



Impact of Forex on Indian Economy

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Abstract

The main aim of this research paper is to establish the relationship between foreign exchange reserves (Forex) measured in terms of Special Drawing Rights (SDR), Gold Reserves (GR), and Net Exports and the Macroeconomic Indicator of the economy, the Gross Domestic Product. Secondary Data has been collected on various forex variables. The paper has made use of a double-log regression model to achieve the results of the study. Before applying regression, various assumptions of the Classical Linear Regression Model (CLRM) were also tested. By doing the regression analysis, we found that all the forex variables have a significant relationship with the GDP. Holding foreign exchange reserves is very crucial for any economy as it helps to withstand the external pressure phased by the economy. It acts as buffer money for the country when the country encounters adversity. The policymakers should keep in mind that foreign exchange reserves are international assets of the nation and increasing that reserve is important for the upward growth trajectory of every country so expanding those reserves for the rainy season should be the topmost priority.

Keywords: *Special Drawing Rights, Gold Reserves, Net Exports, Gross Domestic Product and Double Log Regression Model*

1. Introduction

The standard measurement of the value added produced via the production of goods and services in a nation over a specific time period is the gross domestic product (GDP). Gross Domestic Product is a good indicator of an economy's health and with upgradation in research and quality of data, statisticians and governments are trying to find out policies and instruments to strengthen GDP and make it an all-rounder measure of national income. A central bank's holdings of foreign currency are known as foreign exchange reserves. These assets are most significantly held to ensure that a central government agency has backup funds if their national currency rapidly devalues or becomes all together insolvent. Foreign exchange reserves play an increasingly important role in linking emerging markets and developed economies. Thus, studying the relationship between foreign exchange reserves and GDP is a topic of immense knowledge.

The paper helps to understand the extent to which the variables like Special Drawing Rights (SDR), Gold Reserves, and Net Exports (X-IM) leave an impact on the dependent variable, i.e., the GDP of India. With GDP, policymakers and central banks may determine whether the economy is increasing or decreasing and quickly take the appropriate action. The impact of factors including monetary and fiscal policy, economic shocks, and tax and spending plans can also be studied by economists, businesses, and policymakers. The ability of GDP to give an overall picture of the state of the economy is what prompted us to analyze the trend of India's GDP from 1980-2022 and to conclude how affecting these variables have been during these years.

From current economic trends and data, it can be understood that Foreign Exchange continues to have an impact on the Indian Economy. Foreign reserves are the assets held in foreign currencies including gold special drawing rights, foreign marketable securities, and IMF reserve positions. Having forex is important for trading in the world market. Imports and exports of a nation impact its forex reserves. Holding more forex reserves helps a nation to strengthen its domestic currency which again acts as a reflection of a good economy. Seeing the importance of forex on the economy its study becomes crucial for policy and trade purposes.

In the current times, the impact of forex can be well accounted for. Today Pakistan, our immediate western neighbor, and Sri Lanka our southern neighbor are facing forex shortages and the state of their economy is contracting every passing day. The Pakistani rupee has hit a new low of crossing 300 Pakistani Rupee per Dollar mark and has a shortage of forex reserves. Recent IMF delegations were also sent to revive the economy for the same. Similar conditions were faced by Sri Lanka 5 months back. India was able to safeguard itself because it has one of the highest foreign exchange reserves in the world to safeguard itself from unaccounted turmoil like COVID, the War in Ukraine, etc.

The rest of this paper is structured as follows. The second section provides a brief literature review. The third section discusses the data and methodology of the research work. The fourth section provides the empirical evidence and discussion of results while the fifth section concludes the paper.

2. Review of literature

Daga, Das, and Maheshwari (2009) have studied the determinants of the GDP of India. The research paper attempts to explain the trend of GDP and its forecasting. It was found that the GDP of India is a stationary process. The trend equation proves a good fit after the drop of the dummy variable. All the t values were found to be highly significant. It was found that the estimated GDP line coincides with the actual GDP line and hence this estimation can be used for GDP forecasting. The trend found in GDP time series forecasting is perfectly fine.

