

Regression Analysis of Ukraine-Russia War on Indian Economy

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ABSTRACT

This study examines the economic impact of the Russia-Ukraine conflict on India from January 2021 to April 2024. Utilizing a multiple linear regression model, we evaluate how three key economic indicators—rupee value, consumer price index (CPI), and foreign exchange reserves—affect India's trade performance. Due to its heavy reliance on imports such as fertilizers, jewelry, natural gas, diamonds, and edible oils, India has been significantly affected by global supply chain disruptions and rising costs induced by the conflict. In the most recent fiscal year, the country's import expenditure is anticipated to surpass USD 600 billion, potentially escalating inflation and widening the current account deficit. Ukraine's primary trading partner in the Asia-Pacific region is India, with bilateral trade estimated at USD 2.5 billion in the financial year 2020-21, while India's trade with Russia during the same period stood at approximately USD 8.1 billion.

KEYWORDS

Multiple regression model, Consumer price index, Current account deficit, Russia and Ukraine war.

1. Introduction

Conflicts [12] have profound economic consequences, leading to inflation, food insecurity, and heightened geopolitical tensions [11]. The ongoing Russia-Ukraine war has impacted global economies, and India [11] is no exception. Rising inflation can be observed worldwide, and due to India's reliance on imports such as edible oils, crude oil, fertilizers, natural gas, jewelry, and gemstones, the country's import bill is projected to exceed **USD 600 billion** this fiscal year [3].

This is not the first instance where India's economic growth has faced external disruptions due to geopolitical conflicts. Previous global crises such as the **Iran-Iraq War (1980-1988)** [14], the **First Gulf War (1990-1991)** [15], and the **Syrian Civil War (2011-present)** [16] have affected India through oil price shocks, trade disruptions, and investor uncertainty.

Although Russia and Ukraine together account for less than **2%** of global trade, they are crucial suppliers of key commodities, including **37%** of the world's palladium, **17%** of natural gas, **13%** of wheat, and **12%** of oil. The sanctions imposed on Russia, combined with disruptions in supply chains, have influenced global trade and financial

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stability. Market volatility resulting from this crisis is driven by fluctuations in global equities [6], rupee-dollar exchange rates, and crude oil prices [1].

India's direct trade exposure to Russia-Ukraine remains limited, as Russia constitutes only about **1%** of India's total trade volume [2]. However, the broader implications of the conflict on global markets remain a concern. A considerable portion of India's imports from Russia pertains to defense agreements, which the government is likely to sustain through strategic negotiations. The indirect effects of market disruptions, however, pose greater economic risks. Research suggests that a **USD 10 per barrel** increase in crude oil prices can raise inflation by **0.4% to 0.5%** annually in major economies and reduce global GDP growth by **0.1% to 0.2%** [7].

With crude oil prices surging due to the ongoing crisis [4], concerns over India's macroeconomic stability have grown. [13] Morgan Stanley revised India's GDP growth projection for **2023** to **7.9%** while estimating retail inflation at **6%**, well above the **RBI's** target of **4.5%**. The sharp rise in global oil prices and its influence on the **Consumer Price Index (CPI)** may further strain India's import expenditures and widen the **Current Account Deficit (CAD)**.

Few studies have applied statistical models to analyze the economic impact of the Russia-Ukraine war. A prior study by [18] examined the relationship between India's exports, imports, and crude oil prices using a simple linear regression model. However, with a coefficient of determination of only **27%**, the study's predictive accuracy was limited.

This study aims to bridge the gap by exploring the economic consequences of the Russia-Ukraine war on India's retail and wholesale sectors [17]. Unlike previous studies that relied on theoretical and qualitative analyses [8], [10], our research employs a **multiple linear regression model** to statistically evaluate how key economic factors—including the **rupee, CPI, and forex reserves**—have been affected.

The dataset for this study has been obtained from the **Reserve Bank of India (RBI)** and the **Ministry of Commerce and Trade**, covering the period **April 2021 to November 2023**. Three separate **multiple linear regression models** are developed, each considering one of the dependent variables (**rupee, CPI, or forex reserves**). The independent variables include **repo rate, wholesale price index (WPI), industrial production index (IIP), imports, foreign direct investment (FDI), and foreign currency non-resident account (FCNR)**.

The remainder of the paper is structured as follows: **Section 2** discusses data and methodology, **Section 3** presents empirical findings, **Section 4** outlines the study's future scope, and **Section 5** summarizes the results.

