

# *Exchange Rate Volatility and Its Impact on Unemployment in India*

Ms. Saidia Jeelani  
*Department of Management*  
*Assistant Professor*  
*Allana Institute Of Management Sciences, Pune, India*  
*saidiajeelani@gmail.com*

**Abstract** — The study focused on presenting a clear scenario of the impact of exchange rate on unemployment in India. The thrust area was to investigate the effect of fluctuations in exchange rate on unemployment situation in the country. The relevant data was collected from secondary databases available in print and online for the period covered under the study. The period was limited to a decade starting from 2005 to 2015. The research specifically aimed at highlighting the effect of exchange rate volatility on unemployment. The data was obtained from the Reserve bank of India's publications as well as from the handbook of statistics on Indian economy and World Bank Data. The study employed regression technique to analyze the impact of foreign exchange rate volatility on unemployment. It was revealed that exchange rate volatility has significant effect on unemployment in India.

**Keywords:** Exchange Rate, Volatility, Unemployment, India.

## **1. Introduction**

The twentieth century has been a century of boom and crisis. It witnessed two world wars which transformed each and every facet of life worldwide. After the WW1 world witnessed a great depression in 1930s a need was felt to develop a mechanism to create a system of exchange rate stability. This was followed by yet another proposal for monetary system in Bretons Wood Conference which took place in New Hampshire in July 1944. This conference paved the way for the establishment of IMF and World Bank. Despite all these measures to stabilize foreign exchange rates the currencies world over are floating day in and day out bringing about what we now call exchange rate volatility. It has been established that this volatility impacts growth and investment and also the employment scenario both at national and international level. Naturally, volatility has become a serious area of study and has substantially gained the significance both to the researchers and the policy makers. Many studies have found that there is an effect of exchange rate volatility (ERV) on the economic growth, company profits, and investment in both developed and developing countries. Exchange Rate Volatility, hereafter referred to as ERV, has now become widespread and frequent particularly in developing countries worldwide. The study of ERV has been a global engagement as it is related to a bigger question of the effect of the volatility on the real economy. Dixit, (1989) explains that empirical research on the employment effects of exchange rate volatility has mainly been focused on developed countries

almost to the exclusion of developing countries. The limited nature of research on developing countries with respect to

the impact of exchange rate volatility on unemployment in developing countries raises some concerns in that these countries face higher levels of unemployment (Mobarak, 2005, Pallage and Robe, 2003). As highlighted by Hodge (2005) two main areas of concern are evident from international research in this area: One studies the relationship between exchange rate volatility on international trade and, the other, studies the impact on employment or unemployment. He further argues that the two aspects influence each other. Although for the most part these concerns have been researched separately, the findings in one area have implications for research in the other. For example, if the evidence suggests that exchange rate volatility has only a small effect on international trade, then this weakens the case for a strong effect of volatility on employment since changes in the trade balance are the channel via which changes in exchange rates are transmitted to growth and employment. In both areas of research there is a huge and growing number of publications. This global research on the topic, besides international trade, is largely concerned with employment or unemployment in the countries that witness the ERV every now and then. Economies flourish and they languish. Machines, money, material resources help economies to grow. But, without doubt, the most crucial factor is the utilization of human resources that make possible the exploitation of the resources to the optimum degree. A very important issue that plays a crucial role in the development of the economies is the utilization of human capital. Unemployment is described as the number of people actively looking for job by the labour force (includes those people who are willing to work and are either employed or looking for jobs). If we take a look at the history of unemployment in India from 2005 to 2014, the lowest record stands at 4.9% in the year 2013 whereas the highest at 9.4% in the year 2010. According to theory, there is a positive relation between employment and economic growth of countries, they stand directly proportional. Theoretically, a positive relation should exist amongst growth and development and conversely a negative in case of unemployment. The economic theory which elaborates on the subject of the relationship between unemployment and economic growth is called Okun's law. With globalisation and open trades, exchange rate is playing a vital role in the economy which has a direct effect on the employment level

in a country. This study investigated the impact of unemployment rate on the foreign exchange rate in India. A decrease in the growth of the economies because of economic recession of October 2008 is a major reason for the increasing rate of unemployment in both developed as well as developing countries.

## 2. Research Questions

- Does exchange rate volatility impact unemployment in India?
- To What extent does uncertainty in exchange rate effect unemployment in India?