Kaur and Sidhu (2011) reported that there is unidirectional causality from trade openness to Economic Growth and bidirectional causality from GDP to export growth in India. They concluded that there is a positive correlation between export growth and economic growth during the reform period.

Baber, Baber, and Thomas (2013) have studied the various factors contributing to the continuously escalating prices of gold in India and how factors like international business environment, political environmental market conditions, its induction in the commodity market, buying behavior of consumer and inflation have affected the price of gold.

Mehta (2015) reported that unidirectional causality runs from GDP to Exports. Along with that, they found that there is no causality between GDP and imports, but there was unidirectional causality from Exports to Imports, concluding that in the long term, exports lead to imports but import does not lead to exports.

Okday, Öztung, and Serin (2016) reported that an increase in GDP and exports of goods and services have an increasing effect on gold reserves while population, net FDI liabilities, and current account balance have negative effects on it for G-7 countries. It was also found that factors that affect total gold reserves are different from the factors that affect total international reserves.

Rentalala and Nandru (2019) have found that foreign trade has become more important to the Indian economy in the past few years. Exports and imports of services of goods have grown rapidly in the post-reform period in India. The present study explored possible co-integration, and direction of causality between gross domestic products, number of export products, and number of import products in India using annual data that ranges from 1991-2015. The results of the research strongly support that there is a causal relationship between export products, GDP, import partners of the country, and the number of tariff agreements.

In his 2019 article, Rajanbabu examined the development and patterns of India's foreign exchange holdings. It was found that indicators like SDR and GR have significantly changed over the years. All the indicators noticed notable growth from 1961-2018. It showed that India holds an adequate level of foreign exchange reserves.

Kuppusamy, Rajanbabu, and Prasad (2019) analyzed trends of volatility in the foreign exchange reserves of India. Out of the four components (SDR, Gold Reserves, Reserve Tranche Position, and foreign currency assets), only foreign currency assets were stable from 1980-2015 and the rest showed signs of volatility. On a whole, it was observed that the degree of stability increased for foreign exchange reserves in India over the period and India now holds a good amount of forex reserves.

Reddy (2020) reported that in the short run, there is unidirectional causality from economic growth to exports, exports to imports, and imports to economic growth. While in the long run, there is a bidirectional causality relationship between economic growth and exports. It is concluded that both exports and imports lead to the economic growth of India.

The increasing tendency of India's foreign exchange reserves during the COVID-19 pandemic crisis is a blessing in disguise for the nation, according to Agarwal, Sutradhar, and Goswami (2020). It increases the rating of India's external sector in the global market. It depicts that the country has a greater capacity to stabilize the exchange rate and to pay external liability as and when falls due. The study revealed that in the month of March 2020, there has been a huge decline in the foreign exchange reserves. But in the succeeding month, the country bounced back strongly and reached the remarkable position of holding half-trillion US\$ foreign exchange reserves. The different measures of estimating the adequacy level of reserves showed that the country holds reserves more than the adequate level. If any particular shock affects the economy, then it has a greater capacity to absorb the shock.

Bhowmik (2021) analyzed the relationship between the Yuan SDR exchange rate and the internationalization of the Renminbi which got added to the reserve basket in 2016 following aggressive open market reforms by the Chinese government. In this paper, SDR was the dependent variable and monthly GDP, inflation, and exchange rate were independent variables. The paper found that Yuan per SDR has significant long-run casualties with exports, imports, inflation rate, GDP, and foreign exchange reserves of China.

Caldentey and Armah (2022) analyzed how SDRs are the most expedient mechanisms to provide concessional liquidity at scale to all countries regardless of their income. On 23 August 2021, a new allocation of US\$650 billion was made to help the developing nation. It proposed four modalities for the reallocation of SDR. The first modality was bolstering international funds for poverty reduction and Growth Trust, the second was the proposal to create a fund for middle-income countries to finance

SDG-related investment projects, the third was to allocate SDR to fund liquidity and Sustainability facility (LSF) and Pacific Investment Management Company (PIMCO) And the fourth modality to use SDR for enhancing the lending capacity of development banks and bolster regional framing institution. Shanmugam (2022) reported how India is taking a step to invest its pile of forex reserves to finance infrastructure projects. As India is an import-dependent country for much of its needs, especially oil, India needs to build a good amount of forex reserves to counter any instability arising because of being an import-dependent country. India currently has more FII than FDI and is in a weak position in case of instability hence India needs to make its economy attractive to many FDI inflows.