2. Data and methods

2.1. Data Overview

For an accurate Statistical Analysis, it is very important to obtain data from trusted and reliable sources. Without correct data, it is very difficult to obtain a correct outcome or result. It is essential to know the nature, sources, and limitations of data. We have gathered secondary data from the sites of the Reserve Bank of India (RBI) and the Ministry of Commerce and then used them in the study. The data is collected for various commodities for export and import between India-Russia and India-Ukraine on a daily and monthly basis from 2021 to April 2024 (For CPI, WPI and Rupee, etc), respectively.

Table 1. Descriptive Statistics for each variable

Variables	Mean ¹	Median ²	Std. Deviation ³	Skewness ⁴	Kurtosis ⁵
Forex Reserve	593913.623	593608.900	28248.6738	-.131	-.215
Export	35488.814	35233.000	3678.6608	.182	.649
Import	54547.409	54484.700	7257.2198	-.571	-.575
Dollar per Barrel	84.840439	82.585000	15.7876296	.620	.200
FDI	2595.9071	1730.1200	3400.14967	.486	-.504
FCNR	18794.9877	18950.0000	1963.64091	-.123	-1.151
Repo Rate	5.0898	4.7750	1.13033	.230	-1.869
CPI	171.3971	172.6000	9.15749	-.007	-1.019
IIP	137.1114	137.8000	7.97303	-.503	.328
WPI	145.6886	150.5000	8.76731	-.895	-.614
Rupees	78.3131	78.9400	3.96581	-.070	-1.784

2.2. Methodology

A Multiple Regression study is a statistical tool to evaluate the linear relationship between one variable (dependent variable) and one or Multiple variables (independent variables). It is a powerful tool for modelling and predicting how the dependent variable changes with the respect of independent variable changes. Regression analysis is commonly used for prediction and forecasting.

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \dots \beta_n x_n + \epsilon \quad (1)$$

Where, y is the dependent variable (Rupees, CPI, Forex reserve), β_0 is a constant for intercepted value, x_i are the independent variables (Repo rate, FCNR, imports,

⁰Note: This is a table summarizing the main characteristics of each variable before fitting models using the data.

¹The mean is the average of a data set.

²The median is the middle of the set of numbers, it is the positional average for ordered data.

³A measure of central tendency to check the variation of data points from the mean.

⁴Skewness is a measure of the asymmetry of the distribution of dataset.

⁵Kurtosis is a measure of the "tailed-ness" of the probability distribution of a real-valued random variable.

