

**Impact of Domestic Currency Devaluation on Exports of India
(A Study for Period of 2000-2017)**

By

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Abstract

OBJECTIVES: This paper is concerned with foreign trade of India in which impact of currency devaluation on export has been observed. Currency devaluation is a measure for promotion of foreign trade in respect of exports.

METHOD/STATISTICAL TOOL: For this, 18 years of data related to exports and USD/INR exchange rate has been collected for financial years of 2000 to 2017.

Statistical method which is applied is Co-efficient of Correlation and Co-efficient of Determination to know the impact of devaluation on exports promotion of India.

FINDINGS: In this research paper it has been found that a positive relationship is there between export and Rupee devaluation. It shows nearly 46.9% increase in exports is associated with currency devaluation.

Keywords: Foreign Trade, Currency Devaluation, Exchange Rate, Exports, Co-efficient of Correlation, Co-efficient of Determination,

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1. Introduction

In 1973 Bretton Woods International Monetary System collapsed and this put an end to the era of fixed exchange rate regime. Since then most of the countries has started to follow floating exchange rate regimes which brought about advancement in economy but also increased the risk of international trade due to increased volatility in exchange rates.

The Republic of India follows managed floating exchange rate regime, Supply and demand in the market determine the value of INR against other currencies and not by Reserve Bank of India (Central Bank of India) or any other government institution. However sometimes RBI does intervene in the market and that also depends on the situation of Rupee in market. If RBI feels that Rupee is overvalued or undervalued, then using different tools it tries to stable the Rupee value against other currencies specifically USD.

Exchange rate fluctuations in the market has a significant impact on the total well being of an economy. Mild and slow fluctuations are said to be healthy while rapid and significant fluctuations can have devastating impact on the trade and general economy. Exchange rate fluctuations can increase or decrease the volume of trade between nations. A developed nation such as Japan which has an export oriented economy can get effected by the fluctuations of exchange rate. In case of a rise in value of Yen against US \$ in the market, export volume of Japan to the United States of America can significantly decline, because now that the Yen is stronger, goods and services from Japan gets more expensive and demands for imported goods and services from Japan decline. This is why central Bank of Japan tries to keep Yen weaker against US \$ and other major currencies in the market.

India has an open economy where prices are determined by supply and demand in the market and it is not intact from positive and negative impacts of exchange rate fluctuations. Definitely fluctuation of INR value against other currencies specially US \$ in the market can have certain impacts on the well being of Indian economy.

USD/INR exchange rate can impact on export and import prices. In case of Rupee devaluation against USD, manufactured goods in India become cheaper for foreigners. It is because of increase in purchasing power of foreign buyers who have US \$ and so they can purchase more Rupees with their dollars to pay for Indian goods and services. In case of appreciation the opposite situation may arise.

2. Theoretical Background and Literature Review

Exchange rate fluctuations can make goods and services cheap or expensive for countries involved in international trade and also it increases uncertainties in international trade. Volatility of domestic exchange rate for a country can decrease the total volume of exports due to the uncertainties and higher risks associated Kumar, R. R. (2016).

Elahi, Salimi&Masoomzadeh (2015), have concluded that fluctuations in exchange rates have an important role in a nation's economy. Devaluation of national currency which is due to increasing exchange rate can increase competitiveness of a country in international market and promote its exports and effect its trade balance positively (More exports means less trade deficit). If promotion of export is not attained this will rise prices and cause inflation. So, for developing nations, it is of high priority to have more attention toward stabilizing exchange rates through formulation of sound and comprehensive fiscal policies and monetary policies.

Srinivasan&Kalaivani (2012) found out that higher volatility and fluctuations in exchange rates can decrease Indian exports to other countries. And also the real exchange rates in long run has a significant positive effect on real exports, which indicates that devaluation of national currency can be an effective tool in long run for promotion of exports in India. However, in short run the effect of exchange rates are negative.

Sandu&Ghiba (2011) results shows that in Romania the exchange rate had little impact on volume of exports. The devaluation of Leu in Romania resulted a decrease in domestic exports.

Hussain, Hussain&Hussain (2015), found that there is a negative relationship between exchange rate volatility and real export growth in Pakistan. With increase in exchange rate volatility the real export growth decreases and exchange rate volatility resulted in variability in Pakistan's export.

Zukarnain (2013), Concluded that fluctuations in exchange rate has a profound impact over the total volume of exports from Malaysia to the United States of America and Japan. But this impact differs, where in case of Japan there is a positive impact; while in case of the USA the impact is more negative. This indicates that exchange rate volatility of USD and Ringgit can decrease volume of exports to USA. While an increase in exchange rate volatility between Ringgit and Yen leads to an increase in volume of exports from Malaysia to Japan.

Satawatananon (2014), Has concluded that the bilateral exchange volatility between The United States and Thailand has short run significant impact on 27 American imports and 87 American exports. However, the exchange rate volatility impact is not significant in the long run, since only 29 exporting industries and 10 importing industries are significantly impacted by the exchange rate volatility.