This paper tried to consolidate all the major forex-related variables under one heading and tried to analyze GDP (dependent variable) through SDR, Gold Reserves, and Net Exports (independent variables).

3. Data and methodology

3.1. Data

This section describes the data underlying our analysis. To analyze the results, we have used quantitative data. All of the surveys we used are freely available for researchers, mostly via a request through national statistical agencies or parallel institutions. When multiple years of appropriate data are available, we choose a period of over 42 years from the year 1980-2022. The data has been carefully picked to analyze the effect of foreign exchange reserves on GDP. The variables used in the study are:

3.1.1. Gross domestic product (GDP)

The Gross Domestic Product (GDP) is the market value of final goods and services produced in a country, during a period (generally a year). The GDP typically measures the output (which is either used immediately or added to stocks for future use) produced in an economy during a given period. The revenue generated after selling such output must cover the costs and also ensure some profits (which can be negative) after covering such costs. Therefore, it is right to state that the total output manufactured must be equal to the incomes distributed to the factors of such a production [Daga, Das, and Maheshwari (2009), Kaur and Sidhu (2011)].

3.1.2. Special Drawing Rights (SDR)

The Bretton Woods fixed exchange rate arrangement gave rise to the SDR as an additional international reserve asset. The collapse of the Bretton Woods system in 1973, and the shift of major currencies to floating exchange rate regimes lessened the reliance on the SDR as a global reserve asset. Nonetheless, as was the case during the global financial crisis, SDR allocations can play a role in providing liquidity and supplementing member countries' official reserves. The SDR is the IMF's and other international organizations' accounting unit. The SDR is neither a currency nor an IMF claim. Rather, it is a potential claim on the freely usable currencies of IMF members. SDRs can be exchanged for these currencies. SDR is one of the most important foreign exchange reserve components. It is the third largest component of India's external debt (6.3%) only after the US Dollar (54.7%) and Indian Rupee (30.4%). So, it stands as an important pillar to analyze the relationship between India's gold jewelry exports which have grown over the years, rising from US\$7.6 billion in 2015 to US\$12.4 billion in 2019, foreign exchange reserves, and the GDP of the Indian economy.

3.1.3. Gold Reserves

During the periods of the gold standard, a gold reserve is gold maintained by a national central bank and used as a store of value or to support the value of the national currency, as well as a guarantee to honor obligations to pay depositors, note holders (such as paper money), or trading peers. The IMF regularly maintains statistics of national assets as reported by various countries. This data is used by the World Gold Council to periodically rank and report the gold holdings of countries and official organizations [Baber (2013); Oktay, Öztung, and Serin (2016)].

Gold Reserve is one of the important hedges against inflation. Currencies of different countries fluctuate depending on the economic conditions, but Gold being a finite asset is able to hold its true value. In India, RBI holds 760.42 metric tonnes of gold as of march end of 2022. India's gold jewelry exports have grown over the years, rising from US\$7.6 billion in 2015 to US\$12.4 billion in 2019. Indian households account for 80% share of Indian gold. Thus, seeing Gold's hedging against inflation and its zeal among Indians makes it an important factor to study Forex.

3.1.4. Net Exports (X-IM)

Net exports, also known as trade balance, are defined as exports minus imports of a country during a given period of time. Imports (IM) can be defined as the purchase of goods and services from the rest of the world. However, exports (X) are the goods and services sold to the foreign world. Net exports are the difference between exports and imports. If exports are more than imports, such a situation is known as a trade surplus. However, if imports > exports, it results in a trade deficit [Rentals and Nandru (2019); Mehta, Patel, and Patel (2015)].

