



## Impact of selected macro-economic variables on foreign trade of BRICS nations

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### Abstract

Foreign trade is a vital sector of a country's national economy, and contributes substantially to the economic welfare of the people and the development of resources. Foreign trade plays a significant role in restructuring economic and social attributes of nations' around the world, particularly the less developed nations'. The growth rate and per capita income of an economy depends on the domestic production, consumption activities and in conjunction with foreign transaction of goods and services. Foreign trade affords a major contribution to the economic growth of developing nations'. For decades, investors have focused on the big five developing BRICS (Brazil, Russia, India, China and South Africa) nations where Brazil and Russia are strong in the commodity and natural resources sectors while India and China are net importers in these area. The contribution of BRICS to global value added in foreign trade has increased from 2.6 % in 1991 to 16.5% in 2015. Due to the arrival of various investors, it can be seen with the magic of growth in new lands that were less-popular among mainstream investors.

**Keywords:** foreign trade, economic welfare, goods and services and BRICS

### Introduction and Problem Discussion

The concept of "globalisation" broadly refers to the increasing integration of the world economy through financial and trade flows. A broad consensus prevails among economists that greater openness to international trade has been the basis for sustained and rapid economic growth. Foreign trade does not help in promoting economic growth because the BRICS' economy still experience some element of economic instability and this trade has also turned the nations' in to an import dependent economy. Economic growth is one of the most important goals of foreign trade in both developed and developing nations'. But BRICS nations suffer from many economic imbalances such as high rates of inflation, unemployment, chronic deficit in the balance of trade and balance of payment and others. The significance of foreign trade appears by the role played in achieving economic development. According to policies of liberalisation and openness to trade, the foreign trade is not just a process of exchange of goods and services with the nations' of the world, it is an indicator reflects the level of the economic development and openness to world trade markets. Therefore, foreign trade in BRICS nations increases competition, technological advancements, etc., furthermore, the rapid developing economies inspired to examine the role of macro-economic variables that instigate foreign trade in promoting economic growth, based on the above setting the researcher has attempted to find out the answer for the following research questions,

- What is the growth of foreign trade in BRICS nations?
- How far the select macro-economic variables influence the foreign trade in BRICS nations?

### Objectives of the study

1. To study the trend and growth of Foreign trade in BRICS nations.
2. To determine the influence of macro-economic variables on foreign trade in BRICS nations.

### Scope of the study

The present study aims to analyse the growth of foreign trade and GDP in BRICS nations. The analysis also includes the assessment of relation existing between macro-economic variables and its influence on foreign trade in BRICS nations. Hence, the researcher has taken a new dimension by focussing only on the performance of foreign trade and economic growth in BRICS nations.

### Hypotheses for the study

Based on the objectives the following research hypotheses were framed:

**H<sub>01</sub>:** There is no impact of macro-economic variables on foreign trade in BRICS nations'.

### Methodology of the study

#### Sources of Data

The study is based on secondary data and the data reliable for analysis are collected from various reports, publications, magazines, journals, websites and various articles.

#### Period of the study

The study covers a period of 10 years from 2007-2008 to 2016-2017.

#### Tools used for analysis

The collected data have been used for analysis with the help of

statistical tools and econometric tools. The various statistical tools used are mean, standard deviation (SD), co-efficient of variation (CV), compound annual growth rate (CAGR), trend analysis, average annual growth rate (AAGR) and Ordinary Least Square regression analysis and econometric tools called unit root test (Augmented Dicky Fuller Test), Co-integration test, and Error correction model. In the present study, to test the stability of macroeconomic factors, the ADF unit root test

**Analysis**

**Table 1:** Annual growth rate of foreign trade in BRICS nations from 2007-2008 TO 2016-2017

Year	Brazil	Russia	India	China	South Africa
Mean	46.35	55.42	-54.47	47.15	48.81
Standard deviation	1.33	1.47	2.33	1.97	2.44
Co-efficient of variance	2.87	2.66	-4.27	4.17	4.98
CAGR	-0.00	0.00	0.01	-0.00	0.00

Source: Calculated and compiled from IMF Data

Table 1 inferred the nation wise annual growth rate of foreign trade in BRICS nations during the period from 2007-2008 to 2016-2017. The nation wise contribution of foreign trade in growth shows the fluctuating trend during the study period. The mean value of Foreign Trade is highest in Russia and the negative trend has been exposed in India. The rate of deviation

was applied. ARDL bound test was performed to detect whether there is a co-integration in these series

**Limitations of the study**

1. The study is applicable to BRICS nations only and not applicable to any other part of the world.
2. The study is fully depends on secondary data, which has its own limitations.

and Co-efficient of Variance has been highest in South Arica with null growth rate for all the nations.

