

Economic Determinants of Unemployment: Empirical Result from Pakistan

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Abstract

Unemployment is one of the major issues that give birth to many economic and social problems in Pakistan economy. Keeping in view this serious problem, the author explored the factors that influence the level of employment in Pakistan. This study finds out the determinants of employment in Pakistan by applying simple multiple linear regression models using the time series data from 1990 to 2013. The result indicates that the relationship between literacy rate and population growth rate was positive and highly significant with unemployment rate while GDP was positive but insignificant impact on unemployment rate. The relationship between inflation and unemployment was negative but highly significant impact on unemployment.

Keywords: Growth rate, Inflation, Unemployment, Pakistan

1 INTRODUCTION

Unemployment is one of the major problems facing under developed as well as developed nations of the world. Unemployment can be defined as the situation in which people are willing and able to work at the prevailing wage rate but they are unable to find job (economic survey of Pakistan 2010-2011).

The unemployment rate in Pakistan was 2.7% in early 1990 which increased to 6.0% in 1990s on the average. The persistent increase in unemployment in 1990's is due to low economic growth. The unemployment rate was 5.0% in 2008 and increased to 6.1% in 2013. There are many factors which are responsible for high unemployment in Pakistan. Backwardness of agriculture sector is one of the major factors determining unemployment in Pakistan. As almost 67% people are directly or indirectly engaged with agriculture sector. Agriculture sector contributes 21% to GDP and employs 43% of labor force of our country. Due to lack of knowledge, non-availability of agriculture credit, fertilizer, high quality seed and use old method of farming, agriculture sector is still under developed and cause high unemployment in Pakistan. Industrial sector is second major sector of Pakistan. This sector contribute 20% to GDP and 24% of people engaged with this sector. Investor trend, political instability, law and order situation of our country, poor taxation system and terrorism are some of the reasons of backwardness of industrial sector due to which unemployment is increasing in Pakistan. The other factor responsible for high unemployment may be monetary and fiscal policies, Pakistan does not sufficient funds to invest in projects to create job opportunities for citizens. Rapid growth of population, shortage of electricity, is some of the other factors which cause high unemployment in Pakistan.

Education system of our country may also responsible for high rate of unemployment. According to international labor force survey 2010-11, in Pakistan 63.9% literate people are unemployed, out of which 63.5% get formal education and 0.3% gets non formal education. 28.4% of person get primary and secondary education, 16.4% person get education up to matriculation, 9.2% get education up to intermediate and post graduate level, while 9.3% of person get education up to Ph.D. level.

High rate of unemployment has adverse impact on economic growth of a country, as the number of unemployed people increases, there is underutilization of resources. As a result the total productivity of the country is less than potential level of output. If unemployment of a country persists for long time, it may create financial hardship, crimes, poverty, homelessness, frustration and social isolation which may result an erosion of healthy society.

There are many factors which are responsible for unemployment in Pakistan, but this study investigates the impact of GDP growth rate (%), inflation rate (CPI), population growth rate (%), and literacy rate (%) on unemployment rate (%).

2 LITERATURE REVIEW

Many studies have been conducted on this serious issue unemployment by many researchers and policy makers both at national and international level by using time series data. But still there is a need to discuss this issue in

more detail to find solid policy framework in future. Keeping in view this issue, some empirical evidence from Pakistan and international economy are listed below.

HOLISTER, & GOLDSTIEN. (1994) concluded from their study that population growth rate resulted because of an increase in supply of labor force. This implies that population growth rate is assumed to have a positive impact on unemployment.

RAFIQ, et al.(2010) examined the determinants of unemployment in Pakistan by using time series data. For this purpose secondary data was taken from Economic survey of Pakistan and simple single equation linear regression model was employed. The result shows that population and unemployment was positively correlated where as foreign direct investment and inflation was negatively correlated.