Net Export is a vital factor reflecting the trade health of a country. A positive net export means an inflow of foreign money for a nation making it a better economy. For the fiscal year 2022, the imports and exports were 33 percent of India's GDP an increase from 2020 which was then 26 percent of GDP. There is a direct relationship between net exports and GDP and therefore it is crucial to analyze the relationship between them.

3.2. Methodology

To analyze quantitative data, basic econometric tools like regression have been used along with basic mathematical models to analyze choices by way of graphical analysis. The raw data was brought to a condensed form for a better understanding and representation of the idea that the paper wishes to put forward. Data has been represented in the form of line graphs as well as scatter plots to give a lucid comprehension. The software used to carry out regression, correlation, and other statistical operations is SPSS.

3.2.1. Normality

We perform the normality test to determine whether sample data has been drawn from a normally distributed population. Several statistical tests such as the student t-test and the one-way and two-way ANOVA requires a normally distributed sample population. Normality is decided based on the p-value. If the p-value turns out to be significant, we conclude that the data is not normal.

Normality of Variables: Kolmogorov-Smirnov test and Shapiro Wilk test for normality has been used to check whether the variables are normally distributed or not. We set the following hypothesis for testing the normality of the dependent and independent variables—

H₀: The variables are normally distributed

H₁: The variables are not normally distributed.

Normality of Residuals: Normal Probability Plot (PP) has been used to check the normality of residuals. It is a plot of the cumulative frequency of the distribution of standardized residuals yielded from the model against the residuals associated with a normal probability graph scale. We set the following hypothesis for testing the normality of residuals—

H₀: The residuals are normally distributed

H₁: The residuals are not normally distributed

3.2.2. Heteroscedasticity

It refers to the circumstance in which the variability of the variable is unequal across the range of values of a second variable that predicts it. It refers to unequal variances of the error term. The term normality

is used when variances of the error term in regression analysis depend on the different values of regressors.

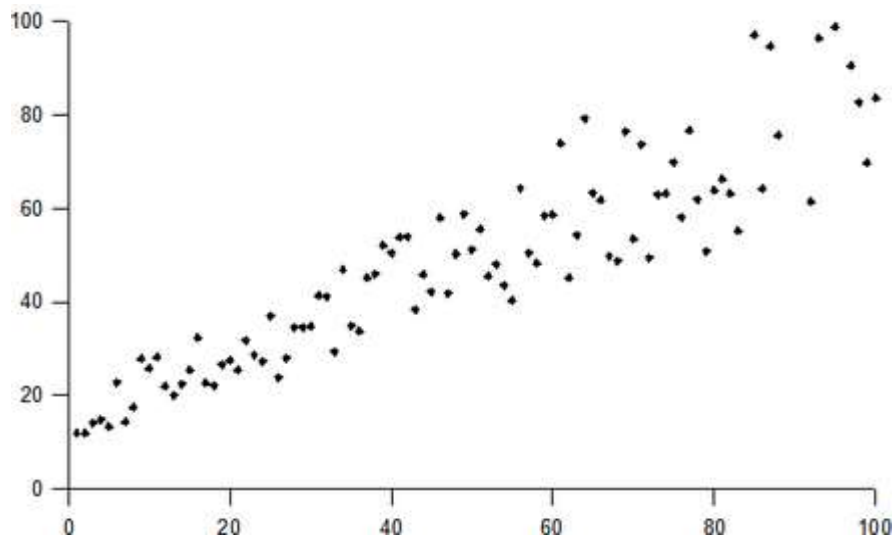


Figure 1: Scatter Diagram

Heteroscedasticity shows the variance of error terms. If the graph is scattered, the probability of presence of heteroscedasticity is high. However, in the above graph (Figure 1), the values are close to each other, there is a low probability of heteroscedasticity

