



## **IS INTERNATIONAL TRADE EXAGGERATING THE GDP? – THE CASE OF INDIA**

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### **ABSTRACT**

*The review of various literatures and renowned publications is emphasizing that the gross domestic production of a nation is determined by several factors such as growth in agriculture and manufacturing sector, export, inflation, exchange rate and international trade. In spite of different factors affecting the growth, the incremental growth of export and import is considered to be a vital factor which controls all other factor. The 1991 new economic policy has unfolded red carpet to the international traders and reduced the uncertainty on the legal and regulatory frame work boosted the trader's confidence in the economy. As a result, the Indian economy witnessed a vigorous growth since the implementation of Liberalization, Privatization and Globalization (LPG). In this regard this paper is attempting to investigate the contribution of foreign trade to the gross domestic production of India. The investigation was performed using multiple regressions having addressed auto correlation, heteroscedasticity and residuals normality between foreign trade (Export & Import) and gross domestic production (GDP) for 39 years from 1976-77 – 2014-15. The result revealed that the existence of nonlinearity between dependent and independent variable.*

**Key Words: Gross Domestic Production (GDP), Export, Import, Multiple regression, Auto correlation, Heteroscedasticity**

## **Introduction:**

There are internal and external factors affecting and determining the economic growth of a nation. They are persistent slow growth, high inflation, exchange rate instability on account of capital outflows, fiscal and current account imbalances and lower investment. The 1991 economic reform made a robust structural reformation in international capital inflows such as foreign direct investment and foreign institutional investment which enhance international trade. As a result, a paradigm shift has occurred in Indian export and import.

Even after the financial crisis, the Indian economy witnessed a vigorous growth for two successive years. Since then it has decelerated, in 2013 the GDP growth was 4.5%. In 2014, it has marginally picked up to 4.7% due to increase in agriculture sector growth, net exports due to rupee depreciation, curbing gold imports. The overall growth was sluggish due to reduction of investment and private consumption expenditure. The GDP achieved a higher growth in the last 10 quarters with 5.7% in the first quarter of 2015. The growth was driven by improvement investment demand and exports. As well as rise in manufacturing and mining sector output. The reduction of uncertainty on the legal and regulatory frame work boosted the traders' confidence in the economy. The GDP in second quarter of 2015 recorded a mild slow down with 5.3%. It was driven by the community, social and personal services. The industrial sector underperformed in the second quarter. The foreign trade is more significantly related to the GDP growth of the nation. Despite various factors impacting, the incremental growth of international trade is the good sign of economic growth. The financial system facilitates faster economic growth through enhancing export and import managing the current account deficit.

## **Review of Literature**

**Adeleye J. Adeteye O. & Adewuyi M. (2015)** confirmed the existence of linear relationship between export and growth in Nigeria. **Azeez, B A and Dada, S O (2014)** evidenced that international trade has a significant positive impact on economic growth. Imports, Exports, and Trade Openness have significant effect on the economy in Nigeria. **Jayachandran.G(2013)** revealed that GDP has a positive and significant impact on India's real exports in the long-run, but the impact turns out to be insignificant in the short-run. **SK Kamal Ahmed ,Md. AnamulHoqueandS.and M. Jobaer(2013)** investigated the linear relationship between foreign trade and growth in Bangladesh. The analysis revealed that both export and import are moderately related to the growth of GDP. Export contributes positively to our GDP whereas