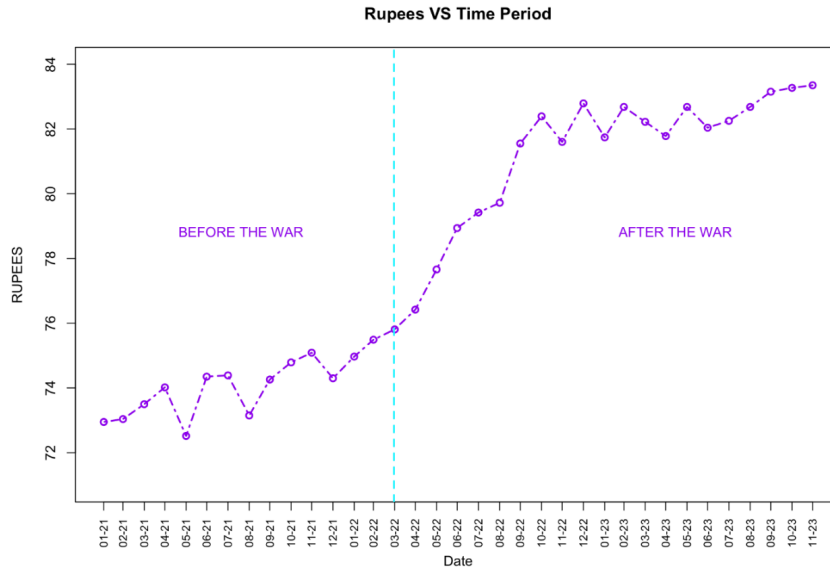


Figure 1. Effect of war on Indian currency

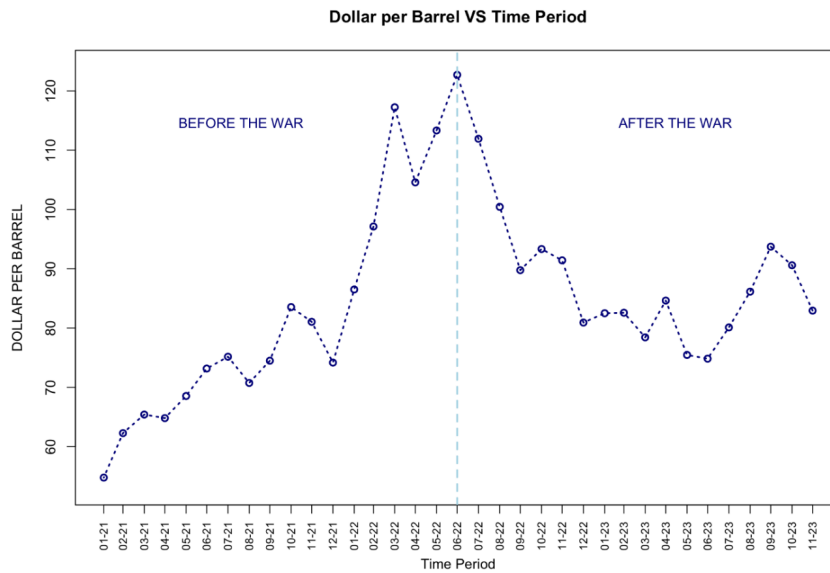


Figure 2. Effect of war on crude oil prices

exports, FDI etc.) and β_i are different regression coefficients of the respective independent variables. ϵ is the error of the model, i.e. the variation between the observed and the expected value of the model.

Before building the regression model its assumptions have to be tested properly to avoid any of the distorted results. The following six hypotheses must be verified :

- (1) Linearity: The multiple regression study checks the linear relationship between the dependent and independent variables by plotting a scatter plot which shows