3.2.3 Multicollinearity

It refers to the presence of a perfect linear relationship between two or more independent variables in a regression model. High correlations between two or more predictor variables are a sign of multicollinearity. The variance Inflation Factor displays how the variance of an estimator is inflated when multicollinearity exists. The higher the value of VIF more the chances of multicollinearity being present in the model. When VIF approaches infinity, multicollinearity between variables increases. And as it approaches 1, there is no multicollinearity between the variables. Since the VIF factor for the variables in our model is way greater than 1 and approaches infinity, multicollinearity exists between the variables. The tolerance factor is the inverse of the Variance inflation factor. The higher the TOL lesser is the chance of multicollinearity in the model. As TF approaches 0, there is perfect collinearity between the variables. And as it approaches 1, there is no collinearity between the variables. Since the TF factor for the variables in our model is approximately equal to 0, there exists perfect collinearity between the variables.

$$VIF = \frac{1}{TOL} = \frac{1}{1 - R^2} \dots \dots \dots (1)$$

Where,

VIF=Variance Inflating Factor

TOL=Tolerance Factor

R^2 =It is the coefficient of correlation between the variables. It tells the multicollinearity between variables (SDR, GR, NX). As the R^2 approaches 1 it shows that multicollinearity is present in the model.

3.2.4. Autocorrelation

It refers to the correlation between observations that are ordered in time series data or in cross-sectional data. The degree of similarity between a particular time series and a lagged version of itself over subsequent time intervals is mathematically represented by autocorrelation.

$$cov(u_i, u_j | x_i, x_j) = E(u_i, u_j) = 0 \dots \dots \dots (2)$$

It shows that the covariance of error is 0, means there is no autocorrelation in the model. If the previous year's error term (u_j) is not correlated with this year's error term (u_i), the value of correlation is 0 and

hence there is no autocorrelation in the model. Autocorrelation is generally measured through Durbin-Watson (DW) Statistics.

$$d = \frac{\sum_{t=2}^T (e_t - e_{t-1})^2}{\sum_{t=1}^T e_t^2} \dots \dots \dots (3)$$

Where,

d=DW Statistics

e_t =Error term of the current year

e_{t-1} =Error term of the previous year

T=Time span

If $d < 2$: There is a positive autocorrelation

If $d > 2$: There is a negative autocorrelation

If $d = 2$: There is no autocorrelation

3.2.5. Regression

Our research paper uses a multiple linear regression equation model to establish the relationship of NX, SDR, and GR with GDP.

$$GDP = \beta_0 + \beta_1 \cdot SDR + \beta_2 \cdot GR + \beta_3 \cdot NX + e_t \dots \dots \dots (4)$$

Where,

β_0 =Intercept

β_1 =Slope of SDR

β_2 =Slope of GR

β_3 =Slope of Net Exports

e_t =Error Term

Double Log Regression Model

By running the above-mentioned regression equation, we saw the presence of multicollinearity, heteroscedasticity, and autocorrelation and the variables are also not normally distributed. So, to correct these problems, we have applied the Double Log Regression Model.

$$\text{Log GDP} = \beta_0 + \beta_1 \cdot \text{Log SDR} + \beta_2 \cdot \text{Log GR} + \beta_3 \cdot \text{Log NX} + e_t \dots \dots \dots (5)$$

Where,

β_1 =Slope of Log SDR

β_2 =Slope of Log GR

β_3 =Slope of Log Net Exports

e_t =Error Term

3.2.6 ANOVA

Analysis of Variance (ANOVA) is used to compare variances across different groups. In our research paper, we used the F-test to calculate the same. If the F-value comes out to be greater than the table value at a particular level of significance, the null hypothesis is rejected.

H₀: There is no significant relation between GDP and macroeconomic variables (GDP, SDR, and Net Exports)

H₁: There is a significant relationship between GDP and macroeconomic variables (GDP, SDR, and Net Exports)

4. Result Analysis

Table 1: Normality of Variables

	Kolmogorov-Smirnov			Shapiro Wilk		
	Statistic	df	P-Value	Statistic	df	P-Value
Log GDP	0.102	41	0.200	0.940	41	0.310
Log SDR	0.121	41	0.134	0.927	41	0.110
Log Net Exports	0.077	41	0.200	0.963	41	0.199
Log GR	0.166	41	0.678	0.886	41	0.189

Source: Authors' own calculation using SPSS

Table 1 gives the result of the normality of variables. Since the p-value of all the variables GDP, SDR, NX, and GR is not significant i.e., greater than the 10% level of significance, we fail to reject the null hypothesis. Thus, we can say that all the above-mentioned variables are normally distributed.