Senadza&Diaba (2018), have studied the impacts of exchange rate fluctuations on imports & exports of around 11 Sub Saharan countries where floating exchange rate regime has been adopted. The study has concluded that there isn't any significant effect of exchange rate fluctuations on imports of these nations. With respect to exports, it found that volatility in short run has a negative effect on exports but positive effects in long run.

Simakova (2014), studied the relationship between volatility of Koruna and foreign trade of Czech Republic and did not find any relationship between these two. So this study indicates that for bringing any improvement in trade balance, influencing exchange rate development is not the solution. Therefore, Czech Republic's foreign trade is not effected by the development of exchange rate but effected by some other factors.

3. Data collection and research methodology

The "Co-efficient of Correlation" or "Correlation Co-efficient" is a statistical tool which is used to find out the relationship between two variables, namely dependent variable and independent variable. The Co-efficient of Correlation is shown with abbreviation of (r) and it has a range of (+1) to (-1). If the Co-efficient of Correlation (r) indicating a negative value such as (-0.85), it means that there is a strong inverse relationship between dependent and independent variables which means an increase in independent variable will result in a decrease in another variable which is dependent (Variables move in opposite directions). And if the (r) value is a positive number such as (+0.85), it indicates a strong relationship between the two variables where if one variable increases (Independent Variable), the other variable (Dependent Variable) will also increase (Both Variables move in same direction).

A Correlation Co-efficient of +0.85 or -0.85 shows a strong correlation between variables (Dependent and independent Variables). But when Correlation Co-efficient value is (-0.2) or (+0.2) then it shows a weak relationship between variables and when the (r) value is equal to (0) then correlation is absent between independent and dependent variable.

After squaring the (r) value the result will be the Co-efficient of Determination. This indicates that when (r) of +0.85 or -0.85 is squared it will result in Co-efficient of Determination with a value of 0.72 or 72% which means that 72% of the change in dependent variable is related with the change in independent variable. A Co-Efficient Correlation of +0.2 or -0.2 shows that 4% (0.2^2) change in dependent variable is associated with change in independent variable.

In this paper we use Co-efficient of Correlation and Co-efficient of Determination as tools to find out the relationship between USD/INR exchange rate and Indian export and to understand the degree of dependency between these two variables. In this paper IBM SPSS software is used for calculation of Co-efficient of Correlation.

The data in this paper are mostly secondary data (Secondary data are those data which are already have been collected by some other individuals or institutions and are accessible for researchers and general

public. Secondary data is different from primary data where the data is collected from its source directly. Sources of secondary data includes libraries, journals, reports published by public and private sector entities, information available on internet and etc., such as the data published by Reserve Bank of India, Ministry of Commerce, DGFT, World Bank Group Data Bank, OECD reports etc.

In this paper we have collected our data from journals and reliable websites. Data related to exchange rates are collected through OECD (Organization for Economic Cooperation and Development) website and exports related data are collected from world bank group online data bank. The data has been chosen with great care in order to give us an exact and reliable result.