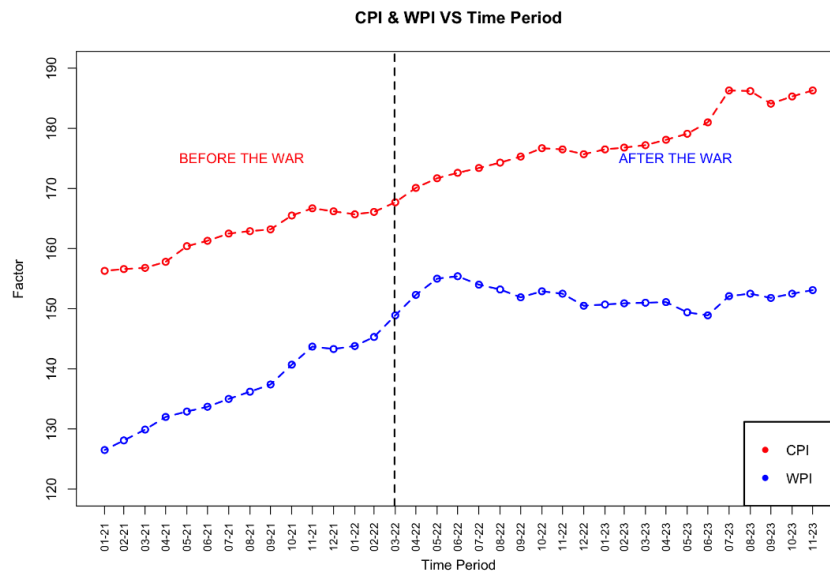


Figure 3. Effect of war on inflation

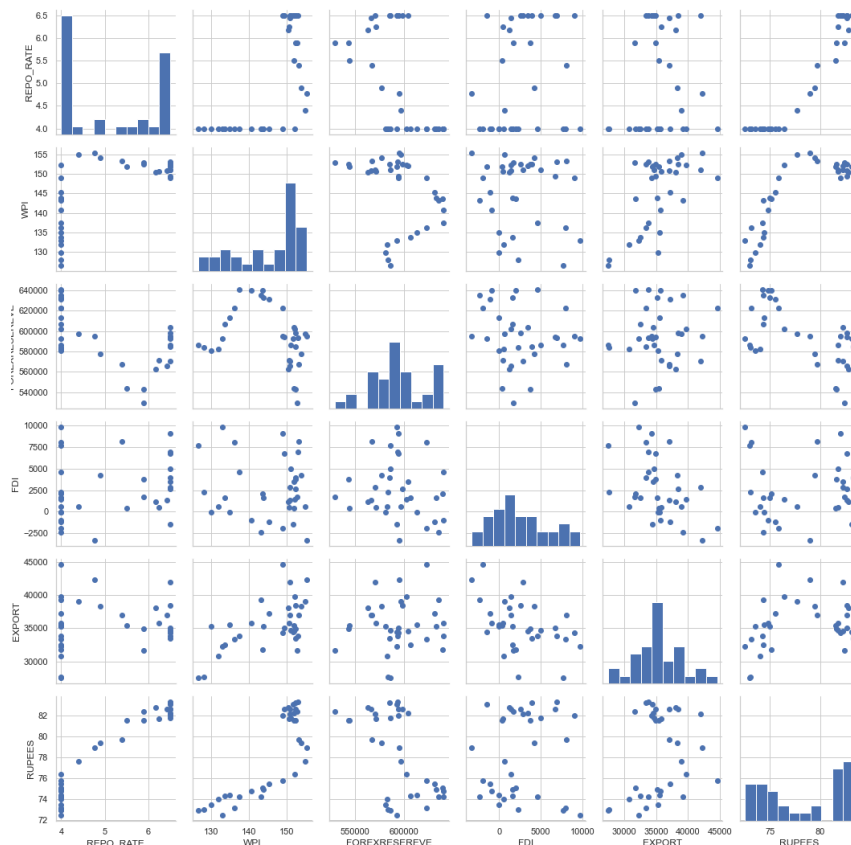


Figure 4. Pairwise relationships among economic indicators

the linearity exist between the variables or not.

- (2) Absence of multicollinearity: Multicollinearity determines the association between the different independent variables i.e to check there exists correlation between the different independent variables or not. For testing the Multicollinearity, Variance Inflation Factor (VIF) = $\frac{1}{1-R_i^2}$ indicator is used, where R_i^2 is the proportion of the variation in the dependent variable that is predictable from the independent variables.
- (3) Autocorrelation: It is used to study whether there exists any correlation between the residuals or not, the Durbin-Watson statistical test is used to study the autocorrelation between the residuals.
- (4) Homoscedasticity: The residuals have a consistent and constant variance and it is checked by plotting the graph of "standardized residuals" versus "standardized predicted value".
- (5) Normally distributed error: The error terms or residuals has to follow a normal distribution and to check the assumption a quantile-quantile (Q-Q) plot can be used.
- (6) Outlier Detection: The Cook's distance values always less than 1 provides the absence of outliers. Goodness of fit is an important measure of a multiple regression model to understand how well the model is explaining the data, the coefficient of determination, denoted as R^2 is used. The coefficient of determination R^2 represents the change in the proportion of dependent variable of Y which is explainable by the X regressor as independent variables included in the model. Adjusted- (R^2) is a modified version of R square in multiple linear regression with several predictors which gives the priority to significant independent variables
 $R^2_{Adjusted} = 1 - \frac{n-1}{n-m-1}(1 - R^2)$, where n represents the total sample size, and m is the number of predictors. In most cases, it turns out $0 < R^2 \leq 1$.

Table 2. Research Framework

Models	Dependent Variable	Independent Variables
Model 1	Rupees	Foreign Direct Investment(FDI) Wholesale Price Index(WPI) Forex Reserve Repo Rate Export
Model 2	Consumer Price Index (CPI)	Forex Reserve Rupees
Model 3	Forex Reserve	Foreign Current Non-Resident(FCNR) Foreign Direct Investment(FDI) Repo Rate Imports Rupees Export

⁰The study is based on the secondary dataset, which is already published by government and private organizations. Various data was collected from journals, articles, government publications, and some specified documents. We proceeded with Regression Analysis and defined the Independent and Dependent Variables in each model used.

3. Interpretation

3.1. Model 1

The first Regression model is applied to rupees and their components to determine which components have significantly contributed to the rupees.

3.1.1. Testing the Significance of the Overall Model

The significance of the overall model was evaluated using ANOVA to determine whether the changes in the dependent variable is significantly explained by the independent variables. The F-statistic compares the variance due to regression in the model to the variance due to error and indicates whether there exists a strong relationship between the predictors and the outcome, supporting the conclusion that the model provides a good fit to the data. The ANOVA results indicate whether the model is statistically significant or not. The ANOVA table tests the following hypotheses:

- **Null Hypothesis (H_0):** The independent variables (Repo Rate, WPI, FOREX Reserves, FDI, Exports) do not exhibit a significant linear relationship with the dependent variable (Rupees), indicating that the model's coefficients are effectively zero.
- **Alternative Hypothesis (H_1):** At least one of the independent variables (Repo Rate, WPI, FOREX Reserves, FDI, Exports) has a significant linear relationship with the dependent variable (Rupees), meaning that at least one coefficient differs from zero.

