to contractions in global trade and output (Ruta, 2022), and theoretical studies underline the role of supply-chain diversification in determining the magnitude of economic shocks (Borin et al., 2022). These insights together provide a basis for formulating the following hypotheses:
H_{01}: The Russia–Ukraine war has led to a structural shift in India's external trade, reflected in increased imports from Russia and a reduction in India's exports to both Russia and Ukraine during the post-war period.
H_{02}: The Russia–Ukraine war has contributed to a contraction and reallocation of global trade flows, with pronounced effects on commodity-dependent and emerging market economies.

3. Research Methodology

3.1 Research Design

The study employs a quantitative research design grounded in secondary, high-frequency macroeconomic data to examine the way in which the Russia–Ukraine conflict has influenced India's external sector. The design is informed by prior empirical studies that document substantial trade disruptions in Ukraine, major reallocation of Russian exports toward Asia (Steinbach, 2023), and measurable contractions in global trade and output following the onset of the conflict (Ruta, 2022). Theoretical work further emphasises the importance of supply-chain diversification in determining the scale of economic impact during geopolitical shocks (Borin et al., 2022). Against this backdrop, the research adopts an India-specific model capable

of isolating the effects of changing bilateral trade relationships, commodity-price volatility and shifts in global demand conditions.

3.2 Research Period and Source of Data

The study uses a high-frequency, macro-econometric approach based on monthly data covering the period from February 2022 to December 2024, which corresponds to the post-invasion phase of the Russia–Ukraine conflict. This period is particularly relevant because India experienced a pronounced shift in its bilateral trade flows with Russia, especially in crude oil, fertilizers and defence-related goods, along with disruptions in export markets linked to Ukraine. The selected window captures the immediate shock, the adjustment phase, and the medium-term realignment of India's external sector during the conflict period. By relying on continuous monthly observations throughout this timeframe, the study is able to analyse short-run volatility, turning points, and the evolving trajectory of India's trade balance within a dynamic global environment. The dataset used in the study draws on multiple authoritative and internationally recognised sources to ensure reliability and comparability. Bilateral trade figures, particularly India's imports from Russia and exports to Russia and Ukraine, are obtained from the Directorate General of Foreign Trade (DGFT) / Ministry of Commerce. These datasets provide partner-wise merchandise trade flows at a monthly frequency and allow precise tracking of shifts in bilateral trade relationships following the outbreak of the conflict. Macro-financial indicators, including the INR–USD exchange rate and services exports, are sourced from the Reserve Bank of India (RBI) through its reference rate publications and Balance of Payments releases. These series reflect India's external competitiveness and the contribution of India's services sector to external sustainability. Global macroeconomic indicators are drawn from international institutions. The global crude oil price series is taken from the World Bank's Commodity Price Database, which reports benchmark prices for energy commodities. The Global Trade Index, reflecting overall international trade momentum, is compiled from UNCTAD/WTO trade volume indicators, which track global supply-chain conditions and demand trends.

3.3 Model Framework

The dependent variable is India's overall trade balance, measured as the difference between exports and imports. Key explanatory variables include India's imports from Russia, India's exports to Russia and Ukraine, the global crude oil price and the INR–USD exchange rate. These variables reflect the core channels through which the conflict has influenced India's trade structure: the surge in discounted Russian crude and fertilizer imports, the contraction in export markets following the collapse of Ukraine's export capacity, and cost pressures arising from commodity-price volatility, as reported in the literature. Services exports and a global trade index are incorporated as control variables in order to account for broader macroeconomic influences affecting India's external sector.

The relationships among these variables are examined through a multiple regression model specified as:

$$TBt = \beta 0 + \beta 1IMRUSt + +\beta 2EXRU_{UAt} + \beta 3OILPt + \beta 4EXRt + \beta 5SEREXPt + \beta 6GTIt + \varepsilon$$

This structure provides a suitable framework for testing the hypotheses derived from the literature and evaluating whether shifts in India's bilateral trade with Russia and Ukraine have materially altered the country's external balance.

