IS UNEMPLOYMENT A HINDRANCE TO THE ATTAINMENT OF SUSTAINABLE DEVELOPMENT GOALS IN INDIA?

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ABSTRACT

Sustainable Development Goal (SDG) 8 calls upon economies to "promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all". Even fastest growing economies are failing to translate growth into development. When jobless growth persists in the economy, the economy tends to enter into a vicious cycle where unemployment leads to poverty, which further leads to no access to education and health facilities and then unemployment again. This paper investigates the empirical work that defines relationship of unemployment with other variables. Okun's law which states that there exists a negative relation between unemployment and growth is also discussed. The study also tries to give a deeper insight about unemployment in India after independence. It tries to look into the determinants of unemployment in India for the period 1991 to 2018. Variables like Gross Domestic Product, Inflation, Population, Foreign Direct Investment, Trade Openness, Labour Force Participation Rate, Gross Fixed Capital Formation, Life Expectancy, Interest Rates and Secondary Enrolment are taken as independent variables. Stepwise regression was applied on the data. Results show a positive coefficient for GDP, life expectancy, GFCF and interest rates. Whereas, inflation, FDI, population and secondary school enrolment have a negative coefficient.

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Keywords: *Unemployment, GDP, Inflation, Labour Force, India.*

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Introduction

Sustainable Development Goal 8 calls upon economies to "promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all". According to the World Employment and Social Outlook – Trends 2019, in 2018 the global unemployment rate stood at 5percent and approximately 172 million people among the 7.6 billion population of the world were unemployed. These current trends show us that attaining this goal of sustainable development requires increased efforts.

According to the National Sample Survey of India, unemployment in India hit 6.1percentwith a corresponding growth rate of 7.17percent in 2017-18. This is the highest since 1972-73.In urban areas, 7.8percent of the youth were jobless and in rural areas, the rate was 5.3percent. Though the unemployment rate has been increasing, the labor participation rate is falling. Thus, the ability of impressive growth rates to accelerate the employment growth rate is questionable.

Studying about unemployment and its causes is important for the economies. What are the consequences of unemployment? Why an economy experiences jobless growth? How to ensure that growth is inclusive? Which factor influences unemployment the most? How to reduce the unemployment rate? All these questions need to be answered through research.

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Objectives of the Study

- To understand the literature existing on what influences unemployment rate.
- To bring a deeper insight about unemployment in India after independence.
- To test the existence of Okun's Law in India.
- To determine various factors that influence unemployment rate in Indian economy.
- To highlight the importance of policy formulation with respect to unemployment.

Relevance of the Study

Well-functioning labour markets are central to the goal of sustainable development. Decent and quality work is necessary for the upliftment of economy as a whole. The well-being of people and the access to a decent standard of living is dependent on the fact whether they are employed. This makes unemployment a major issue of concern(World Employment and Social Outlook: Trends 2019, May 2019).

In today's world, human resources are considered as the most important asset of an economy. When there is high unemployment human capital is wasted. An economy where employment generation doesn't happen experiences brain drain. The unskilled proportion of the population tends to continue in poverty. Thus, for the overall health of the economy unemployment rates should be low(Mehra, 2018).

Increased health issues are often seen in unemployed people. Problems like depression, lack of self-esteem and self-confidence crop up(Behera, 2015). When people remain unemployed for long periods of time, their skills turn obsolete. This makes them unfit for jobs in the future(Atta & Cheema, 2014). When the youth of a country is not employed, it is generally seen that the crime rates increase. They may also become addicted to drug and alcohol abuse(Singh R. , 2018).

High unemployment associated with high growth signifies that the benefits of GDP growth is not reaching the people. This will lead to less savings and less production. Eventually low productivity and low output results in a spurt of unemployment rate (Mehra, 2018). The unemployment insurance brings added burden to government in several countries(Prakash, 2002).

Due to these reasons, most economies including India target increasing employment growth. The success of the nation in reducing unemployment rate depends on the type and cause of unemployment in that particular nation. Hence, research on the variables that influence unemployment in India and the direction of influence adds to the vast pool of knowledge.

Review of Literature

Unemployment can be defined as "a state where people are willing to work and are seeking work but not working during the period of reference"(Aurangazeb & Asif, 2013). Total labour force is the total number of the people who are willing to work(Paul, 1988). Unemployment rate is the percentage of people who are not employed divided by the total labour force(S, Victoria Kenny, 2019). Unemployment can be of different types. The main types are cyclical, structural, frictional and seasonal unemployment (Mehra, 2018).