Normal P-P Plot of Regression Standardized Residual

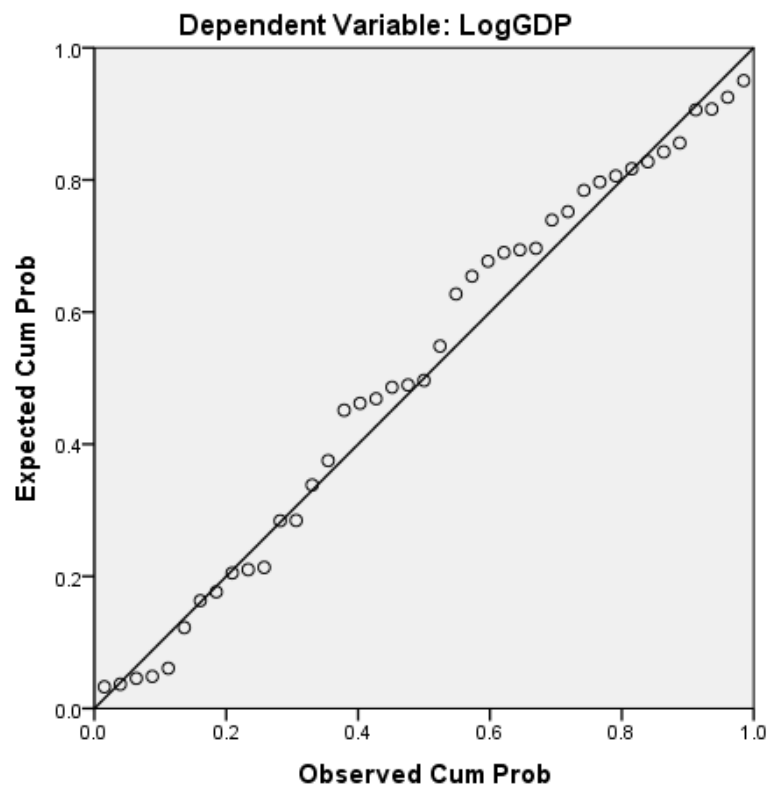


Figure 2: Normality of Residuals

It is very evident from Figure 2 that the Normal Probability Plot of the residuals is approximately linear supporting the condition that the error terms are normally distributed. All the values in the above graph lie close to the line. There is no presence of outliers in our data. Hence, it can be proved that there is a normal distribution of residuals in the model.