Table 3. ANOVA Table for Model 1

ANOVA						
Model	Source	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	495.116	1	495.116	412.352	.000
	Residual	39.623	33	1.201		
	Total	534.740	34			

Dependent Variable: Rupees

Predictors: (Constant), Repo rate, WPI, Forex Reserve, FDI, Export

Interpretation: There is not enough evidence to accept the null hypothesis i.e., **The dependent variables exhibit a linear relationship between the independent variables**

3.1.2. Model Summary

Table 4. Summary of Model 1

Model Summary					
Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Durbin-Watson
1	.995	.990	.988	.43696	2.422

Independent Variables: (Constant), Repo rate, WPI, Forex Reserve, FDI, Export
Dependent Variable: Rupees

Interpretation: Adjusted R^2 is 0.988, which shows the independent variable, i.e., WPI, FDI, EXPORT, Repo rate, Forex Reserve explains the dependent variable (Rupees) by 98 Percent. It gives a better fit and estimation of the dependent variable(rupees)

3.1.3. Testing Of The Coefficients

After establishing the overall significance of the model, we next examined the individual coefficients to determine their significance. This process involved evaluating each predictor variable to determine its statistical significance in relation to the dependent variable using the t-test. The t-statistic for each coefficient was computed as follows:

$$t = \frac{\hat{\beta}_i}{SE(\hat{\beta}_i)}$$

where $\hat{\beta}_i$ represents the estimated coefficient and $SE(\hat{\beta}_i)$ is its standard error. The formulated null hypothesis for each coefficients:

- **Null Hypothesis (H_0):** There exists no significant difference between the different coefficients of independent variables $\beta_i = 0$
- **Alternative Hypothesis (H_1):** Atleast one of the coefficients of independent variables is significant. $\beta_i \neq 0$

Table 5. Testing the coefficients for Model 1

Coefficient							
Model		Unstandardized Coefficients B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity S Tolerance
1	(Constant)	50.915	2.578		19.748	.000	
	Repo rate	2.503	.115	.713	21.819	.000	.334
	WPI	.157	.016	.348	9.529	.000	.268
	Forex Reserve	-.0000096002	.000	-.068	-2.958	.006	.668
	FDI	-.0000862097	.000	-.074	-3.335	.002	.727
	Export	-.0000652810	.000	-.061	-2.083	.046	.423

Dependent Variable: Rupees

Interpretation: An analysis of the table indicates that the five independent variables

in the standard model serve as strong predictors of the dependent variable, **rupees**, as evidenced by the **ANOVA statistics** [$p < .05$]. As a result of the **standard regression analysis**, the model demonstrated a high predictive ability for the dependent variable, with an R^2 value of **0.990**. Additionally, the **Adjusted R^2** value of **0.988** suggests that the model effectively explains the variance in the dependent variable. Given these coefficient values, it can be concluded that the model provides a highly accurate prediction of the dependent variable.

In its standard form, the model can be expressed as:

$$Y_{\text{Rupees}} = 50.915 + 2.503x_{\text{Repo Rate}} + 0.157x_{\text{WPI}} - 0.0000096002x_{\text{Forex Reserve}} - 0.0000862097x_{\text{FDI}} - 0.0000652810x_{\text{Export}} \quad (2)$$

3.2. Model 2

The 2nd Regression model is applied to CPI and its Components to find which of the components have significantly contributed to the CPI.

3.2.1. Testing the Significance of the Overall Model

The significance of the overall model was evaluated using ANOVA to determine whether the changes in the dependent variable is significantly explained by the independent variables. The F-statistic compares the variance due to regression in the model to the variance due to error and indicates whether there exists a strong relationship between the predictors and the outcome, supporting the conclusion that the model provides a good fit to the data. The ANOVA results indicate whether the model is statistically significant or not. The ANOVA table tests the following hypotheses:

- **Null Hypothesis (H_0):** The independent variables (Rupees, Forex Reserve) do not exhibit a significant linear relationship with the dependent variable (CPI), indicating that the model's coefficients are effectively zero.
- **Alternative Hypothesis (H_1):** At least one of the independent variables ((Rupees, Forex Reserve) has a significant linear relationship with the dependent variable (CPI), meaning that at least one coefficient differs from zero.

Table 6. ANOVA Table for Model 2

ANOVA					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	2714.012	2	1357.006	316.463	.000
2 Residual	137.217	32	4.288		
Total	2851.230	34			
Dependent Variable: CPI					
Predictors: (Constant), Rupees, Forex Reserve					

Interpretation: The model results indicate a significant relationship between the

dependent variable (CPI) and the independent variables (Rupees, Forex Reserve), as evidenced by the low significance value ($p < 0.05$). The null hypothesis is rejected, meaning the independent variables significantly explain variance in the dependent variable.