### 2.1.1 Objectives

- To analyze the effect of exchange rate fluctuations on unemployment rate.
- To check the relationship between the exchange rate fluctuations and unemployment rate.

### 2.1.2 Hypothesis

- a) H0: There is no relationship between unemployment rate and foreign exchange volatility
- b) H1: There is a relationship between unemployment rate and foreign exchange rate volatility.

## 3. Review of Literature

Turning away from the traditional 'optimum currency area' which does not find any substantial relationship between variations in exchange rate and the human resources sector, Belke & Setzer (2003) argue " that high exchange rate volatility may as well signal high costs for labor markets. The impact of exchange rate volatility on labor markets in the CEECs is analyzed, finding that volatility vis-à-vis the euro significantly lowers employment growth." "The effect of exchange rate on unemployment rate in ASIAN countries" Hina Chimnani and others in a study during 2<sup>nd</sup> international conference, on business management held at Lahore (Pakistan) between 28<sup>th</sup> & 29<sup>th</sup> march 2012 organized by university of management and technology investigated the effect on exchange rate on unemployment rate in ASIAN (association of south east Asian nations) countries. They collected a data for the period of 1995-2005 from 10 countries including INDIA. They have come to a conclusion that shift in demand for labour because of change in exchange rate depends on the external exposure of the firm .they have used the standard linear regression procedure of Ordinary Least Square (OLS) and further concluded that exchange rate has the impact on unemployment rate. The authors also revealed that if countries could maintain their exchange rate they could control unemployment level. Dr. Aurangzeb and Khola Asif (2013) examined macro-economic determinants for India, China, and Pakistan for the period of 1987-2009. The tools which were used to analyze data are Co-Integration, Granger causality, Regression Analysis. The variables which were selected for the study are G.D.P, inflation, exchange rate, unemployment and population rate. The results of the study showed a significant impact of all the variables for all the three countries. The granger causality test revealed bidirectional causality does not exist between any of the variables for all the three countries. Co-Integration found that long term relationship does exist among the variables for all the

models. Michael Mensah, Dadson Awunyo-Vitor, Henry Asare-Menako (2013) The study determined how employment growth in the Ghanaian manufacturing sector is affected by the fluctuating exchange rate. The data was obtained from World Bank development indicators' and the Ghana Statistical Service as well as the state of the Ghanaian economy. The study was analyzed through Ordinary Least Squares (OLS) regression technique to examine the effect of exchange rate volatility on employment growth. It was found that exchange rate volatility has effect on employment

growth in manufacturing sector firms in Ghana. That is the depreciation of the Ghanaian currency against US Dollar significantly slows the rate of employment at the manufacturing sector in Ghana. Similarly, interest rate has a negative relationship with employment growth in the Ghanaian manufacturing sector. But, Gross Domestic Product (GDP) exhibits a positive relationship with employment growth. Nyahokwe and Ncwadi (2013) studying the impact of exchange rate volatility on employment in South Africa. Using the data of the decade between 2000 and 2010 they arrive at conclusion that increase in exchange rate had adverse effects on employment and prove that exchange rate volatility had a negative impact on the South African labour market in defense of the hypothesis they had framed for this study. Kirandeep Kaur (2014) in her study investigated the relationship between unemployment, GDP growth rate, inflation rate and exchange rate in India. The study was conducted for a period from 1990 to 2013. The statistical tool used to analyze the data was O.L.S (ordinary least square) or Simple Linear Equation model. It was found that inflation rate and exchange rate are significantly effecting the unemployment rate in India where as G.D.P growth rate effects negatively but it is not that significant. Betul GUR (2015) in his study on analysis of unemployment determinants in BRIC countries found that the main factor that leads to unemployment in BRIC countries is inflation. The data was collected for a period from 2001-2012. In his survey it was revealed that population growth is the variable that also increases the unemployment rate. According to the results of the study, the negative relationship between economic growth and unemployment also applies to BRIC countries. Furthermore, in his study he concluded that increase in industrial production and total investments are effective in reducing unemployment.

### 3.1 Research Gap

From the above literature, it can be concluded that many academic researchers, financial and industry analysts and practitioners have tried to envisage the relationship between unemployment rate and exchange rate from quite some time now. They have carried out several empirical and descriptive studies to check the effect of exchange rate volatility on unemployment and identify the relationship between the two. They have arrived at different conclusions employing available methodologies and techniques. Thus, the present study contributes to the literature providing further insights for policy makers.