- **Unemployment in India**

Unemployment in India has been a pressing issue for the government since decades. Though India is one of the world's fastest growing country, how far the population is benefiting from the GDP growth is a question pondered by researchers. The inclusiveness of growth is an issue widely debated upon. Years of colonisation had given Indian economy a big blow. Post-independence, the country focused on recovering from this setback. During 1950 to 1980, policies were focused on improving the technology, education, social institutions, capital goods market, infrastructure etc.(Nayyar, 2006). In 1990-91, India faced BOP crisis. This initiated a change in the policy regime. Focus on liberalisation and globalization was given. During the post reform period the average growth was 5.9percent which was higher than the average growth of 5.3percent in the pre-reform period(Kaur P. , 2007).

The economy failed to reduce unemployment rate during this time. Growth happened in service sector. Industrial sector experienced slow growth. Capital intensive IT sector could not meet the growing demand for jobs(Ghosal, 2004). A strong preference for formal regular salaried jobs aggravated the problem of unemployment as employment growth was not happening (Dev & Mahajan, 2003).

The scenario was no different between 2004-05 and 2009-10. Translating 8percent plus growth into jobs did not happen in the economy (Chowdhury, 2011). In 2008, the whole world experienced recession. This was one of the reasons for less acceleration in employment growth rate (Kaur K. , 2014).

The GDP growth rate dipped to 4.9percent post crisis (Dholakia & Sapre, 2011). In 2011-12, the employment growth rate improved. It was considered as a rebound to the stagnancy experienced in the previous decade (Shaw, 2013). Between 2009 and 2012 the temporary employment increased by 4.38percent and the permanent employment decreased by 3.20percent (Sapkal & Sundar, 2017).

In the 11th(2007 – 2012) and 12th(2012 -2017) five-year plans of India, planning commission aimed at making the growth more inclusive. This was necessary to reduce poverty and unemployment. But studies showed that this target was not achieved (Dr. G. V. Joshi & Prasad, 2014).

According to the International Labour Organisation (ILO), the unemployment rate was 4.15percent in 2008. The rate declined to 3.46percent in 2016. But in 2017, there was an increase to 4.76percent and to 5.38percent in 2018. The corresponding GDP growth rate averages around 5percent. A high growth of 9.2percent was observed in second quarter of 2016. In 2017, 6.75percent growth was achieved. This again showed that the growth achieved was jobless (Singh R. , 2018).

Rural areas of India were categorised by a more chronic problem – underemployment where people were employed but did not contribute towards productivity. Unemployment was higher in females. It was easier for the illiterates to find employment in the rural areas(Paul, 1988). But the jobs people found was of poor quality and with low wages. The low-income status background of their families forced them to work in such conditions(Abraham, 2009). In urban areas, the educated remained unemployed. Rural- urban migration increased the labour force. However, urban areas of India were unable to accelerate employment generation in spite of impressive growth (Behera, 2015).

Labour force participation has also decreased. This decline could be seen in females also. The cause of the decline could be because more young people choose to pursue education. It was also seen that as economy grows individual income increases, which reduced the need for others in the family to join the labour force(Shaw, 2013).

Even when there has been growth in employment, the quality of employment was not good enough. The jobs were poorly remunerated and informalisation was high. The low income caused the gap between unemployment and poverty to increase and created a class called 'working poor' (Dev & Mahajan, 2003).

In India the main cause of unemployment was identified as population growth. Rural- urban migration resulted in high urban unemployment (Behera, 2015). The educated youth lacked skills required for the jobs and also had reduced awareness of opportunities(Singh R. , 2018). The young wanted jobs in the organised sector. This reduced entrepreneurship. Thus, creation of jobs through new businesses was very low(Singh & Raj, 2018).Corruption and poor economic conditions did not create a favourable environment for Multi- National Corporations (MNC). Such MNCs would have created new jobs(Kaur K. , 2014).Slow growth in industrial sector also was listed as a cause for unemployment(Mehra, 2018). Technological changes also caused unemployment(Aurangazeb & Asif, 2013).

Over the years, several schemes like Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Employment Assurance Scheme (EAS), Prime Minister Rozgar Yojona (PMRY), Self Help Groups (SHGs) and many more with the aim to create new jobs were introduced by the government. The schemes had varying success rates. But the economy is still way behind achieving inclusive growth(Singh & Raj, 2018)(Mehra, 2018).