3.2.2. Model Summary

Table 7. Summary for Model 2

Model Summary									
Model	R	R ²	Adjusted R ²	Std. Error	R ² Change	Change Statistics F Change	df1	df2	Sig. F Change
2	.976	.952	.949	2.07076	.057	37.839	1	32	.000
Predictors: (Constant), Rupees, Forex Reserve									
Dependent Variable: CPI									

Interpretation: Adjusted R^2 is 0.949 which shows the independent variable i.e. Forex Reserve, Rupees explains the dependent variable (CPI) by 94 Percent. It gives a better fit and estimation of the dependent variable (CPI)

3.2.3. Testing Of The Coefficients

After establishing the overall significance of the model, we next examined the individual coefficients to determine their significance. This involved testing each predictor variable to assess whether it has a statistically significant effect on the dependent variable using the t-test. The formulated null hypothesis for each coefficient:

- **Null Hypothesis (H_0):** There exists no significant difference between the different coefficients of independent variables $\beta_i = 0$
- **Alternative Hypothesis (H_1):** Atleast one of the coefficients of independent variables is significant. $\beta_i \neq 0$

Table 8. Testing the Coefficients for Model 2

Coefficient								
Model		Unstd. Coefficients B	Std. Coefficients Std. Error	Std. Coefficients Beta	t	Sig.	Collinearity Tolerance	Statistics VIF
2	(Constant)	-84.738	15.509	—	-5.464	0.000	—	—
	Rupees	2.561	0.108	1.109	23.615	0.000	0.682	1.466
	Forex Reserve	0.00009340	0.000	0.289	6.151	0.000	0.682	1.466
Dependent Variable: CPI								

Interpretation: An analysis of the Table reveals that the two independent variables in the standard model are significant predictors of the dependent variable **CPI**, as indicated by the **ANOVA statistics** [$p < .05$]. As a result of the **standard regression analysis**, the model demonstrated a strong predictive ability for the dependent variable, with an R^2 value of **0.952**. Furthermore, the **Adjusted R^2** value of **0.949** suggests that the model effectively explains the variance in the dependent variable. Given these coefficient values, it can be concluded that the model provides a highly accurate prediction of **CPI**.

$$Y_{CPI} = -84.738 + 2.561x_{Rupees} + 0.000094x_{ForexReserve}$$

3.3. Model 3

The 3rd Regression model is applied to the Forex Reserve and its Components to find which components have significantly contributed to the Forex Reserve.

3.3.1. Testing the Significance of the Overall Model

The significance of the overall model was evaluated using ANOVA to determine whether the changes in the dependent variable is significantly explained by the independent variables. The F-statistic compares the variance due to regression in the model to the variance due to error and indicates whether there exists a strong relationship between the predictors and the outcome, supporting the conclusion that the model provides a good fit to the data. The ANOVA results indicate whether the model is statistically significant or not. The ANOVA table tests the following hypotheses:

- **Null Hypothesis (H_0):** The independent variables (Rupees, Forex Reserve) do not exhibit a significant linear relationship with the dependent variable (CPI), indicating that the model's coefficients are effectively zero.
- **Alternative Hypothesis (H_1):** At least one of the independent variables (Rupees, CPI, IIP) has a significant linear relationship with the dependent variable (Forex Reserve), meaning that at least one coefficient differs from zero.

Table 9. ANOVA Table for Model 3

ANOVA					
Model		Sum of Squares	df	Mean Square	F Sig.
3	Regression	19,869,925,022.875	3	6,623,308,340.958	28.275 .000 ^d
	Residual	7,261,652,451.786	31	234,246,853.283	
Total		27,131,577,474.662	34		

Dependent Variable: Forex Reserve

Independent Variables: (Constant), Rupees, CPI, IIP

Interpretation: There is not enough evidence to accept the null hypothesis i.e., **The dependent variables exhibit a linear relationship between the independent variables**

3.3.2. Model Summary

Interpretation: Adjusted R^2 is 0.732, which shows the independent variable, i.e. CPI, IIP, rupees, explains the dependent variable (Forex Reserve) by 73 Percent. It gives a better fit and estimation of the dependent variable (Forex Reserve).