## 4. Research Methodology

The present study uses a time series data from 2005-2015 for the variables under consideration. The data is retrieved

from World Bank, RBI website and also from the economic survey of India. The study uses exchange rate as independent variable and unemployment rate as dependent variable. An average exchange rate between Indian Rupee and U.S dollar is been taken into consideration. The study tries to understand correlation between exchange rate and unemployment rate using regression model. The method involves testing the regression model and simple linear equation to arrive at findings and conclusion.

### 5. Data Method and Analysis

The data for the chosen variables pertains only for India as per the scope of the research and their description is provided below:

**Unemployment Rate:** This is the main variable under study and measures the total percentage of total workforce unemployed in the country. These people are willing to work and are seeking for employment. **GDP per capita:** The overall output or gross domestic product of the economy divided by the total number of population gives the GDP per capita. It is expected higher the GDP per capita, lower will be the level of unemployment in the country. **Exports of goods and Services:** This refers to the total quantity of goods and services that are exported from the country. This will help in understanding whether jobs related in the export sector can impact unemployment or not.

**Exchange Rate:** This is the main variable under the study and measures the price of India's currency in terms of foreign currency. **Labor Productivity:** This variable can be also taking as a proxy of economic growth for a country and is a measure of total goods and services produced by an hour of labor.

### 5.1 Econometric Model

In order to understand about the exchange rate volatility on the unemployment rate in India this paper has used the concept of ordinary least square regression. The details of the variables that are used in this regression are provided below: The econometric model that is to be used in doing this research work can be represented as below:

$$(\text{Unemployment rate})_i = \alpha + \beta_1(\text{Exchange Rate})_i + \beta_2(\text{Exports})_i + \beta_3(\text{GDP Per Capita})_i + B_4 (\text{Labor Productivity}) + \epsilon_i$$

The component  $i$ th in the equation represents the observation for the time series component. This means  $i$  represent the data for a particular year.  $\epsilon_i$  is the error component in the equation and can be considered as a linear combination of all the variables that collectively affect the unemployment rate of the country but are formally excluded from the study in this paper. The unemployment rate is the dependent variable in the equation and the other four variables are independent variable. Among the four independent variables, exchange rate is considered to study the impact of its volatility on unemployment rate. This regression will help to establish the importance of exchange rate misalignment of an economy in determining the unemployment rate. The variables that have been considered for the purpose of doing the research are strongly related to the dependent variable, unemployment rate. The formal

econometric model helps in establishing the relationship of the unemployment rate with volatility in exchange rate.

### 5.2 Data Interpretation

The results from the regression show that the overall model is significant as determined by the F-value of the equation. The individual coefficients are also statistically significant which indicates that the individual variables that are included in the regression are also valid. This indicates that exchange rate volatility is an important determinant in estimating the overall rate of unemployment in the economy.

Table 1: Overall Significance of Model

	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	4.00	0.87	0.22	9.17	0.01
Residual	6.00	0.14	0.02		
Total	10.00	1.02			

The above model shows that the F-value of the model is high and the significance of value the F-value is reliable as it is less than 0.05. In this chosen model the level of significance was set at 5% which implies that the confidence interval was 95%. In only 5 out of 100 cases the constructed interval will not contain the true value of the parameter. Therefore, it can be argued that variables chosen in the model are major determinants of unemployment rate.

Table 2: Value of R Squared

<i>Regression Statistics</i>	
Multiple R	0.93
R Square	0.86
Adjusted R Square	0.77
Standard Error	0.15
Observations	11.00

The R-square value of the model is 0.8 which signifies that almost 80% of the variation in the dependent variable can be explained by the variations in the independent variable.