- **Determinants of Unemployment**

In 1962, Arthur Okun put forward the Okun's law which states that cyclical unemployment and GDPhas an inverse relation. The Okun's coefficient was 3percent for the study conducted in United States. When economy grows, productivity increases, demand from people increases and so, production also increases. This increase in production requires more labour to be employed. This reduced the unemployment rate(Lal, Sulaiman D, Jalil, & Hussain, 2010).

When empirically tested, there was a strong correlation between unemployment and GDP growth rate in India. Regression analysis confirms the existence of Okun's law for the period 1991 to 2016 (Chand, Tiwari, & Phuyal, 2017). In India, Granger causality test results showed that there was a unidirectional flow from real GDP to unemployment (Sahoo & Sahoo, 2019).

Contrary to this, a study conducted in the developing countries Pakistan, Bangladesh, India, Sri Lanka and China revealed that Okun's law was not supported in the short rundue to problems of asymmetry. Annual data for the time period 1980-2006 was tested (Lal, Sulaiman D, Jalil, & Hussain, 2010). The study which covered the period 1990 to 2013 tested the relationship between the above said variables in India. A negative relationship was found. But the result was not significant (Kaur K. , 2014).

Theoretically inflation comes with economic growth. With more money supply in the economy, demand increased and output increased eventually. This would lead to creation of more jobs. Thus, there was a trade-off between inflation and unemployment. In economics, this inverse relation, observed by A. W. Philips in 1958 was called Philp's curve. In India, negative and significant impact of inflation rate and exchange rate on unemployment rate was found (Kaur K. , 2014). An analysis of the relationship of variables exports, FDI, GDP and unemployment of Turkey revealed that FDI did not create new job opportunities in the period of consideration. An insignificant but positive impact of exports on unemployment was observed (Aktar, Demirci, & Ozturk, 2009). In Pakistan, FDI and unemployment was negatively correlated. The result was significant which meant that an increase in FDI resulted in reduction in unemployment rate. Other variables such as population, GDP, inflation, and external debt were also considered.   In both short run and long run all these variables had a significant influence on unemployment (Maqbool, Mahmood, Sattar, & Bhalli, 2013).

Unemployment rate was not significantly influenced by interest rates and inflation in the study conducted in Pakistan. It was seen that approximately 10percent variance of unemployment was explained by interest rate (Mahmood , Bokhari , & Aslam , 2013). Inflation and population were taken as independent variables that influenced unemployment in Pakistan and India.Co integration, granger causality and regression analysis observed a positive relationship between the variables.On the other hand, China proved existence of Philp's curve. Population was identified as an important predictor because as population increased the inflow to labour force increases. However, a corresponding increase in jobs may not be created which resulted in rise in unemployment rate (Aurangazeb & Asif, 2013). Independent variables like openness of trade, economic uncertainty (equilibrium exchange rate/ actual exchange rate) and Gross Fixed Investment were taken for analysis in Pakistan. There was a negative relationship between openness of trade and GFI on unemployment. On the other hand, economic uncertainty and unemployment had a positive relationship (Atta & Cheema, 2014). During the time period 1990 to 2010, association between life expectancy and unemployment was analysed in Unites States. An inverse relationship was found between the variables (Singh & Siahpush, 2015).

In a different study conducted in India, inflation had a significant effect on unemployment. The study identified other important variables that influenced unemployment. Long run relationship between labour force, gross fixed capital formation and literacy rate on unemployment was found. (Sahoo & Sahoo, 2019). Reviewing the literature, GDP, inflation, Population, FDI, trade openness, labour force, fixed capital investment, interest rates, life expectancy and educational variable were identified as major determinants of unemployment. In Indian context, only few of these variables were studied in the past. Hence, the paper aims to highlight these relationships.

- **Policy Formulation and Unemployment**

Policy makers try to reduce the unemployment rate as it stands as an obstacle towards development. In developing countries like India, improving quality of education and providing training is important(Singh R. , 2018). Effective planning for building human capital is required. More awareness about schemes and policies should be ensured. Controlling the rapidly increasing population growth would reduce the unemployment rate. Modernisation of agricultural sector would also be beneficial. Incentivising import of modern technology to agriculture would be an effective policy. This would not only create new opportunities but will also encourage young people to be a part of the sector(Singh & Raj, 2018). Focusing policies on rapid industrialisation could also help create more jobs in India (Behera, 2015). Reducing the imports which majorly consists of non-consumer goods which were used for further production and also increasing exports could be beneficial (Atta & Cheema, 2014).