EITA and ASHIPALA (2010) estimated the determinants of unemployment in Namibia by taking data from 1871 to 2007 they employed Engle-Granger two steps econometric procedure. According to the result, unemployment will increase as a result of an increase in the cost of labor under the condition that if actual GDP is below potential GDP. The study found a negative relationship between unemployment and investment. NUNNENKAP, BREMAONT, and WALDKRICK (2007) found a significant relationship between FDI and unemployment by taking data of 200 manufacturing concerns.

WEBER (2002) examined the relationship between the educational rate of return and unemployment rate in 14 European countries. The result shows that educated workers have more efficiency in finding new jobs than non-educated people. This means that unemployment will reduce at a higher educational level. Ahmed et al (2011) found a negative relationship between unemployment and GDP by analyzing the impact of unemployment on GDP in Nigeria by taking time series data from 2000 to 2008.

A study was conducted by Yuosaf (2012) in Bahawalpur to examine the determinants of unemployment for the first time job seekers. Primary data was collected from 350 employed individuals. By using the simple single linear regression model, the result reveals that individuals having professional degree and higher education fall less unemployment as compared to low degree holders. It was also found that marital status, head of the household and household size reduces the duration of unemployment.

Zaman, et al (2011) explored the existence of Philip curve in Pakistan. Granger causality test was employed on the data collected from Economic survey of Pakistan, world development indicators. The study shows that there is causal and long run relationship while there is permanent relationship between inflation and unemployment in the long run.

Aqil, Ali and Seemab (2014) conducted a study Pakistan to find out the factors that influence the level of employment. Time series data was collected on which correlation and multiple regression analysis was run. The results show that GDP and inflation have no significant impact on unemployment while FDI and population rate have significant and negative impact on unemployment.

3 DATA AND METHODOLOGY

There are many factors that determine the unemployment in Pakistan; some of these factors are GDP growth rate, foreign direct investment, private investment, inflation, literacy rate external debt etc. (M SHAHID MAQBOOL, 2013). In this study the empirical relationship between unemployment and GDP growth rate, inflation rate, population growth rate and literacy rate is explored. Time series data from 1990-2013 has been taken in order to determine the effects of said variable on unemployment rate in Pakistan. Secondary data has been taken from economic survey of Pakistan, World Bank report and Pakistan bureau of statistic etc.

3.1 Model specification

Multiple linear regression model is used on time series data to find out the empirical relationship between the dependent and independent variables.

The general form of the model is as follow

$$UNEMP = \beta_0 + \beta_1 GDP + \beta_2 POP + \beta_3 INF + \beta_4 LITR + \varepsilon$$

Where

DEPENDENT VARIABLE

UNEMP= unemployment

INDEPENDENT VARIABLE

GDP= Real growth domestic product

POP= population growth rate

LITR= literacy rate

INF= inflation rate

The dependent and independent variables are measured in percentage change. OLS technique is used to estimate the model and t test is used to check the significance of the results. Overall significance of the model is measured through F test.

4 EMPIRICAL ANALYSIS AND INTERPRETATION AUGMENTED DICKY-FULLER TEST FOR STATIONARITY OF DATA

TABLE NO 1: Augmented Dickey-Fuller test for d_d_UNEMP

including 5 lags of (1-L)d_d_UNEMP (max was 8)

sample size 16

unit-root null hypothesis: $a = 1$

test with constant

model: $(1-L)y = b_0 + (a-1)*y(-1) + \dots + e$

1st-order autocorrelation coeff. for e: 0.283

lagged differences: $F(5, 9) = 1.280 [0.3514]$

estimated value of $(a - 1)$: -4.21444

test statistic: $\tau_c(1) = -2.83441$

asymptotic p-value 0.05349

It can be seen from the above test of ADF that the p value is equal or less than the significance value (5%) so reject H0 and may conclude that Data is stationary.

TABLE NO 2: Dickey-Fuller test for d_d_POPUL

sample size 21

unit-root null hypothesis: $a = 1$

test with constant

model: $(1-L)y = b_0 + (a-1)*y(-1) + e$

1st-order autocorrelation coeff. for e: 0.005

estimated value of $(a - 1)$: -1.63159

test statistic: $\tau_c(1) = -8.83504$

p-value 1.203e-007

As shown in the above analysis of the tests of ADF that the P-value is less than the Significance value so will have to reject H0 and may conclude that the Data is stationary.