Table 10. Summary for Model 3

Model Summary										
Model	R	R ²	Adjusted R ²	Std. Error	R ² Change	Change Statistics F Change	df1	df2	Sig.	F Change
3	0.856	0.732	0.706	15,305.1251	0.045	5.199	1	31		0.030
Independent Variables: (Constant), Rupees, CPI, IIP										
Dependent Variable: Forex Reserve										

3.3.3. Testing Of The Coefficients

After establishing the overall significance of the model, we next examined the individual coefficients to determine their significance. This involved testing each predictor variable to assess whether it has a statistically significant effect on the dependent variable using the t-test. The formulated null hypothesis for each coefficient:

- **Null Hypothesis (H_0):** There exists no significant difference between the different coefficients of independent variables $\beta_i = 0$
- **Alternative Hypothesis (H_1):** Atleast one of the coefficients of independent variables is significant.

Table 11. Testing the coefficients for Model 3

Coefficient					
Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	864910.362	55018.841		15.720	.000
3 Rupees	-17495.611	2075.135	-2.456	-8.431	.000
CPI	5671.001	885.866	1.838	6.402	.000
IIP	927.320	406.688	.262	2.280	.030

Dependent Variable: Forex Reserve

Interpretation: An analysis of the Table indicates that the three independent variables in the standard model significantly predict the dependent variable **rupees**, as evidenced by the **ANOVA statistics** [$p < .05$]. As a result of the **standard regression analysis**, the model demonstrated a moderate predictive ability for the dependent variable, with an R^2 value of **0.732**. Additionally, the **Adjusted R^2** value of **0.706** suggests that the model explains a substantial portion of the variance in the dependent variable. Based on these coefficient values, it can be concluded that the model provides a reliable prediction of **rupees**.

$$Y_{\text{Forex Reserve}} = 864910.362 - 17495.611x_{\text{Rupees}} + 5671.001x_{\text{CPI}} + 927.320x_{\text{IIP}}$$

4. Conclusion and Future Scope

This study sought to understand the economic impact of the Russia-Ukraine war on key macroeconomic variables in India using regression models. By focusing on the interplay between the Indian Rupee (INR), Consumer Price Index (CPI), and Foreign Exchange Reserves (Forex), we aimed to assess how external shocks from the war affected India's economy. The models developed in this study provide valuable insights into the relationships between these variables and demonstrate the importance of certain economic levers, such as the Repo Rate, exports, and inflation, in mitigating the effects of global disruptions.

The first regression model, which used the Indian Rupee as the dependent variable, evaluated the influence of the Repo Rate, Wholesale Price Index (WPI), Foreign Direct Investment (FDI), FOREX Reserves, and Exports. The regression analysis highlighted the RBI's Repo Rate as a critical factor in controlling the rupee's depreciation. Despite global volatility, the Repo Rate remained stable from March 2022 to March 2023, indicating the central bank's commitment to maintaining exchange rate stability. This stability, as suggested by the regression coefficients, significantly reduced the pressure on the rupee during the war period. Increased foreign direct investment strengthens capital inflows, boosting demand for the domestic currency, while higher export volumes improve the trade balance, further contributing to the rupee's value. However, the regression results suggest that the war-induced disruptions in trade, particularly in essential goods like oil and food grains, introduced volatility into these variables, underscoring the challenges faced by the Indian economy during this period.

The second regression model focused on inflation, using the CPI as the dependent variable, with the rupee and FOREX Reserves as independent variables. This model helps explain how fluctuations in the rupee and reserve levels affect domestic price levels during times of external shocks. The regression results indicate that currency depreciation had a significant and direct impact on inflation. As the rupee weakened, particularly during the Russia-Ukraine war, the cost of imports surged, especially for essential commodities like crude oil and wheat. This led to a form of cost-push inflation, where higher import costs were passed on to consumers in the form of higher prices. The regression analysis quantifies this relationship, showing a strong positive coefficient for the rupee, reflecting that as the rupee's value declines, CPI increases. The negative relationship between reserves and inflation suggests that higher reserves helped mitigate some of the inflationary pressures by allowing the central bank to stabilize the currency and manage the balance of payments more effectively.

The third regression model examined the determinants of FOREX Reserves, treating them as the dependent variable, with exports and CPI as the independent variables. This model aimed to investigate how export performance and inflationary pressures influence reserve accumulation during periods of global instability. The relationship between inflation (CPI) and FOREX Reserves was negative, as expected. High inflation erodes the value of reserves by increasing the cost of imports and reducing the real purchasing power of foreign exchange holdings. The regression results suggest that as inflation rises, the country is forced to deplete reserves faster to maintain import levels, creating a vicious cycle where inflation leads to reserve depletion, further exacerbating economic vulnerabilities.