The manner in which a policy influences growth and unemployment depend on the nature of labour market. Hence, the consequences of implemented policies must be carefully evaluated and reviewed from time to time.

Data and Methodology

The study is based on secondary data collected from World Development Indicators of World Bank. The study employed annual time series for the period 1991 to 2018. We test the hypothesis that the independent variables considered for the study has a significant impact on unemployment.

Stepwise Least Squares Regression in E views was used for the analysis. The linear regression model and the expected sign of coefficients is specified as follows:

UE= f (GDP+ Inf + FDI + Population + Tradeop + LFPR + GFCF+ LE+ Int + Secenrol)

    -     -   -   +   -   +   - +/- +   +/-

Where,

GDP	= Gross Domestic Product (annual percentage growth)
Inf	= Inflation Rate (annual percentage)
FDI	= Foreign Direct Inflows (Inflows as a percentage of GDP)
Population	= Population Growth (annual percentage)
Tradeop	= Trade openness calculated as (exports + imports)/ GDP
LFPR	= Labour Force Participation Rate
GFCF	= Gross Fixed Capital Formation (as percentage of GDP)
LE	= Life Expectancy at Birth (in years)
Int	= Interest Rates (annual percentage, lending rate)
Secenrol	= Secondary school enrolment ratio (percentage gross)

Findings and Discussion

The time series employed in this study was tested for stationary by applying Augmented Dickey-Fuller unit root test. As can be seen in Table 1, variables except GDP, inflation and life expectancy were not stationary at levels. Subsequently taking first difference and second difference all the variables became stationary.
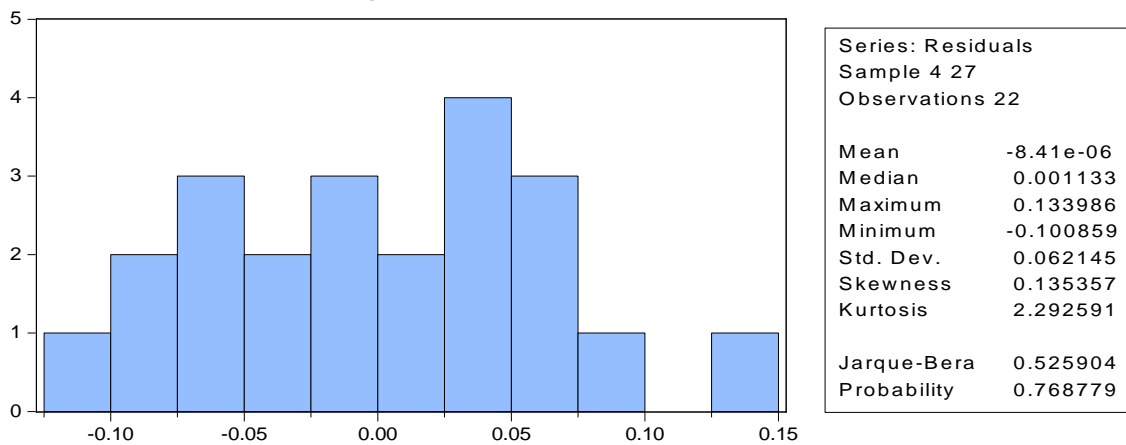
Table 1: Augmented Dickey-Fuller Unit Root Test

Name of Variable		ADF statistics	p value
Unemployment	1st difference	-3.162987	0.0341
GDP	Level	-5.301759	0.0002
Inflation	Level	-3.026497	0.0450
FDI	1st difference	-5.784048	0.0001
Population	2nd difference	-4.026967	0.0052
LFPR	2nd difference	-4.851122	0.0007
GFCF	1st difference	-4.295792	0.0025
Trade Openness	1st difference	-4.379404	0.0020
Interest Rate	1st difference	-5.414700	0.0002
Life Expectancy	Level	-7.829919	0.0000
School Enrolment	1st difference	-4.805529	0.0012

Source: Author's Calculations.