import's contribution is unenthusiastic. **Gezahegn Gebremedhin (2012)** investigated the long-run effect of export volatility on GDP growth in Ethiopia. According to the empirical finding result, the long run effect of export volatility seems to have negatively statistical effect on output growth on Ethiopia. **Mahmoud Abolpour Mofrad (2012)** compared the long-term and short-term relationship between GDP, export and investment during the years 1991-2008. The findings revealed that there exist a positive and significant long term relationship between investment and export with gross domestic production at 95% confidence level. But the relationship of investment and export is negative. **ShreeshBhattarai and Kishore Kulkarni (2012)** studied the impact of liberalization on development in India. The result found the better development in India compared to other developing countries. **Mohsen Mehrara(2011)** investigated Granger causality relationship between nonoil export and economic growth based on panel cointegration analysis for 73 developing countries during the period 1970-2007. The results confirmed that there is bidirectional long-run causality between export and GDP growth for both groups of countries. **Peng Sun and Almas Heshmati (2010)** tested the effect of both international trade volume and trade structure towards high-tech exports. The results confirmed that the positive effects on China's regional productivity. The eastern region of China has been developing most rapidly while the central and western provinces have been lagging behind in terms of both economic growth and participation in international trade. **Bushra Riaz (2010)** investigated the causal relationship among comparative advantage, exports and economic growth by using the time series annual data for the period of 1980-2009 on 13 developing countries. The results found the bi-directional or mutual long run relationship between comparative advantage, exports and economic growth in most of the developing countries. **Yuhong Li, Zhongwen Chen, Changjian San (2010)** studied the causal effect between international trade and growth in China. The result suggested that there exist long term or short term causality between GDP and total export and import. **Satheesh Aradhyula and Tauhidur Rahman (2007)** analyzed the impact of trade openness and income using a balanced panel of country level data for 60 countries and revealed that trade openness increases income. **Ashok Parikh and Corneliu Stirbu (2004)** studied of 42 developing countries of Asia, Africa and Latin America to examine the impact of trade liberalization on economic growth. The results showed that the domestic economic growth is often positively related to liberalization for many countries. **Óscar Afonso (2001)** examined the impact of commercial and technological aspects, resulting from international trade, on the physical accumulation and quality of productive factors. The findings believed that international

trade has a positive effect on the economic growth. **Jeffrey A. Frankel and David Romer(1999)**examined the correlation between trade and income. The results showed that there is no evidence that ordinary least-squares estimates overstate the effects of trade. Further, they suggested that trade has a quantitatively large and robust, though only moderately statistically significant, positive effect on income.

### **Objectives of the Study**

- To understand the impact of foreign trade (Export& Import) on the gross domestic production in different nations through adequate review of literature.
- To estimate the cause and effect of foreign trade ( Export& Import) on gross domestic production in India during the study period using simple linear regression model addressing the ordinary least square assumptions such as serial correlation, heteroskedasticity and the normal distribution of residuals.
- To interpret the results of multiple linear regression, Breush-Godfrey Serial Correlation LM Test, Heteroskedasticity:White Test and JarqueBera –Normality Test and draw a conclusion.

### **Testable Hypotheses**

$H_0$  = The independent variables exports and imports are not significantly influencing the dependent variable gross domestic production.

$H_a$  = The independent variables exports and imports are significantly influencing the dependent variable gross domestic production.

$H_{01}$  = The data series is not suffering from heteroskedasticity.

$H_{a1}$  = The data series is suffering from heteroskedasticity.

$H_{02}$  = The residuals of the data series are normally distributed.

$H_{a2}$  = The residuals of the data series are not normally distributed

$H_{03}$  = The data series is not suffering from serial correlation

$H_{a3}$  = The data series is suffering from serial correlation

## Data & Methodology

In the present study the secondary data was used to analyze the impact of export and Import on the gross domestic production in India during the study period 1976-77 to 2014 – 15. The data has been retrieved from the Reserve Bank of India website. The analysis was performed by using multiple regression in E-Views .9 software. The hypotheses have been tested using multiple regressions addressing the issues of ordinary least square assumptions.

$$\gamma = \alpha + \beta_1\chi_1 + \beta_2\chi_2 + \epsilon$$

Where  $\gamma$  the dependent variable gross domestic production (GDP) is,  $\alpha$  is the intercept of  $\gamma$ .  $\beta_1$  and  $\beta_2$  are the slope coefficient of the independent variables  $\chi_1$  and  $\chi_2$  export and import. The error term is denoted as  $\epsilon$ . The result of the regression analysis is presented below.