The regression models collectively offer a comprehensive understanding of how the Russia-Ukraine war has affected the Indian economy, particularly in terms of inflation, currency depreciation, and reserve management. The results show that the RBI's

monetary policy, particularly through the control of the Repo Rate, played a pivotal role in stabilizing the rupee during the period of global turmoil. However, external factors like rising global commodity prices, supply chain disruptions, and geopolitical uncertainty placed additional strain on India's macroeconomic environment, which manifested through inflation and exchange rate volatility.

In conclusion, the regression analysis presented in this study provides a robust framework for understanding the impact of external shocks, such as the Russia-Ukraine war, on India's key economic indicators. The results highlight the interdependence between inflation, currency depreciation, and reserves, offering valuable insights for policymakers on how to navigate such global disruptions. Effective management of monetary policy, exports, and inflation control mechanisms are critical for ensuring India's economic stability in an increasingly interconnected global economy.

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References

- [1] Sankararaman, G., Suresh, S., Thirumagal, P.G., 2024. Assessing the Influence of the Russia-Ukraine War on Securities Markets: Evidences from India. *European Economic Letters* 14, 2.
- [2] Sumathy, M., Das, A.S., Shaneeb, P., 2022. Impact on Export, Import of India with Respect to Russian Ukraine War. *Technology and Commerce: Prospects and Challenges*.
- [3] Kaur, M., Singh, M., 2023. Positive and Negative Impact of Ukraine and Russia War on Indian Economy. *International Research Journal of Commerce, Arts and Science* 13, 1.
- [4] Anchal, D.W.R.S., 2024. Russia and Ukraine Conflict: Changing Dynamics in India. *Idealistic Journal of Advanced Research in Progressive Spectrums* 3, 06, 20–23.
- [5] Uyanik, G.K., Güler, N., 2013. A Study on Multiple Linear Regression Analysis. *Procedia - Social and Behavioral Sciences* 106, 234–240.
- [6] Mishra, A., Mishra, A.K., Dash, A.K., 2023. Impact of the Russia-Ukraine Crisis on Food Inflation and Stock Markets in Asian Economies: With Reference to India, China, Japan and Thailand. *International Journal of Social Science and Economic Research* 8, 5.
- [7] Mohammed, N., 2022. The Russia-Ukraine War Crisis - It's Impact on Indian Economy. *International Journal of Research and Analytical Reviews*.
- [8] Nagarjuna, B., 2022. Russia's Invasion of Ukraine: Impact on Indian Economy - Strategies to Mitigate and Sustain. *International Journal of Multidisciplinary Research* 8, 3, 204–209.
- [9] Gaio, L.E., Stefanelli, N.O., Pimenta, T., Bonacim, C.A.G., Gatsios, R.C., 2022. The Impact of the Russia-Ukraine Conflict on Market Efficiency: Evidence for the Developed Stock Market. *Finance Research Letters* 50, 103302.
- [10] Goel, M., 2022. A Study of Impact of Russia-Ukraine War on the Indian Economy. *International Journal of Scientific Engineering and Research* 10, 5, 12–15.

- [11] Ozili, P., 2022. Global Economic Consequence of Russian Invasion of Ukraine. SSRN Electronic Journal.
- [12] Schneider, G., Troeger, V., 2006. War and the World Economy. *Journal of Conflict Resolution* 50, 623–645.
- [13] Morgan Stanley, 2022. 2022 Global Macro Economy Outlook: Growth Despite Inflation.
- [14] Ahluwalia, M.S., 2002. *India's Economic Reforms and Development: Essays and Policy Addresses*. Oxford University Press.
- [15] Bhagwati, J., 1993. *India in Transition: Freeing the Economy*. Clarendon Press.
- [16] Salve, N.K., 1998. *Coalition Politics and Economic Management in India*. Sage Publications India.
- [17] Kaur, C., Siddiki, J., Singh, P., 2024. The Asymmetric Impact of Input Prices, the Russia-Ukraine War and Domestic Policy Changes on Wholesale Electricity Prices in India: A Quantile Autoregressive Distributed Lag Analysis. *Energy Economics* 132, 107428.
- [18] Sumathy, A., Das, A.S., Shaneeb, P., 2020. Impact on Export, Import of India with Respect to Russian Ukraine War, in: *Technology and Commerce: Prospects and Challenges*, 13, 9, 1–9, Mayas Publication.