Assumptions of regression were examined. Jarque-Bera test had a probability of 0.768779. Hence, we cannot reject the null hypothesis that the distribution follows a normal distribution. The assumption of homoskedasticity was checked by applying Breush Pagan Godfrey test. The assumption was not violated by the data. This claim is supported by the values of Observed R-squared of 13.14375 and its Probability Chi-square (8) of 0.1070.

Figure 1: Source: Author's Calculations

Series: Residuals	
Sample 4 27	
Observations 22	
Mean	-8.41e-06
Median	0.001133
Maximum	0.133986
Minimum	-0.100859
Std. Dev.	0.062145
Skewness	0.135357
Kurtosis	2.292591
Jarque-Bera	0.525904
Probability	0.768779

Table 2: Gives the Results of Stepwise Regression

Table 2: Results of Regression			
Name of Variable	**Coefficient**	**t statistic**	**p value**
School Enrolment D1.	-0.031681	-2.947502	**0.0106**
Inflation	-0.040788	-3.695871	**0.0024**
GDP	0.071588	6.762890	**0.0000**
Life Expectancy	0.076283	4.346499	**0.0007**
FDI D1.	-0.261851	-6.420766	**0.0000**
GFCF D1.	0.018431	2.019565	0.0630
Population D2.	-0.834433	-2.096069	0.0547
Interest Rates D1.	0.041096	1.890577	0.0796
R-squared = 0.931845	**Adjusted R-squared = 0.897767**		

Source: Author's Calculations.

As can be seen in the table, GDP has a positive and significant coefficient. The results did not confirm existence of Okun's law in Indian economy. Contrary to the theory, in India, as GDP increases by one unit, unemployment increases by 7.1588percent. This implies that the type of unemployment that exists in the economy is structural in nature and not cyclical. Inflation has a negative coefficient which implies that in Indian economy macroeconomic relationship Philip's curve does exist. Higher the inflation lesser the unemployment rate. A coefficient of -0.040788 with a significant p value suggests that policies that influence inflation can impact unemployment also.

FDI and secondary school enrolment have significant negative coefficients as predicted by the theories. This implies that as these variables increase, unemployment will decrease. Increased FDI in the country is therefore beneficial. Also, investing in education will help improve unemployment and poverty levels. Thus, as the economic health of the country improves, unemployment levels decreased. On the other hand, rapidly increasing population effected unemployment negatively. The p value is not significant. Life expectancy at birth has a significant impact on unemployment. As life expectancy increases, more people continued to stay in the labour force. But employment growth is not sufficient to accommodate this increase. Hence, the variables have an inverse relationship. Fixed capital investment has a positive coefficient. This is opposite to what theories suggested. Capital investments did not impact creation of jobs in the economy. As expected, interest rates and unemployment exhibited a positive relation. Higher interest rates made taking loans costlier. This reduced the demand for loans. This had a negative effect on entrepreneurial activities and production activities resulting in less creation in jobs. So, unemployment rate increased. Stepwise regression excluded LFPR and trade openness as predictors from the model. Thus, these variables did not have a significant impact on unemployment in the time period under consideration.

The model specified can be written as;

Unemployment = $_1$ GDP + $_2$inflation + $_3$FDI + $_4$ population + $_5$ LFPR + $_6$ GFCF+ $_7$ trade openness + $_8$ interest rate + $_9$ life expectancy + $_{10}$ school enrolment+

After running Stepwise regression, the regression equation is given as follows:

Unemployment = 0.071588 GDP + -0.040788 inflation + -0.261851FDI +-0.834433 population + 0.018431 GFCF+ + 0.041096 interest rate + 0.076283 life expectancy + -0.031681 school enrolment+

The regression analysis has an R squared of 0.931845 which means that 93.1845percent of the variation in unemployment is explained by the variables considered for the study. The adjusted R squared is 89.7767percent. This means that the model is overall a good fit.

Durbin-Watson d-statistic is 2.176257; a value close to 2 shows that there is no autocorrelation in the data. R squared is less than Durbin-Watson statistic hence, it indicates that regression results are not spurious. The low values of Akaike information criterion (AIC =-2.037956) and Schwarz criterion (-1.641213) means that there is less information loss and therefore is a better model.

Conclusion

For economies to achieve Sustainable Development Goals, it requires to have a specified growth rate and unemployment rate. When low unemployment prevails in an economy, it ensures that people of the economy enjoy well-being and social welfare. It helps in improving the standard of living. Irrespective of the economic development level, every country aims to grow and develop their economy. Unemployment should not be the reason for the economy not achieving its goals.