Table 3: Table of Coefficients

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	4.29	0.51	8.41	0.00	3.04	5.54
Exchange Rate	1.05	0.02	12.67	0.00	0.00	0.09

Exports	3.54	0.00	-9.3 6	0.7 3	0.00	0.00
GDP per capita	-0.69	0.00	-14. 11	0.0 1	-0.0 1	0.00
Productivity	-1.57	0.00	-17. 56	0.0 1	0.00	0.00

The third tables show the coefficients and their signs along with their t-values. Larger the t-value higher is its explanatory power. The above table also shows that the corresponding p-values of the t-value and it can be implied that all the variables that have been included in the regression equation are statistically significant. Only the t-value of exports has turned out to be smaller than the chosen level of significance which implies that this particular coefficient is not statistically significant. Other three

variables namely exchange rate, productivity and GDP per capita has proved to be statistically significant. The signs of the coefficients as can be seen from the above table reveal that exchange rate volatility has a significant positive impact over the unemployment rate of the country. As expected, GDP per capita has a negative coefficient which implies that higher the level of unemployment in the country lower is the level of overall output and hence lower is the level of GDP per capita. Productivity of labor has also been found to bear a negative sign with the level of unemployment in a country. The logic for this is quite simple. As labor productivity rises, industries tend to demand less of labor as existing number of workforce can produce higher output (Reserve Bank of India, 2015). This has a negative impact on unemployment as the rate of employee recruitment is stunted. Finally, export level has been found to have a positive relationship with unemployment as an export boom creates higher demands for jobs thereby reducing unemployment levels.

## 6. Conclusion and Recommendations

From the results it is seen that exchange rate uncertainty adversely affects the employment scenario. The study also supports the adage that instability of the exchange rates also has a negative impact on the international trade and makes it riskier than the domestic trade because of fluctuation in exchange rates. This is why the companies that import have an inhibition in investments and therefore ferments unemployment. There are some who opine that the exchange rate changing and the employment are not related. But it has been established that, the currency fluctuations are showing major impact on the employment rates in India. It can be safely concluded that healthier, stable economies with less mercurial nature of the currency does open gateways to employment. The study concludes that there is a huge necessity of reducing currency fluctuations in order to maintain standard economic and employment growth within India. The significance of the study lies in the fact that knowledge of the nature or relationship between currency fluctuations and unemployment can enable the policy makers to formulate policies to minimize the harmful consequences of market volatility and unemployment to the society. An attempt has been made to successfully establish a relationship between the causalities in foreign exchange and unemployment. Yet there are hazy areas allied to the

study which if dealt with would go a long way to have a deep perception of the problem. One such area is to study the impact of this volatility on immigration behavior. This will be more appropriate at a time when we talk of globalization in which migrations have become a common and frequent phenomenon. For example, it will be useful to study consumption, remittances, and saving data to directly test the effect of exchange rate volatility on other aspects of immigrant employment. Government should concentrate on investment in productive purposes that will expand production, provide employment and control the rising prices. Huge investment in research and development sector should be made to enhance the production.

## References

1. Aurangzeb & Asif, Khola (2013). "Factors Effecting Unemployment: A Cross Country Analysis." *International Journal of Academic Research in Business and Social Sciences*, Vol 3, No1, pp 219-230.
2. Ansgar, Ansgar ; Setzer, Ralph (2013) " Exchange Rate Volatility and Employment Growth: Empirical Evidence from the CEE Economies," *Economic and Social Review*, Vol 34, No3, pp 267-29
3. Chimnani, Hina; Niaz Ahmed; Falahuddin , Sheeraz Ali , Warsha , (2013), "The Effect of Exchange Rate on Unemployment Rate in Asian Countries," 2nd international conference on business management , Lahore (Pakistan), Lahore University of Management and Technology .pp 1-16.
4. Gur, Betul (2015), "An Analysis of Unemployment Determinants in BRIC Countries." *International Journal of Business and Social Science*, Vol 6, No1. pp192-198.
5. Hodge, Duncan (2005), "The Effect of Exchange Rate Volatility on Trade and Employment: A Brief Review of the Literature," *Human Sciences Research Council, South Africa*; pp17.
6. Mensah, Michael; Awunyo-Vitor, Dadson; Asare-Menako, Henry (2013)., "Exchange Rate Volatility and Employment Growth in Ghana's Manufacturing Sector," *International Journal of Business and Social Science*, Vol 4, No 4, pp225-232.
7. Nyahokwe, Olivia & Nwadi, R (2013), "Impact of Exchange Rate Volatility on Unemployment in South Africa," *Mediterranean Journal of Social Sciences*, Vol 4, No3, pp 109-120.
8. Kaur.k., (2014)., "An Empirical Study of Inflation, Unemployment, Exchange R Ansgar Belke and Ralph ate and Growth in India," *Asian Journal of Multidisciplinary Studies*, Vol2 No10, pp19-21.

## Web Source:

www.rbi.org