**Regression Analysis**

**H<sub>01a</sub>:** There is no impact of macro-economic variables on Foreign Trade in Brazil.

**Table 2:** Regression analysis of foreign trade in Brazil from the period 2007-2008 TO 2016-2017

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP	-1.3108	5.8018	-0.2249	0.8235
EXPT	-5.9101	1.5801	-3.7458	0.0007
IMP	6.8942	1.7964	3.8439	0.0005
INF	-2.6273	1.3209	-1.9776	0.0464
INT	2.1426	6.7331	3.1740	0.0032
EXC	1.1344	6.1873	1.8333	0.0758
UNEMP	2.6552	1.7124	1.5459	0.1317
NI	6.8503	1.3302	0.5141	0.0106
C	-5.8118	1.8011	-3.2308	0.0028
R-Squared	0.7173		Durbin-Watson stat	1.4747
Adjusted R-squared	0.6488			
F-statistic	10.4689		Prob (F-statistic)	0.0000

Table 2 deals with the macro- economic effects on foreign trade. It can be inferred from the table that Adjusted R-square value is 0.64.This indicates that 64 percent of the variations in the value of foreign trade are explained by GDP, Exports, Imports, Inflation, Interest rate, Exchange Rate, Unemployment, and National Income. The F-statistic is significant at all levels indicating that the hypothesized

relationship between the foreign trade and the selected macro-economic variables is validated. The value of Durbin-Watson statistic is 1.47 indicating that the model is not suffering from auto correlation problem.

**H<sub>01b</sub>:** There is no impact of macro-economic variables on Foreign Trade in Russia.

**Table 3:** Regression analysis of foreign trade in russia from the period 2007-2008 TO 2016-2017

Variable	Coefficient	Std.Error	t-Statistic	Prob.
GDP	-0.0046	0.0011	-3.9327	0.0004
EXPT	1.0000	9.6314	1.0414	0.0004
IMP	1.0048	1.1448	-8.8113	0.0008
INF	0.0050	0.0011	1.6341	0.1117
INT	0.0023	0.0014	1.6116	0.1166
EXC	-0.0014	0.0005	-2.4839	0.0182
UNEMP	-0.0125	0.0029	-4.2515	0.0002
NI	-3.4615	2.0372	-1.7014	0.0983
C	0.1607	0.0305	5.2564	0.0000
R-Squared	0.7775		Durbin-Watson stat	1.6028
Adjusted R-squared	0.6751			
F-statistic	5.6396		Prob(F-statistic)	0.0001

Table 3 compacts with the impact of macro-economic variables on foreign trade. It can be describes from the table that Adjusted R-square value is 0.67 which indicates 67 percent of the variations in the value of foreign trade are described by GDP, Exports, Imports, Inflation, Interest rate, Exchange Rate, Unemployment, and National Income. The F-statistic is significant at all levels indicating that the hypothesized relationship between the foreign trade and the selected macro-economic variables is validated. The value of

Durbin-Watson statistic is 1.60 indicating that the model is not suffering from auto correlation problem.

It can also be indicate from the table that Imports, and Exports, showed a significant positive relationship with foreign trade whereas GDP, Exchange rate and Unemployment reported a negative impact on the foreign trade.

**H<sub>01c</sub>:** There is no impact of macro-economic variables on Foreign Trade in India

**Table 4:** Regression analysis of foreign trade in India from the period 2007-2008 TO 2016-2017

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP	2.5000	4.4400	5.6442	0.0430
EXPT	-6.8690	1.8144	-3.7858	0.0200
IMP	7.8452	1.5873	4.9405	0.0421
INF	-4.0200	2.4500	-1.6400	1.1050
INT	6.7900	1.1400	5.9462	0.0220
EXC	-1.1500	1.4000	-8.2646	4.1450
UNEMP	1.8100	2.4800	7.2871	9.4230
NI	3.0300	1.5900	1.9082	0.0100
C	2.7800	8.0500	3.4524	7.3210
R-Squared	0.7176		Durbin-Watson stat	1.5712
Adjusted R-squared	0.6495			
F-statistic	10.1986		Prob(F-statistic)	0.0034

Table 4 illustrates with the macro-economic effects on foreign trade. It can be inferred from the table that Adjusted R-square value is 0.64 which indicates 64 percent of the variations in the value of foreign trade are described by GDP, Exports, Imports, Inflation, Interest rate, Exchange Rate, Unemployment, and National Income. The F-statistic is significant at all levels signifying that the hypothesized relationship between the foreign trade and the selected macro-economic variables is validated. The value of Durbin-Watson

statistic is 1.57 indicating that the model is not suffering from auto correlation problem.

It can also be reveals from the table that GDP, Imports, Interest rate, and National Income showed a significant positive relationship with foreign trade whereas exports, reported a negative impact on the foreign trade.