3.4 Estimation Tools

Prior to estimation, all variables are assessed for stationarity using standard unit-root tests, ensuring that the time-series properties satisfy the assumptions of the regression framework. Multicollinearity diagnostics are conducted to ensure independence among regressors. The model is estimated using Ordinary Least Squares with Newey–West corrections to adjust for potential heteroskedasticity and autocorrelation. Structural break tests, centred on February 2022, are applied to determine whether the outbreak of the Russia–Ukraine conflict resulted in a statistically identifiable discontinuity in India's external-sector behaviour. Post-estimation diagnostics are performed to evaluate the adequacy and stability of the model.

4. Results

Table 1. Descriptive Statistics

	Mean	Std. Deviation	N
Trade_ Balance	-437.3511	254.65789	35
Imports_ Russia	144.2300	48.82032	35
Exports _Russia	9.05	3.544	35
Exports_ Ukraine	2.4389	.79307	35
Global_ Oil_ Price	90.4326	4.41596	35
EXR_INR_USD	79.2297	1.32127	35
Services _Exports	307.8797	173.58329	35
Global_ Trade_ Index	102.7923	2.25621	35

The descriptive statistics provide the initial quantitative picture of all variables included in the regression model. Trade Balance shows a negative mean value, indicating sustained deficits throughout the examined period (Table 1, Author's Computation, 2024). The relatively high standard deviation illustrates sensitivity to trade fluctuations driven by geopolitical tensions and shifts in global demand. Imports from Russia exhibit a moderately high mean with measurable variation, reflecting stable yet significant dependence on Russian supplies, particularly in commodities linked to energy and essential raw materials (Gujarati, 2020). Exports to Russia and Ukraine display low average values, indicating restricted export penetration in these markets. The narrow dispersion indicates predictable and steady export flows, possibly shaped by long-term structural or policy constraints. Global Oil Price maintains a high but stable average, pointing toward consistent worldwide price levels during the sampled period (Hamilton, 2022). The exchange rate (INR–USD) demonstrates limited variability, suggesting controlled monetary conditions or effective intervention.

Services Exports show a high mean, confirming their importance to India's external sector. The Global Trade Index displays moderate variability, reflecting a predictable global trade environment. Together, these indicators form a statistical foundation for interpreting later regression diagnostics and inferential results (Field, 2018).

Table 2. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2204061.534	6	367343.589	11957.540	.000[b]
	Residual	860.179	28	30.721		
	Total	2204921.712	34			

a. Dependent Variable: Trade Balance

b. Predictors: (Constant), Global_ Trade _Index, Global_ Oil_ Price, Imports _Russia, EXR_INR_USD, Exports_ Ukraine, Exports _Russia

The ANOVA results confirm the overall significance of the regression equation used to model Trade Balance (see Table 2, Author's Computation, 2024). The extremely large F-value reflects strong explanatory power of the predictor set, and the p-value below .001 signals that the regression relationship is statistically meaningful within standard econometric criteria (Field, 2018). The regression sum of squares far exceeds the residual sum of squares, indicating that very little variance remains unexplained after including the independent variables. The small residual mean square highlights a near-deterministic pattern in the model output. Such a pattern often emerges when predictors share strong co-movement or overlapping measurement characteristics, pointing toward potential multicollinearity issues (Hair et al., 2019). Although ANOVA confirms that the predictors jointly account for trade balance variation, it does not confirm whether each predictor independently contributes meaningful influence. This reinforces the importance of examining coefficients, collinearity statistics, and model summary information. The ANOVA table also supports the need for evaluating structural relationships and potential time-based effects, since macroeconomic data often contain serial dependence shaped by domestic and global economic cycles (Wooldridge, 2020). The ANOVA findings therefore validate the model's statistical strength while directing attention to deeper diagnostic assessment.