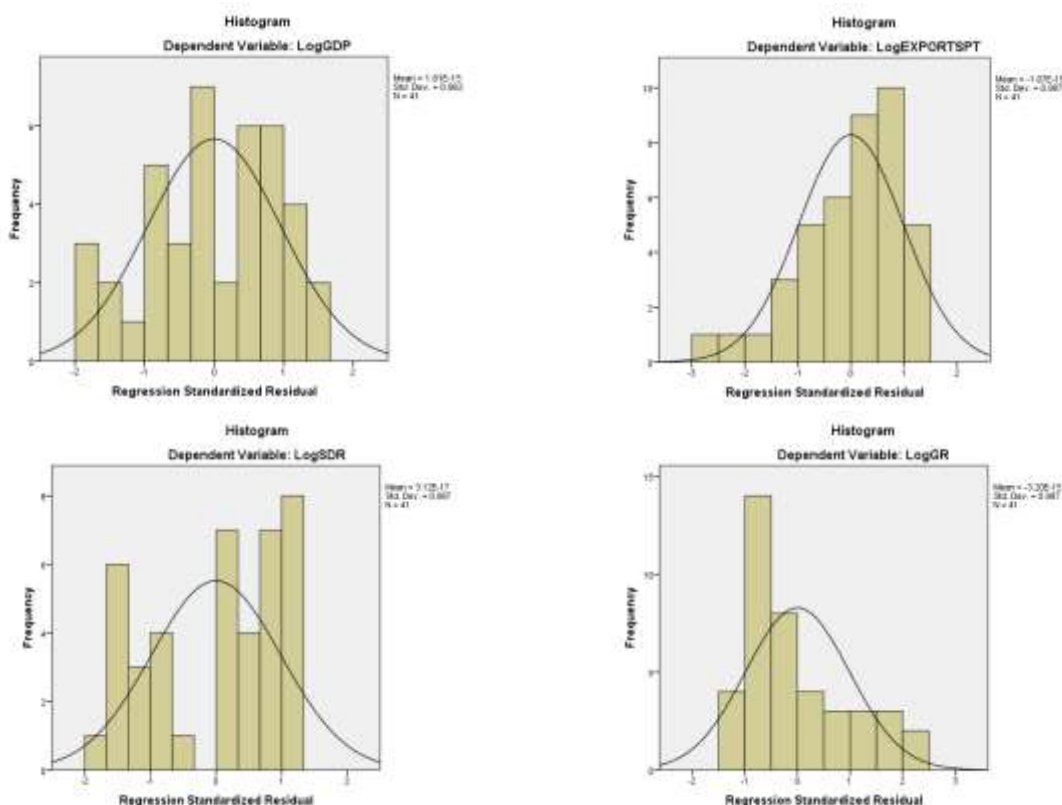


Figure 3: Histogram of Variables

Heteroscedasticity means unequal scatter or skewed distribution. For regression analysis, we use heteroscedasticity of error terms. It is a systematic change in the spread of residuals over a range of measured values. In the above graphs (Figure 3) of all the variables (Log GDP, Log Net Exports, Log SDR, Log GR) the bell-shaped curve proves the fact of normal distribution of residuals.

Table 2: Result of Multicollinearity and Regression

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
Intercept	10.225*	.279		36.613	.000		
Log SDR	.003	.014	.013	.253	.802	.952	1.050
Log Net Exports	.126*	.041	.253	3.080	.004	.358	2.810
Log Gold Reserves	.362*	.041	.737	8.875	.000	.348	2.876

*Significant at 1% Level of Significance

Source: Authors' own calculation using SPSS

Table 2 gives the results of Multicollinearity and Regression. Multicollinearity checks the linearity of relation amongst the variables of the model. VIF and TOL are inversely related to each other. A higher value of VIF indicates multicollinearity. If the value of VIF is closer to 0, there is less multicollinearity in the model. The closer the value of TOL closer to 1, there is multicollinearity in the model. Table 2

shows the results of Multicollinearity in the independent variables. From the above result, it can be concluded that there is no multicollinearity in the data.

Table 3: Coefficient of Determination and Autocorrelation

Model	R	R Square	Adjusted R Square	Std. Error of estimate	Durbin Watson
1	0.955	0.911	0.904	.233560	1.78

Source: Authors' own calculation using SPSS

Table 3 gives the values of the coefficient of determination and Durbin Watson (DW). The usual range of DW is 0 to 4, with a value equivalent to 2 representing no autocorrelation. The value in our paper is 1.78 hence, there is no presence of autocorrelation (being closer to 2).

The coefficient of determination is the most commonly used measure of the goodness of fit of a regression line. It measures the percentage of the total variation in dependent variable explained by the variation in independent variables. The value of R square lies between 0 and 1. The value in this model is 0.911 which implies that this model is statistically a good fit.

Adjusted R square is an indication of the adequacy of the model as it takes into account degrees of freedom. When new independent variables are added to the regression analysis, the R square will always increase. Adjusted R square will only increase if new input variables make the regression equation more accurate, i.e., it improves the regression equation's ability to predict the output. In this research paper, the value is 0.904 which means there are 90.4% chance that the new variables that would be added to the regression model would make the regression result accurate.

