The Relationship Between Economic Growth and Unemployment in India

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Abstract- The study examined the relationship between some macro-economic variables and unemployment in India, it focuses on the impact of some macroeconomic variables on unemployment for the period 1991-2017.Cointegration test and its associated vector error correction model (VECM) and Granger causality test were used in the analysis. The variables such as unemployment rate (UNEMP), real gross domestic product (RGDP) used as common proxy for economic growth, consumer price index used as proxy for inflation, Gross fixed capital formation, literacy rate and labour force were employed in the investigation. Stationary test was conducted through the application of the Augmented Dickey - Fuller (ADF) test, and the results indicated that all the variables became stationary after first differencing. Furthermore, the result of the Johansen cointegration test revealed that significant long run relationship exists among UNEMP, GDP, INFL, LF, LR and GFCF. Similarly, VECM shows that the economic unemployment of India is somewhat predictable by the given explanatory variables. In the VECM, intercept β_0 is positive 0.147108 and significant at 1% level indicating overall unemployment's increases proportionately during that period. Finally, the result of the Granger causality test indicated unidirectional relationship between UNEMP and RGDP with causality running from RGDP to UNEMP. From gross domestic product, domestic private investment (GFCF) and labour force significantly causing unemployment as per there probability value. There is bi-directional Granger causality between labour force and unemployment Based on these findings, the study therefore recommends that government should as a matter of urgency create more employment opportunities in order to absorb the teeming population of the unemployed work force in the country through modernization of the agricultural sector, bring in modern equipment in the facilities of agriculture to make the sector more attractive to all citizens despite one's qualifications and profession.

Keywords: Unemployment; Economic Growth, Co-Integration, Granger Causality India.

INTRODUCTION

Unemployment is a multidimensional phenomenon; because it affects economic activity of a country as well as social structure of societies. So these two dimension create complexity and impose adopting extensive analysis to solve this problem. The main objective of every policy maker either from fiscal policy or monetary policy is to attain high economic growth. There are many determinants are responsible for detaining growth rate of a country. One of them is high rate of unemployment. As per Okun's law there is an inverse relationship between economic growth and unemployment rate. When unemployment's fall by 1%, GNP rises by 3%. The main objective of economic policies tends to high economic growth which leads to demand of more job by constructing investment programs. So unemployment is a global phenomena with economic and social effects (Al-Habeas et al., 2012). A citizen is classified as a member of the labour force if he has a job or is actively looking for a job. The participation rate is the percentage of adult Americans, excluding those incarcerated or otherwise institutionalized, who are members of the labour force. The 21st century has seen a steady decline in labour force participation. In 2000, it was 67%; by October 2017, it had fallen to 62.7%. Many economists argue the labour force decline is the result of low-skilled workers losing their jobs to outsourcing or automation, having no success finding new employment and therefore dropping out of the labour force entirely. For this reason, they feel the participation rate is a more accurate measure of the state of the job market than the unemployment rate, which only considers those in the labour force. An unemployment rate of 5% means only 5 out of 100 workers in the labour force are without jobs, but it does not consider those unemployed workers who have given up looking altogether, even though they want to

work. In an ideal world, increase in employment leads to increase in wage earnings, hence, increase in consumer spending (and investment etc. through indirect effects), and eventually, an increase in overall demand in the economy. Since, the supply is fixed in short term, the price level rises and we observe inflation. However, there could be a scenario where the inflation is caused by factors on the supply side, that is, production side (production of goods and services). Let's just say that oil prices increase 50% overnight. This leads to a hefty increase in the cost of production and the producer pass it on through to the consumers through price increase (as the operating increases, so does the market price). Now, with higher prices, there will be less demand, and cutbacks on production, which will lead to higher unemployment. The effects of capital investments on employment is a complex and sensitive matter, because the impact on the economy (and thus on unemployment) depends not only on their volume but also of the establishment, the field concerned, the input modality and the existing conditions in the economy in which investments are made. In the case of foreign direct investment (FDI), the economic and social effects also depend on the motivation of investors and the investing business strategy.Net investments lead to enhanced existing activities in the economy, with positive impact on employment, while replacement investments of the worn fixed asset, representing that part of gross investments made of the depreciation fund, do not generate new jobs, their positive effect being materialized mainly in maintaining existing jobs. Similarly, Economic growth refers to increase in goods and services produced by an economy over time. It is conventionally measured as percentage of increase in real gross domestic product (GDP). Growth is usually calculated in real terms i.e. inflation adjusted terms to make it comparable nationally and internationally. The increase in GDP is supported increase in agricultural and industrial production. When there is economic growth in the country there should be increase in exports and imports as well. The increase in exports should result in increase in foreign exchange reserve in the country. The increase in income of the people should be able to increase the saving and capital formation in the country. Besides, there are some social indicators of economic growth, as well, like falling birth and death rates, increase life expectancy at birth and literacy rates.