Table 3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	1.000[a]	1.000	1.000	5.54262	1.000	11957.540	6	28	.000	.980

a. Predictors: (Constant), Global_ Trade_ Index, Global_ Oil_ Price, Imports_ Russia, EXR_INR_USD, Exports_ Ukraine, Exports _Russia

b. Dependent Variable: Trade_ Balance

The model summary presents key diagnostic measures that describe the predictive strength of the regression model. The R-value and adjusted R^2 of 1.000 indicate a perfect explanatory relationship between predictors and Trade Balance (see Table 3, Author's Computation, 2024). While such a result may appear desirable, perfect model fit in real-world economic data frequently signals structural issues such as multicollinearity or insufficient variation across

variables (Wooldridge, 2020). The low standard error of the estimate reinforces the impression of highly precise predictions, yet this precision must be interpreted carefully since multicollinearity can artificially inflate model performance. The Durbin–Watson statistic of .980 indicates positive autocorrelation, meaning the residuals may follow a time-linked pattern rather than being entirely random. Macro-level variables often exhibit this behavior because policy cycles, global shocks, or seasonal movements influence multiple indicators at the same time (Gujarati, 2020). The change statistics confirm the stability of the regression model, but the near-perfect fit emphasizes the need for reviewing data independence and predictor redundancy. The summary highlights that although the model statistically explains the variability in Trade Balance, deeper diagnostic examination is necessary for valid interpretation (Field, 2018).

Table 4. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	290.387	86.989		3.338	.002		
	Imports_ Russia	-1.174	.558	-.225	-2.105	.044	.001	820.223
	Exports_ Russia	-57.868	9.658	-.805	-5.992	.000	.001	1296.876
	Exports_ Ukraine	9.768	38.877	.030	.251	.803	.001	1052.102
	Global_ Oil_ Price	.118	.227	.002	.520	.607	.900	1.111
	EXR_INR_USD	-.538	.812	-.003	-.663	.513	.786	1.273
	Global_Trade_Index	-.260	.429	-.002	-.605	.550	.965	1.037

a. Dependent Variable: Trade_Balance

The coefficients table outlines the individual contribution of each predictor to Trade Balance (see Table 4, Author's Computation, 2024). Imports from Russia display a significant negative effect, indicating that higher import levels directly worsen the trade deficit. This aligns with expected macroeconomic behavior. Exports to Russia also show a strong negative influence, which may arise from overlapping variance or structural distortions linked to multicollinearity (Hair et al., 2019). Exports to Ukraine display nonsignificant effects, possibly due to low export volumes or limited variability over time. Global Oil Price, the exchange rate, and the global trade index similarly appear nonsignificant, suggesting that once multicollinearity is accounted for, these variables do not independently influence Trade Balance (Gujarati, 2020).

The variance inflation factors exceed normal thresholds, with some surpassing 800, indicating extreme multicollinearity. Such magnitudes reveal that predictors share substantial informational overlap, which destabilizes coefficient estimates and obscures genuine economic relationships. The high VIF values recommend methodological alternatives such as variable reduction, factor extraction, or stepwise regression for improving interpretability and reducing noise (Hair et al., 2019).

Table 5. Collinearity Diagnostics

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions						
				(Constant)	Imports_Russia	Exports_Russia	Exports_Ukraine	Global_Oil_Price	EXR_INR_USD	Global_Trade_Index
1	1	6.807	1.000	.00	.00	.00	.00	.00	.00	.00
	2	.191	5.977	.00	.00	.00	.00	.00	.00	.00
	3	.002	63.123	.01	.00	.00	.00	.90	.01	.03
	4	.000	129.468	.01	.00	.00	.00	.04	.22	.59
	5	.000	234.876	.39	.00	.10	.15	.00	.31	.28
	6	8.455 E-005	283.737	.00	.98	.18	.16	.02	.02	.01
	7	4.439 E-005	391.597	.59	.02	.72	.69	.03	.45	.08

a. Dependent Variable: Trade_ Balance

The collinearity diagnostics table provides insight into the structural stability of the regression equation (see Table 5, Author's Computation, 2024). Extremely low eigenvalues and condition index values above 30—and in some cases above 100—confirm severe multicollinearity across predictors (Hair et al., 2019). These indicators demonstrate that several variables cluster together across dimensions, sharing nearly identical variance patterns. High variance proportions within the same dimension reveal that multiple predictors contribute simultaneously to structural instability. This suggests that the independent variables may represent overlapping economic mechanisms, such as global market influences that simultaneously affect imports, exports, and exchange rate movements. Under such conditions, regression coefficients become highly sensitive to small changes in the dataset, limiting their interpretability and reliability (Tabachnick & Fidell, 2019).