From the results presented in Table 2, we have got the following regression equation of the Double Log Model.

$$\text{Log GDP} = 10.225 + 0.003 \text{ Log SDR} + 0.126 \text{ Log Net Exports} + 0.362 \text{ Log GR} \dots \dots \dots (6)$$

A 1% change in SDR will lead to a 0.3% change in GDP in the same direction on the same lines a 1% change in Net Exports would lead to a 12.6% change in GDP in the same direction and a 1% change in Gold Reserves would lead to 36.2% change in GDP in the same direction. SDR is the international reserve asset founded by the International Monetary Fund, and every member country has to contribute to the SDR. The contributions to the SDR would be directly linked to the GDP of the country. If the GDP would be more, countries would be able to make more contributions and vice-versa. Net Exports are the exports less imports of the countrye, the more the country exports, more would be its trade surplus the positive would be its construction to the GDP hence establishing a direct relationship. Gold reserves are one of the foreign currency assets kept with the reserved bank of India, so the higher the value of GR higher would be the foreign currency assets and exchange reserves better would be the country's GDP showcasing the direct relationship between the two. Our results are in line with the findings of Rental and Nandru (2019) and the paper has not much in common in terms of analysis with Caldentey and Armah (2022) which states that there is a causality from exports to GDP. It is also correlated with the research of Rajanbabu (2019), which concludes that the Gold Reserves have a positive relation with Forex.

Table 4: Results of ANOVA

Model	Sum Squares	Df	Mean Square	F	Sig.
Regression	20.732	3	6.911	126.690*	0.000
Residual	2.018	37	0.055		
Total	22.750	40			

*Significant at 1% Level of Significance

Source: Authors' own source using SPSS

The F value of our analysis is 126.690, and the F from the table comes out to be around 2.9. Since the calculated is more than the tabulated value, we reject our hypothesis. Also, the F value is significant at a 1% level of significance which leads to the rejection of the null hypothesis. F value in Anova is calculated by dividing the ratio of explained variance by unexplained variance. The higher the F value, the higher the variation between sample means in relation to variation amongst the means. A high value also shows more chances of rejection of the null hypothesis i.e., no relation between GDP and the other three variables.

5. Conclusion

The study revealed that during our analysis period (1980-2022), foreign exchange reserves showed an upward trend bearing the few years of external influence, which decreased our foreign exchange reserves. The different measures of estimating an adequate level of reserves showed that the country held reserves more than the adequate. If any particular shock affects the economy, it has a greater capacity to absorb the shock. The nation has enough reserves to withstand the shock for a while in more extreme circumstances, such as when the entire economy enters a downturn and foreign capital inflow abruptly stops. Yet, retaining extra reserves has a cost of its own, therefore it must be managed to get the most advantage for the least amount of money. One such option is to use the excess reserves for greater economic benefit. The government should take advantage of using the excess reserves for the economic development of the nation wherever it is required before the opportunity gets lost.

A lesson that India learned from the 1991 BOP Crisis was that keeping adequate foreign exchange reserves is a must for the country no matter where it stands on the economic footing. This is also the lesson that India is learning by looking into the mistakes of its southern neighbor (Sri Lanka) and our western neighbor (Pakistan). So, to avoid the ruckus that one gets into after foregoing its impact on the overall economy, keeping adequate forex is a must for the country. Country India holds the fourth largest forex reserves in the world (Gold Reserves at around US\$43.712 billion, SDRs of around US\$18.43 billion). Policymakers, fund managers, and policy analysts should understand the importance of the same and make sure India does not fall short of foreign exchange reserves and depends on international institutions like IMF for their respective bailouts.

The major limitation of our research paper is that it considered only one country (India) to study the impact of Net Exports (NX), Special Drawing Rights (SDR), and Gold Reserves (GR) on the GDP of the country, other countries could also have been used. Another limitation of our research paper is that only three independent variables were used for the study; other meaningful variables could have been included which were excluded due to constraints of factors. Building on the weakness of our research paper, the scope of further research should focus on analyzing different countries to make the final result more decisive, and the number of variables and duration should be more for better usage in policy decisions.

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