In India, past research shows that economy has failed to translate growth into development. The GDP growth that the country achieves is not reaching its population. With increasing unemployment rate and poverty India is experiencing jobless growth. The quality of employment offered by the labour market is not very good. The increased informalisation and low wages leads to continued poverty among people.

Whether unemployment will become a hindrance to achieving Sustainable Development Goal 8 is a question to ponder upon. Meeting the targets irrespective of regional inequalities is important step towards global development. The method each country needs to tackle unemployment will be different. For India ensuring that growth is inclusive will be beneficial. The implementation of appropriate policies that attract more FDI are needed. Building qualitative workforce is the need of the hour. This can be done through improvement of our educational system and also establishing more training programs. This will help in reducing the skill mismatch between jobs and labour force. Policies that help in achieving an appropriate trade-off between rate of inflation that prevails in the economy and unemployment rate is required. Keeping the interest rates at moderate levels will help in encouraging establishing new businesses and also increasing production. This in turn will help in reducing unemployment.

A planned approach towards understanding the nature of unemployment prevailing in the country and influencing its determinants will help India reduce unemployment. Such an approach will ensure that unemployment does not hinder India from achieving SDG in the near future.

Declaration

We, the authors declare that the above-mentioned manuscript is our original work and has not been published elsewhere and that all co-authors have agreed to have seen and approved the manuscript for submission.

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Declaration of Conflicting Interest

The Authors of the manuscript declares that there is no conflict of interest.

References

1.   braham, V. (2009). Employment Growth in Rural India: Distress-Driven? *Economic and Political Weekly, 44*(16).

2.   Aktar, I., Demirci, N., & Ozturk, L. (2009, May). Can Unemployment be Cured by Economic Growth and Foreign Direct Investment? *International Research Journal of Finance and Economics.*

3.   Atta, A., & Cheema, A. R. (2014, March). Economic Determinants of Unemployment in Pakistan: Co-integration Analysis. *International Journal of Business and Social Science; Vol 5 No.3.*

4.   Aurangazeb, D., & Asif, K. (2013, January). Factors Effecting Unemployment: A Cross Country Analysis . *International Journal of Academic Research in Business and Social Sciences, 3.*

5.   Behera, S. (2015, August). Combating Unemployment: A Challenge to Inclusive Growth. *International Journal of Research in Economics and Social Sciences, 5*(8).

6.   Chand, K., Tiwari, R., & Phuyal, M. (2017). Economic Growth and Unemployment Rate: An Empirical Study of Indian Economy. *Pragati: Journal of Indian Economy, 4*(2), 130-137.

7.   Chowdhury, S. (2011, August). Employment in India: What Does the Latest Data Show? *Economic & Political Weekly.*

8.   Dev, M., & Mahajan, V. (2003). Employment and Unemployment. *Economic and Political Weekly, 38*(12/13).

9.   Dholakia, R., & Sapre, A. (2011, July). Speed of Adjustment and Inflation – Unemployment Tradeoff in Developing Countries – Case of India. *Indian Institute of Management, Ahmedabad, India, W.P. No. 2011 – 07 – 01.*

10.   Dr. G. V. Joshi , & Prasad, K. (2014). Employment Generation for Poverty Alleviation and Human Development: Needed Redirections in Policies in India. *SSRN; Nitte Management Review.*

11.   Ghosal, R. K. (2004, May). GDP Growth and Feel Good Factor. *Economic and Political Weekly, 39*(20).

12.   Kaur, K. (2014). An Empirical Study of Inflation, Unemployment, Exchange Rate and Growth in India. *Asian Journal of Multidisciplinary Studies; ISSN: 2321-8819 (Online), 2*(10).

13.   Kaur, P. (2007). Growth Acceleration in India. *Economic and Political Weekly,, 42*(15), 1380-1386.

14.   Lal, I., Sulaiman D, Jalil, M., & Hussain, A. (2010). Test of Okun's Law in Some Asian Countries Co-Integration Approach. *European Journal of Scientific Research ISSN 1450-216X, 40*(1), 73 - 80.