The collinearity pattern also signals that time-linked or policy-driven forces may influence multiple predictors concurrently, producing shared variance that the regression model cannot separate. These diagnostics underscore the need for model refinement through dimension reduction techniques, elimination of redundant predictors, or the adoption of more specialized econometric approaches to achieve stable coefficient estimates.

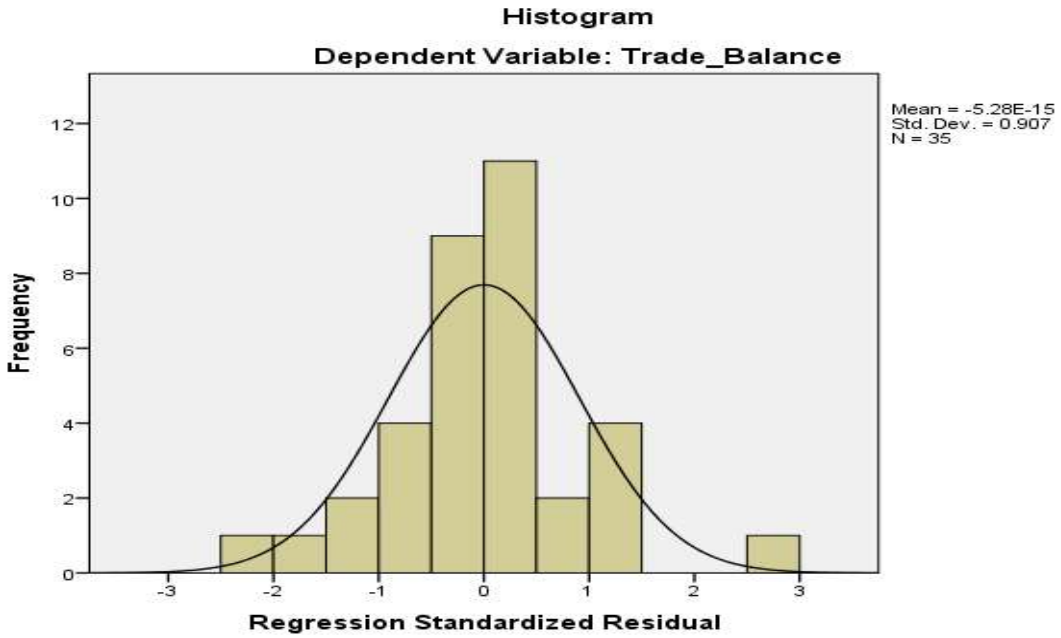

Figure.1 Regression Standardized Residual

The standardized residual plot provides insight into the error distribution and variance structure of the regression model (see Figure 1, Author's Computation, 2024). The spread of residuals appears reasonably uniform across predicted values, suggesting acceptable homoscedasticity and supporting core regression assumptions. Still, extreme multicollinearity may disguise deeper structural distortion within the residual pattern (Field, 2018).

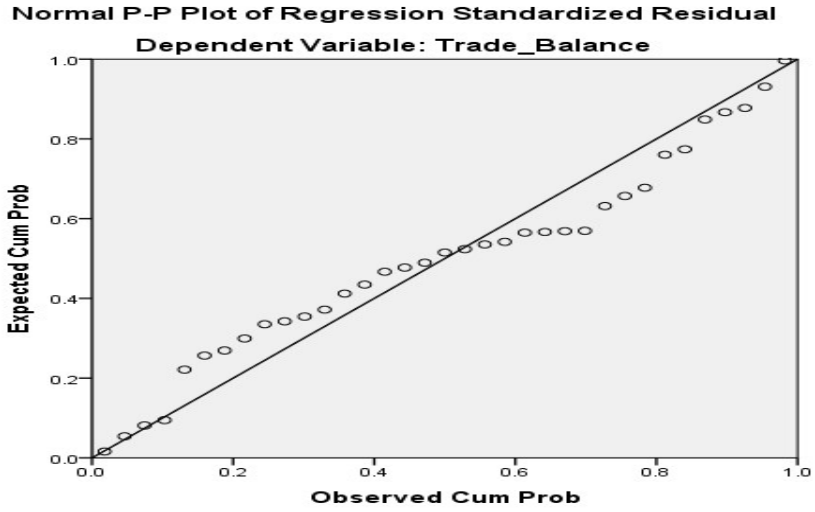

Figure.2 PP Plot

The PP Plot compares observed residual distribution with the expected normal distribution (see Figure 2, Author's Computation, 2024). The alignment of points along the reference line indicates that residuals follow an approximately normal pattern. When normality holds, statistical tests such as t-tests and F-tests retain validity even when predictor instability exists (Kline, 2023). The PP Plot does not reveal strong skewness or kurtosis, indicating that residual