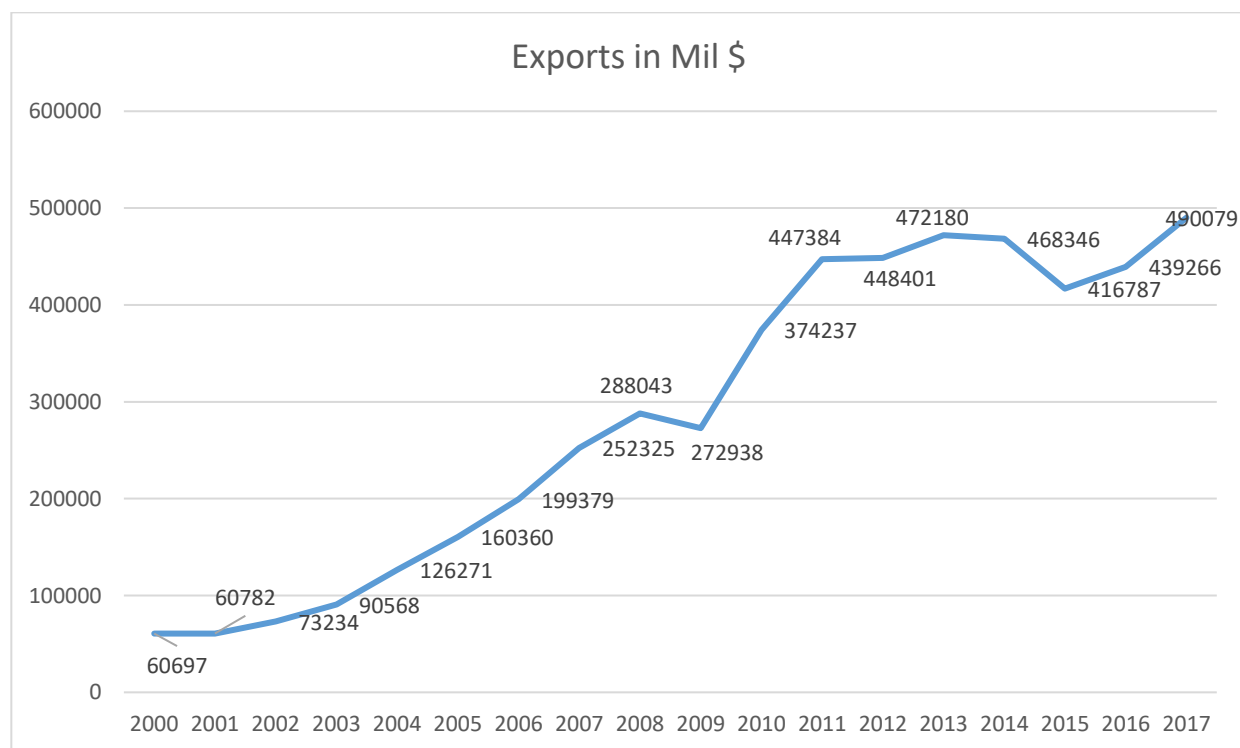
4. Data Analysis

Exchange rate fluctuations can effect foreign trade in positive and negative ways. An increase in the value of Indian Rupee means that goods and services produced in India are more expensive and in case of Rupee devaluation, goods and services produced in India become cheaper for foreign buyers (Importers). In this paper we will find out if Rupee devaluation has any significant relationship with exports.

In the 1965 Ministry of Commerce of the government of India established “Federation of Indian Export Organizations” in order to promote India’s trade with other nations. Now India is among top 10 exporter nations in the world. India’s export has seen a major growth in last few years.

Following chart shows India’s Exports during last 18 years (2000-2017):

Figure 1. Exports Volume



From above chart we can see that Indian export volume is very volatile. India’s exports from 2000 till 2008 have an increasing upward trend and in 2008 when financial crisis originated from USA, hit the world economy it also effected Indian economy in negative manner. Indian exports show a decline in the year 2008-2009 and then again starts growing upwardly up to 2013 and again starts declining for 2 subsequent years and then again starts growing. To find out relationship between exports and Rupee’s

value fluctuations we need to compare both variables. Table 1 shows average USD/INR exchange rate and Indian Export volume for last 18 years (2000-2017):

Table 1. USD/INR Exchange Rate & Exports in Million USD

Year	USD/INR Exchange Rate	Exports in MIL USD
2000	44.94	60697
2001	47.19	60782
2002	48.61	73234
2003	46.58	90568
2004	45.32	126271
2005	44.10	160360
2006	45.31	199379
2007	41.35	252325
2008	43.51	288043
2009	48.41	272938
2010	45.73	374237
2011	46.67	447384
2012	53.44	448401
2013	58.60	472180
2014	61.03	468346
2015	64.15	416787
2016	67.20	439266
2017	65.12	490079

Using table 1 data we find out relationship between USD/INR exchange rate (Independent Variable) and exports (Dependent Variable) for 18 years by calculating “Co-Efficient of Correlation”. To calculate Co-efficient of Correlation we use IBM SPSS software.

Table 2: Co-Efficient of Correlation

Correlations			
		Exports	ExchangeRate
Exports	Pearson Correlation	1	.685**
	Sig. (2-tailed)		.002
	N	18	18
ExchangeRate	Pearson Correlation	.685**	1
	Sig. (2-tailed)	.002	
	N	18	18
**. Correlation is significant at the 0.01 level (2-tailed).			

In table 2, Co-efficient of correlation between Exports (Dependent Variable) and Exchange Rate (Independent Variable) fluctuations ($r = +0.685$) on $n=18$ observations indicates highly positive correlation between the two variables. To find out the “Co-efficient of Determination” we square the r value:

$$r^2 = +0.685^2$$

$$r^2 = 0.469 \text{ or } 46.9\%$$

So a “Co-efficient Correlation” of $r = +0.685$ will lead to a “Co-efficient of Determination” of (0.469) or (46.9%). This shows us that 46.9% change in exports is associated with the change in USD/INR exchange rate.

5. Conclusion and Discussion

This paper empirically examines the relationship between USD/INR exchange rate fluctuations and exports in India. We calculated “Co-efficient of Correlation” value and “Co-efficient of Determination” to find out the relationship between these two variables. Our findings indicate a significant high positive correlation between currency (INR) devaluation and exports of India. If value of USD increases against Indian Rupee (Devaluation of Rupee), demand for Indian goods and services increases because goods and services produced in India become cheaper and attractive for foreign buyers (Importers) and in case of Rupee appreciates, goods and services become unattractive or expensive so demand for Indian goods and services fall. So it is very important to keep Indian Rupee (INR) value low against US \$ and other major currencies in order to boost and promote exports and decrease trade deficit.

There is also a High volatility and fluctuations in USD/INR exchange rate that can impact foreign trade in a negative manner and discourage demand for goods and services produced in India due to the uncertainty of exchange rate so it is also very crucial for India to stabilize a lower Rupee value against other major currencies such as USD and avoid high volatility.

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