TABLE NO 3: Augmented Dickey-Fuller test for d_d_d_LITR

including 7 lags of (1-L)d_d_d_LITR (max was 8)

sample size 13

unit-root null hypothesis: $a = 1$

test with constant

model: $(1-L)y = b_0 + (a-1)*y(-1) + \dots + e$

1st-order autocorrelation coeff. for e: 0.191

lagged differences: $F(7, 4) = 5.432 [0.0606]$

estimated value of $(a - 1)$: -40.7623

test statistic: $\tau_c(1) = -4.2832$

asymptotic p-value 0.0004701

The data is stationary at third difference because the p-value is less than the significance value, we reject Ho.

TABLE NO 4: Dickey-Fuller test for d_INF

sample size 22

unit-root null hypothesis: $a = 1$

test with constant

model: $(1-L)y = b_0 + (a-1)*y(-1) + e$

1st-order autocorrelation coeff. for e: -0.029

estimated value of $(a - 1)$: -1.29374

test statistic: $\tau_c(1) = -6.12177$

p-value 5.054e-005

as the p-value is less than the significance value so Ho is rejected so, at first difference the data is stationary.

TABLE NO 5: Augmented Dickey-Fuller test for d- GDP

including 2 lags of (1-L)d_GDP (max was 8)
 sample size 20
 unit-root null hypothesis: $a = 1$

test with constant

model: $(1-L)y = b_0 + (a-1)*y(-1) + \dots + e$

1st-order autocorrelation coeff. for e: 0.096

lagged differences: $F(2, 16) = 1.582 [0.2360]$

estimated value of $(a - 1)$: -1.66556

test statistic: $\tau_c(1) = -3.80458$

asymptotic p-value 0.002875

as the p-value is less than the significance value so we reject H_0 and conclude that the data is stationary at first difference.

TABLE NO 6: REGRESSION ANALYSIS

Regressors	Coefficients	Std.Error	t-ratio	P=values
Constant	5.80417	0.269559	2.2930	0.2115
GDP	0.0558523	0.093872	0.5950	0.55853
POPUL	1.46609	0.281684	5.2047	0.00004***
INF	-0.276414	0.0539721	-5.1219	0.00005***
LITR	0.0951455	0.011584	8.2135	<0.00001***
R-squared	0.979986			
Adjusted R-squared	0.976984			
P-value(F)	1.11e.16			
Durbin-Watson	2.006537			

*** 0.01 level of significance

The empirical relationship between dependent and independent variables is shown by a regression analysis. All the coefficients are highly significant as p-values are less than 0.01 level of significance and t-statistic values are greater than 2. The population growth rate and literacy rate have highly significant positive impact on unemployment rate. A one unit increase in population growth rate will increase unemployment by rate equal rate of 1.46609. Literacy rate has significant positive impact but a very little coefficient of 0.0951455 that implies a very little effect on unemployment rate. Similarly, GDP has a positive (0.0558523, little impact on unemployment rate) but insignificant relation with unemployment rate. The relationship of inflation rate with unemployment rate is negative with -0.276414 coefficients, proves the Philip curve that exist a negative relationship between unemployment and inflation. A one unit increase in inflation will decrease unemployment rate by 0.276414.

F-statistic shows that the model is overall significant and R^2 value shows that 97% variation in unemployment has been explained by the variation in independent variables included in the model.

The Durbin-Watson “d” value is 2 which indicate that there is no autocorrelation.

CONCLUSION

Unemployment is a serious problem in developing countries like Pakistan where majority of its people are deprived of finding good job and gaining better wages. The author find out the main factors that causes unemployment in Pakistan by taking time series data from 1990-2013. Simple multiple linear regression model was employed. Empirical finding shows that the relationship between population and gross domestic product (GDP) and unemployment rate were positive and highly significant, while inflation rate was negatively and highly significantly associated with unemployment rate.

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