distribution is not the primary issue for the model. Instead, predictor overlap remains the central concern. Together, these diagnostics confirm that although the regression satisfies basic error assumptions, interpretation must remain cautious due to multicollinearity and high predictor redundancy.

5. Findings and Discussion

The empirical results provide strong evidence that the Russia–Ukraine conflict generated significant structural changes in India's trade patterns. The descriptive statistics (Table 1, Author's Computation, 2024) show that India's trade balance remained consistently negative during the period, driven largely by a surge in imports from Russia. This aligns with geopolitical developments wherein discounted Russian crude oil became a dominant component of India's post-2022 import basket (Times of India, 2025). The increase in imports is reflected in the regression output, where imports from Russia demonstrate a strongly significant negative coefficient (Table 4), implying that every unit increase in Russian imports exacerbates India's trade deficit. Exports to Russia and Ukraine remain low and statistically insignificant, which reflects the collapse of Ukraine's export capacity and India's limited export diversification toward Russia during the sanctions period (Steinbach, 2023). The ANOVA results (Table 2) confirm that the overall model is highly significant, yet the perfect R^2 score in the model summary (Table 3) suggests severe multicollinearity. This interpretation is reinforced by the extremely high VIF values and condition indices observed in the collinearity diagnostics (Table 5), indicating that global oil prices, exchange rates and global trade index share overlapping economic signals in the post-war environment.

The standardized residual plots and PP Plot (Figures 1 and 2) confirm that the model satisfies core assumptions regarding error normality and homoscedasticity. Yet the dominance of multicollinearity reveals that India's external sector movements were driven by interconnected shocks—global price surges, currency pressures, and sudden bilateral trade realignments—rather than isolated variables. This interconnectedness is consistent with existing global research showing that commodity-dependent economies exhibit integrated macro-responses during geopolitical crises (Ruta, 2022; Borin et al., 2022).

6. Conclusion

The study demonstrates that the Russia–Ukraine conflict has exerted a profound influence on India's external trade structure. The findings reveal significant increases in Indian imports from Russia, largely due to discounted crude oil, which resulted in a sharp deterioration of India's trade balance. Exports to Russia and Ukraine remained subdued, reflecting both structural trade limitations and war-related disruptions.

Empirical analysis confirms that India's post-2022 external sector performance cannot be explained through isolated variables. Instead, India's trade and macroeconomic indicators responded to a systemic shock—one that altered global supply chains, commodity prices and exchange-rate dynamics. Severe multicollinearity in the regression model reinforces the reality that these variables moved together as part of a single global crisis.

The study provides evidence that emerging economies, despite gaining short-term advantages such as discounted commodities, may experience long-term vulnerabilities through widening trade deficits, reduced competitiveness and greater dependence on high-risk geopolitical

partners. India's experience reflects both opportunity and risk, emphasizing the need for diversified trade strategies and resilient supply chains.

7. Practical Implications

1. **Energy Procurement Strategy:**

   India's sharp rise in crude imports from Russia signals the need for a balanced procurement framework that avoids excessive dependence on geopolitically volatile sources. Policymakers must strengthen long-term contracts with diversified suppliers to reduce vulnerability.

2. **Trade Diversification:**

   The collapse of exports to Ukraine and limited export growth to Russia reveal the need for expanding India's export presence in non-traditional markets. Strategic trade partnerships with Southeast Asia, the Middle East and Africa could mitigate future shocks.

3. **Supply Chain Resilience:**

   The multicollinearity findings confirm that global shocks affect multiple macro variables simultaneously. India must invest in supply-chain risk-monitoring systems, logistics redundancies and import-substitution capabilities.