## Results and Discussion

**Table 1: The Estimates of Ordinary Least Square**

<b>Dependent Variable: Gross Domestic Production</b>				
<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.</b>
Constant	7181.514	1884.581	3.810669	0.0005
Export	-1.176899	3.71898	-0.31646	0.7535
Import	4.213893	2.43835	1.728174	0.0925
R-squared				0.904273
Adjusted R-squared				0.898955
Probability of F-statistic				0.0000

**Source: Data Analysis**

**Table 2: Breusch-Godfrey Serial Correlation LM Test:**

F-statistic	12.83439	Prob. F(2,34)	0.0001
Obs*R-squared	16.77732	Prob. Chi-Square(2)	0.0002

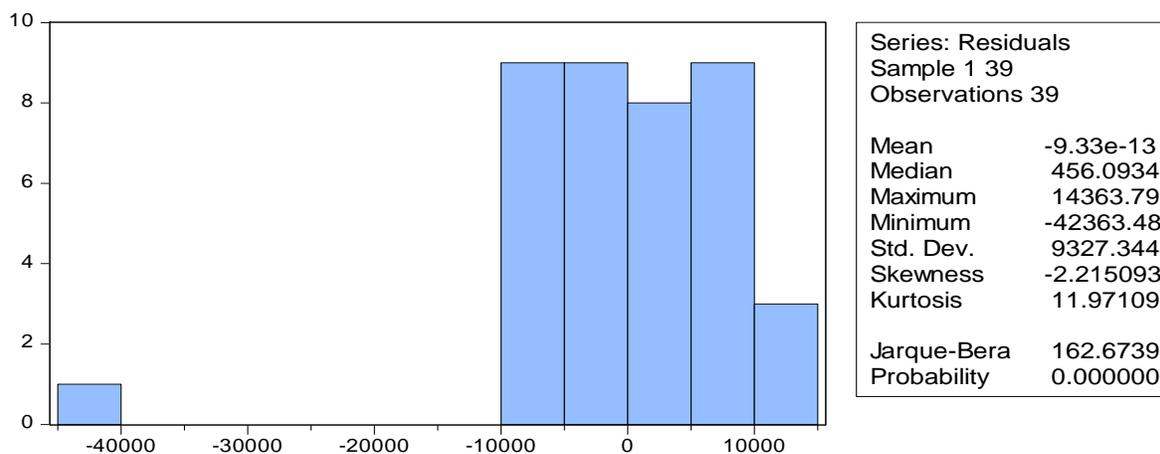
**Source: Data Analysis**

**Table 3: Heteroskedasticity Test: Breusch-Pagan-Godfrey**

F-statistic	14.90686	Prob. F(2,36)	0
Obs*R-squared	17.66706	Prob. Chi-Square(2)	0.0001
Scaled explained SS	82.57717	Prob. Chi-Square(2)	0

Source: Data Analysis

**Figure 1: Normality Distribution of Residuals**



Source: Data Analysis

The above results were obtained from data analysis. It shows that Coefficient of Determination -  $R^2$  0.898955 which means the independent variables export and import are jointly explaining the GDP growth in India by 89.09%. The p-value of F-Statistic is 0.0000 indicates the model is fit for the overall population. It is ensured that the independent variables export and import are statistically insignificant with the p-value of 0.7535 and 0.0925 larger than 5%. Hence the null hypothesis  $H_0$  is accepted in significance testing. The p-values of Breush-Godfrey Serial Correlation LM Test, Heteroskedasticity Test: Breusch-Pagan-Godfrey and JarqueBera –Normality Test is 0.0002, 0.0001 and 0.0000 respectively. From the p-values, it is confirmed that the existence of serial correlation, heteroscedasticity and the residuals are not normally distributed. Therefore the null hypotheses  $H_{01}$ ,  $H_{02}$  and  $H_{03}$  to be rejected in

diagnostic testing. The entire results of diagnostic tests confirm the presence of spurious regression. It emphasizes that the independent variables are not capable of explaining the dependent variable despite the higher  $R^2$  found in analysis.

## Conclusion

The literature review has documented the predominant role of export and import in the growth of gross domestic production of the nations especially the developing nations. In this connection, the present study has empirically analyzed and found the nonexistence of the linear relationship between the dependent and independent variables ensuring the spurious regression having found the violations of the OLS assumptions. Hence, it is concluded that there is not linear relationship found between export and import and gross domestic production in India during the study period. The study extends the scope for testing the existence of long run and causal relationship adopting cointegration and vector auto regressive (VAR) models.

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