15.   Mahmood , Y., Bokhari , R., & Aslam , M. (2013). Tradeoff between inflation, interest and unemployment rate of Pakistan: A cointegration analysis. *Pakistan Journal of Commerce and Social Sciences (PJCSS), 7*(3), 482-492. Retrieved from http://hdl.handle.net/10419/188106

16.   Maqbool, M., Mahmood, T., Sattar, A., & Bhalli, M. (2013). Determinants of Unemployment: Empirical Evidences from Pakistan. *Pakistan Economic and Social Review, 51*(2).

17.   Mehra, G. (2018). Unemployment: Stumbling Block to Economic Growth. *International Journal of Research in Humanities, Arts and Literature, 6*(1).

18.   Nayyar, D. (2006, April). Economic Growth in Independent India: Lumbering Elephant or Running Tiger? *Economic and Political Weekly, 41*(15).

19.   Paul, S. (1988, July 16). Unemployment and Underemployment in Rural India. *Economic and Political Weekly, 23*, 1475-1483.

20.   Prakash, B. A. (2002). Urban Unemployment in Kerala: The Case of Kochi City. *Economic and Political Weekly, 37*.

21.   S, Victoria Kenny. (2019, April). A causal relationship between unemployment and economic growth. *Munich Personal RePEc Archive (MPRA)*. Retrieved from https://mpra.ub.uni-muenchen.de/93133/

22.   Sahoo, M., & Sahoo, J. (2019). The relationship between unemployment and some macroeconomic variables: Empirical evidence from India. *Theoretical and Applied Economics, XXVI (2019)*(1(618)), 115-128.

23.   Sapkal, R. S., & Sundar, K. (2017). Determinants Of Precarious Employment In India: An Empirical Analysis. *Precarious Work, Research in the Sociology of Work, 31*, 335–361. Retrieved from https://doi.org/10.1108/S0277-283320170000031011

24.   Shaw, A. (2013). Employment Trends in India: An Overview of NSSO's 68th Round. *Economic and Political Weekly, Vol. 48, No. 42* .

25.   Singh, D., & Raj, A. (2018, November). Generation of Poverty and Employment in India. *International Journal for Innovative Engineering and Management Research, 7*(12), 549–557.

26.   Singh, G., & Siahpush, M. (2015). Inequalities in US Life Expectancy by Area Unemployment Level, 1990–2010. *Hindawi Publishing Corporation Scientifica Volume 2016, Article ID 8290435*. Retrieved from http://dx.doi.org/10.1155/2016/8290435

27.   Singh, R. (2018). The Cause of Unemployment in Current Market Scenario. *Vivechan International Journal of Research, 9*(1).

28.   (May 2019). *World Employment and Social Outlook: Trends 2019.* Geneva: International Labour Organisation (ILO).

Appendix

Dependent Variable: D_UNEMPLOYMENT

Method: Stepwise Regression

Sample (adjusted): 4 27

Included observations: 22 after adjustments

No always included regressors

Number of search regressors: 10

Selection method: Stepwise forwards

Stopping criterion: p-value forwards/backwards = 0.5/0.5

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
D_SCHOOL_ENROLMENT	-0.031681	0.010748	-2.947502	0.0106
INFLATION	-0.040788	0.011036	-3.695871	0.0024
GDP	0.071588	0.010585	6.762890	0.0000
LIFE_EXPECTANCY	0.076283	0.017550	4.346499	0.0007
D_FDI	-0.261851	0.040782	-6.420766	0.0000
D_GFCF	0.018431	0.009126	2.019565	0.0630
D_DPOPULATION	-0.834433	0.398095	-2.096069	0.0547
D_INTEREST_RATE	0.041096	0.021737	1.890577	0.0796

R-squared	0.931845	Mean dependent var		2.720409
Adjusted R-squared	0.897767	S.D. dependent var		0.238042
S.E. of regression	0.076111	Akaike info criterion		-2.037956
Sum squared resid	0.081101	Schwarz criterion		-1.641213
Log likelihood	30.41751	Hannan-Quinn criter.		-1.944495
Durbin-Watson stat	2.176257			

Selection Summary

Added D_DLFPR

Added INFLATION

Added GDP

Added LIFE_EXPECTANCY

Added D_FDI

Added D_TRADE_OPENNESS

Added D_SCHOOL_ENROLLMENT

Removed D_DLFPR

Added D_GFCF

Removed D_TRADE_OPENNESS

Added D_DPOPULATION

Added D_INTEREST_RATE

*Note: p-values and subsequent tests do not account for stepwise selection.
Source: Authors' calculations.

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