REVIEW OF LITERATURE

Hussain et al. (2010) investigated the causality between growth and unemployment in Pakistan for the period 1972-2006 and found that unemployment has negative relationship with economic growth in Pakistan. Similarly, Zagler (2006) examined the links between growth and unemployment in the United Kingdom for the period 1982-1999, and the result indicated negative relationship between unemployment and growth in the economy of United Kingdom. Oluyomi and Ogunrinola (2011) studied the relationship between employment and economic growth in Nigeria for the period 1986-2010, and found that positive and significant relationship exists between employment and the real GDP in the economy. Stephen (2012) investigated the impact of unemployment on economic growth in Nigeria for the period 1980-2008, and the study found that unemployment has negative relationship with economic growth in Nigeria. Bashir et al. (2012) uses data for the period from 1972 to 2010. With the object of long run and short run estimates, they have taken Cointegration test and VECM respectively. They conclude that in long run educational expenditure, health expenditure and gross fixed capital formation are significant features in magnifying employment level in Pakistan. At the end it is suggested that there should be more spending on education to support enrolment at primary and expert levels by offering scholarships to students. For superior health and education, Govt. should extend health expenditure as well. They also play very important role in enhancing employment level, output and economic growth by providing identical opportunities of education and health to all people of any nation all differences can be removed. Considering the importance, this Study indicates some of the important elements of education and health in reducing unemployment level in the long run as well as in the short-run. Faridi et al. (2010) prepared research on primary data collected through field survey from district Bahawalpure. For the measurement of coefficients of variables Logistic regression technique has been used. The study has concluded that education is negatively and significantly related to unemployment level. The human condition of the worker for work has also important impact on unemployment. The study advocates that Government should suggest health and

education services to all the people of the country. Health and education has an important function in the process of human capital improvement. A country well-off v will increase by 3%. The study analysed data from 2000 to 2013 by using regression between gross domestic product and unemployment rate. The study does not found any significant or stable relationship between economic growth and unemployment rate due to economic crisis during this period.

DATA AND METHODOLOGY

In order to examine the relationship between unemployment and some macroeconomic indicators like GDP, LR, GFCF, LF, INFL in India. The study employed annual time series data from the 00 world development indicator for period ranging from the 1991 to 2017.cointegration test, Vector Error Correction Model and Granger causality tests are applied in the analysis. Cointegration test is applied to know the long run relationship among the variables, VECM applied for to study the short run and long run dynamic relation and Granger causality test used to know the causality unemployment and other variables. All the variables are expressed in terms of their real values in this study. Applying econometric modelling requires the same order of integration in the data set. So, we transform the data set into log linear specification to have consistent estimates, Shahbaz and Rahman (2010).

MODEL SPECIFICATION

The model express the relationship between unemployment and other macro-economic indicators like inflation (INFL), gross fixed capital formation (GFCF), labour force (LF), literacy rate (LR) and gross domestic product (GDP) are represented follows UNEMP = f (GDP, INFL, GFCF, LR, LF)

DATA ANALYSIS AND DISCUSSION OF EMPIRICAL RESULTS

Augmented Dickey-Fuller unit root test level 1st Difference variables ADF statistics 5% critical value 10% critical value ADF statistics 5% critical value 10% critical value

level				1st Difference			
variables	ADF statistics	5% critical value	10% critical value	ADF statistics	5% critical value	10% critical value	Remarks
UNEMP	2.84	3.00	2.64	4.16	2.98	2.63 I(1)	UNEMP
GDP 1.30	2.98	2.62	4.11	2.98	2.63 I(1)	GDP 1.30	2.98
INFL	0.38	3.01	2.64	5.44 3.02	2.65 I(1)	INFL	0.38
GFCF 0.75	2.99	2.63	5.09	2.99	2.63 I(1)	GFCF 0.75	2.99
LR	0.29	2.98 2.62	4.48	2.98	2.63 I(1)	LR	0.29
LF	1.17	2.98	2.63	4.73	2.99	2.63 I(1)	LF

Source: Depicts stationary test of the time series employed in this investigation through the application of the Augmented Dickey-Fuller (ADF) stationary test. The results of the test indicate that all the variables i.e. UNEMP, GDP, GFCF, INFL, LR and LF were non stationary at level; however, the variables became stationary after first differencing at 5% and 10% critical values. This claim is supported by the ADF statistics and the critical values as shown in the table 1. However, after first differencing, the ADF statistics of all the variables are greater than the critical values, which imply that all the series became integrated of the same order after first differencing. The attainment of stationary of the variables as indicated in the first difference implies that their variance, mean and covariance are constant overtime and that long term properties of the series are established.

Diagnostic test:

Test	Null hypothesis	Test statistics	Probability
Serial correlation	No serial correlation	0.77	.0.7489
Heteroskedasticity	homoscedasticity	0.71	0.62
Jarque-bera	There is normal distribution	0.78	0.67

The results of diagnostic are shown in the table. This indicate that model has no serial correlation, homoscedasticity and normal distribution

CONCLUSION

The main purpose of this study is to examine the relationship between some macroeconomic variables and unemployment in India; specifically, it focuses on the impact of some macroeconomic variables on unemployment for the period 1991-2017.Cointegration test and its associated vector error correction model (VECM) and Granger causality test were used in the analysis. The variables such as unemployment rate (UNEMP), real gross domestic product (RGDP) used as common proxy for economic growth, consumer price index used as proxy for inflation, Gross fixed capital formation, literacy rate and labour force were employed in the investigation. Stationarity test was conducted through the application of the Augmented Dickey - Fuller (ADF) test, and the results indicated that all the variables became stationary after first differencing. Furthermore, the result of the Johansen cointegration test revealed that significant long run relationship exists among UNEMP, GDP, INFL, LF, LR and GFCF. Similarly, VECM shows that the economic unemployment of India is somewhat predictable by the given explanatory variables. In the VECM, intercept β is positive 0.147108 and significant at 1% level indicating overall unemployment's increases proportionately during that period. Finally, the result of the Granger causality test indicated unidirectional relationship between UNEMP and RGDP with causality running from RGDP to UNEMP. From gross domestic product, domestic private investment (GFCF) and labour force significantly causing unemployment as per there probability value. There is bi directional Granger causality between labour force and unemployment Based on these findings, the study therefore recommends that government should as a matter of urgency create more employment opportunities in order to absorb the teeming population of the unemployed work force in the country through modernization of the agricultural sector, bring in modern equipment in the facilities of agriculture to make the sector more attractive to all citizens despite one's qualifications and profession.

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