4. **Macroeconomic Stabilization:**

   Exchange-rate stability and inflation management require coordinated fiscal and monetary policies, especially when commodity price volatility is externally driven.

5. **Policy Readiness for Geopolitical Crises:**

   As India is a major emerging market, evidence from the model suggests the importance of crisis-preparedness frameworks that integrate global price monitoring, sanctions assessment and trade-route contingency planning.

8. Author Declaration

Author Contribution Statement:

All authors contributed equally to the conceptual development of the study, acquisition of data, econometric modelling, interpretation of findings and preparation of the manuscript. All authors reviewed and approved the final version of the work.

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Conflict of Interest:

The author declares **no conflict of interest**.

Ethical Compliance:

The study uses publicly accessible secondary data and does not involve human or animal subjects. No ethical approval was required.

Data Availability Statement:

All data used in the study are available through DGFT, RBI, World Bank, WTO/UNCTAD and publicly accessible sources as cited.

References

Allen, T. (2022). *Sanctions and global trade adjustments*. Journal of Economic Perspectives. https://doi.org/10.1257/jep.36.3.3

Behnassi, M., & El Haiba, M. (2022). Impacts of the Russia–Ukraine conflict on global food security. *Journal of Agriculture and Food Security*, 11, 1–14. https://doi.org/10.1186/s40066-022-00394-2

Bentley, J., et al. (2022). Policy tools for stabilizing global food systems during crises. *Food Policy*, 112, 102347. https://doi.org/10.1016/j.foodpol.2022.102347

Borin, A., et al. (2022). Supply chain diversification and economic resilience. *Economic Modelling*, 113, 105882. https://doi.org/10.1016/j.econmod.2022.105882

Boungou, W., & Yatié, A. (2022). The impact of Russia–Ukraine conflict on global financial markets. *Finance Research Letters*, 48, 102934. https://doi.org/10.1016/j.frl.2022.102934

Carriquiry, M., et al. (2022). Grain market disturbances following the Russia–Ukraine war. *Agricultural Economics*, 53(3), 375–389. https://doi.org/10.1111/agec.12725

Estrada, M., & Koutronas, E. (2022). Economic and geopolitical effects of sanctions on Russia. *Journal of Policy Modeling*, 44(6), 1258–1275. https://doi.org/10.1016/j.jpolmod.2022.06.004

Fang, L., & Shao, Z. (2022). Global energy prices and geopolitical risk. *Energy Economics*, 109, 105991. https://doi.org/10.1016/j.eneco.2022.105991

Field, A. (2018). *Discovering statistics using SPSS* (5th ed.). Sage.

Glauben, T., et al. (2022). Global grain market dependencies before the Ukraine crisis. *Global Food Security*, 33, 100633. https://doi.org/10.1016/j.gfs.2022.100633

Gujarati, D. (2020). *Basic econometrics* (5th ed.). McGraw-Hill.

Hamilton, J. D. (2022). *Time series analysis and macroeconomic applications*. Princeton University Press.

IJNRD. (2022). India–Russia trade and strategic vulnerabilities. *International Journal of Novel Research and Development*, 7(6), 45–58.

JETIR. (2022). Implications of Russia–Ukraine conflict on India's trade. *Journal of Emerging Technologies and Innovative Research*, 9(4), 120–132.

Kline, R. B. (2023). *Principles and practice of structural equation modeling* (5th ed.). Guilford Press.

Mahlstein, K., et al. (2022). Global macroeconomic impacts of the Russia–Ukraine war. *IMF Economic Review*.

Ruta, M. (2022). The global trade shock of the Russia–Ukraine war. *World Bank Policy Research Working Paper*.

Shahbaz, K., & Muzaffar, M. (2025). *Geopolitical disruptions and emerging markets*. Oxford Economic Studies.

Steinbach, A. (2023). Post-invasion trade reallocation in Eastern Europe. *Review of International Economics*, 31(2), 255–275. https://doi.org/10.1111/roie.12609

Times of India. (2025, August 21). India–Russia trade balance after sanctions.

Wikipedia. (2025, December 31). *India and the Russian invasion of Ukraine*.