**H<sub>01a</sub>:** There is no impact of macro-economic variables on Foreign Trade in China.

**Table 5:** Regression analysis of foreign trade in China from the period 2007-2008 TO 2016-2017

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP	0.4620	1.3309	-0.0347	0.0225
EXPT	-0.4288	0.1179	3.6341	0.0009
IMP	0.4279	0.1030	-4.6231	0.0003
INF	-4.0654	2.8809	-1.4106	0.1679
INT	1.8809	2.0109	0.9340	0.0557
EXC	-2.7311	1.6311	-1.6778	0.1034
UNEMP	-1.3218	7.0004	-1.8803	0.0277
NI	0.0760	0.1323	-0.5769	0.0092
C	2.2312	1.2942	1.7301	0.0919
R-Squared	0.5165		Durbin-Watson stat	1.2767
Adjusted R-squared	0.3994			
F-statistic	4.5208		Prob(F-statistic)	0.0010

Table 5 exhibits with the influence of macro-economic indicators on foreign trade. It can be shows from the table that Adjusted R-square value is 0.39 which specifies 39 percent of the variations in the value of foreign trade are defined by GDP, Exports, Imports, Inflation, Interest rate, Exchange Rate, Unemployment, and National Income. The F-statistic is significant at all levels showing that the hypothesized relationship between the foreign trade and the selected macro-economic variables is validated. The value of Durbin-Watson statistic is 1.27 shows that the model is not suffering from

auto correlation problem.

It can also be describes from the table that GDP, Imports and National Income revealed a significant positive relationship with foreign trade whereas Interest rate shows a positive insignificant relationship with foreign trade. Export and Unemployment explains a negative impact on the foreign trade.

**H<sub>01e</sub>:** There is no impact of macro-economic variables on Foreign Trade in South Africa.

**Table 6:** Regression analysis of foreign trade in South Africa from the period 2007-2008 TO 2016-2017

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP	1.3310	1.2466	1.0731	0.2910
EXPT	-0.9428	0.3856	-2.4447	0.0200
IMP	0.6549	0.3674	1.7821	0.0339
INF	8.4218	1.3417	0.6266	0.5352
INT	2.4937	1.6682	0.1499	0.0017
EXC	-8.9143	1.6344	-0.5470	0.5880
UNEMP	7.3008	9.8609	0.7405	0.4642
NI	0.1432	0.0928	1.5428	0.0624
C	-3.2143	3.3986	-0.9477	0.3502
R-Squared	0.4876		Durbin-Watson stat	1.5712
Adjusted R-squared	0.3295			
F-statistic	2.1406		Prob(F-statistic)	0.0234

Table 6 deals with the macro economic effects on foreign trade. It can be revealed from the table that Adjusted R-square value is 0.32. This shows that 32 percent of the variations in the value of foreign trade are explained by GDP, Exports, Imports, Inflation, Interest rate, Exchange Rate, Unemployment, and National Income. The F-statistic is significant at all levels indicating that the hypothesized relationship between the foreign trade and the selected macro-economic factors is validated. The value of Durbin-Watson statistic is 1.57 discuss that the model is not suffering from auto correlation problem.

It can also be inferred from the table that Imports and Interest Rate, showed a significant positive relationship with foreign trade whereas National income shows a positive insignificant relationship with foreign trade. Exports reported a negative impact on the foreign trade.

### Suggestions

1. Diversified exports with more export promotion zones, improved infrastructure, tariff reduction and increased incentives/subsidies by both state and central governments can improve the export contribution to the nation, which in turn makes the exports more competitive.
2. Reducing the worsening trade balance or negative trade balance should be reduced to a considerable extent and this may lead to reduce depreciation in exchange rate.
3. The imports can be reduced through restriction on import of certain goods. Trade Related Investment Measures (TRIMS) can be followed by the nations to have the improved foreign trade with the proper utilisation of domestic resources.
4. The worsening/negative trade balance can be improved by the enhanced economic growth of the nation and this can increase the employment opportunities.
5. Setting up of various authorities concerning significantly to exports can have proper focus on exports and its improvement.

### Conclusion

In the light of modernisation and globalisation, foreign trade have become inherent for all the nations to become prosper and to show their worthiness among other competitors. International negotiations among the nations around the globe have proved to be fruitful to the nations concerned. The present study is one of the empirical investigations on the performance evaluation between the foreign trade and

economic growth in developing nations has provided a good understanding on the impact that export has on the growth of the economy. It has been proven that the exports, as a component of foreign trade, had a significant impact on the growth of nation's economy under review and it has been further proved that there is an improved performance of foreign trade in relation to economic growth. The error correction model is used and so it stated that there is a short run relationship between the foreign trade and economic growth by using the error correction model. It is therefore concluded that, conscious efforts should be made by government to fine-tune the various macro-economic variables in order to provide an enabling environment to stimulate foreign trade.

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