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## RESEARCH PAPER

### Macroeconomic Variables and its Impact on Unemployment

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#### ABSTRACT

*This paper about research on unemployment and other selected macroeconomic variables which are inflation, GDP, GPI, pop growth. This paper takes into account some important law like Philips curve and the impact of other variables on unemployment. Since Pakistan is a developing country it faces problems like uneven inflation, low GDP growth, literacy rate, population growth. According to some growing population is problem, some say education, some say that GDP is low. We take into account varying views develop an Econometric model in which unemployment is the dependent variable and other like inflation, GDP etc are independent variables, a regression is run which shows whether the variables are significant or not and how they are related, we conclude that solid grounds are not available to say either okuns or Philips law are prevailing and suggest further tests and econometric techniques should be applied to see the applicability.*

**Key words:** Philips Law, Okuns Law, GDP, Macroeconomic Variables

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#### INTRODUCTION

This research paper is based on macroeconomic variable of unemployment and its impact on other economic variables which include gdp growth, population growth, gpi (gender parity index), and an important and familiar macroeconomic variable which is inflation. In this introductory part of the research paper the variables are defined, explained and as well as basic theory governing these variables. As we know unemployment which in simple terms can be defined as lack of jobs for the people, is an important determinant of economic prosperity and standard of living of an economy. We can see generally that those countries with good employment rate have a good economy and people are satisfied conversely in economies where there is high rate of unemployment people are not satisfied, they suffer under difficult circumstances, as they cannot afford the basic necessities of life and most importantly don't contribute the economy as a whole and suffer from poverty, as a result they remain disfranchised and underprivileged, on the economy this puts pressure on the government to enter create jobs for people or face the consequences like poverty, crimes, theft and other harmful effects to the economy as a whole. We can also see that unemployment also differs in developed countries and less developed countries and developing countries. The developed countries have good employment rates better governments, efficient judiciary, long term planning, and innovation of ideas that leads to good rates of employment, on the other hand the developing countries have frequent problems of unemployment because of poor governments because their private motives are more important than welfare of people,

and their prevails corruption and poor judiciary, as a result unlike the developed countries the less developed countries face a difficult situation in order to get the masses employed. Above all the unemployed people are given an unemployment allowance in developed countries when they are not employed.

In economic terms unemployment is described as those in labor force who are not employed for pay are unemployed. While the total labor force is considered to be the combination of unemployed and employed people. There are so many reasons for unemployment in Pakistan but one of the major causes of unemployment is the underdeveloped agriculture sector, because the agriculture is one or other way linked to employment.

One cause is high development in industrial sector as compared to outdated techniques in agriculture, in search of better opportunities people move from rural to urban areas in search of jobs, this also creates high rural urban migration. In economics it is known as "Economic Dualism", the countries in which there is more developed industrial sector as compared to agriculture sector. There are a number of other reasons for unemployment in Pakistan which will be later discussed in the introductory part. But first it is important to understand the types of unemployment.

#### **FRictional UNEMPLOYMENT**

This is a type of unemployment which suggests that unemployment always exists in the economy, this occurs when the workers change jobs or this may exist or create short unemployment spells because there is no right person for the right job, for example a finance degree holder is employed as data entry operator or an engineer doing the job of a technician, all in all we can say it is not a serious condition or an alarming situation for the economy because no proper intermediary is available in the economy to guide the holders for specific education for the specified job.

#### **SEASONAL UNEMPLOYMENT**

This is another type of unemployment which is due to the seasonal nature of goods and services, and just like frictional unemployment it is not an alarming situation. We can take an example of garment industry, or automotive industry which needs to be retooled. Sweater industry for example stop making in summer season and as a result of this stoppage the workers become unemployed. It can be reduced by means of diversification and specialization of the same industry in more than one product.

#### **CYCLICAL UNEMPLOYMENT**

this is another form of unemployment which is caused due to recession or business cycles, but unlike the seasonal unemployment or the frictional unemployment, it is a serious type of unemployment which needs attention of the government, actually what happens is that due to recession the demand or we can say the aggregate demand falls for goods and services and more people are unemployed because of reduced expenditure, an example of the great depression of 1930s can be taken.

#### **STRUCTURAL UNEMPLOYMENT**

This is another serious type in which there are long term structural changes or we can say the shutdown of the firms creating massive unemployment.

Further we have to tell that in Pakistan there are a number of reasons for unemployment but the major reasons will be discussed in this research paper. Education can be considered as an important factor or variable in economy, lack of technical knowledge creates unemployment, people with higher education tend to have better employment opportunities. Other factor is the gdp which is constituted by a number of sectors like industrial and agricultural, but due to lower gdp lower people being employed in the

agriculture sector more unemployment is created which means that lower gdp means high unemployment.

Other factors or a variable discussed in this research paper is the effect of inflation and unemployment in Pakistan. As we know the "Philips curve" which states that there is a trade off between inflation and unemployment or we can say that when there is high inflation than unemployment is lower and vice versa, we come to know whether this law holds in Pakistan or not. Finally this paper also tells the impact of population and unemployment as we can see that with high rate of population growth jobs become scarce and there is much employment in the economy, as Pakistan is going to be the 4<sup>th</sup> largest in population in 2050 according to survey.

### **LITERATURE REVIEW**

(Brian and Dan 2000) says about economic growth and how it is measured, commonly measured by the annual amount of goods and services produced in a year, in macroeconomics this variable of growth is called gdp or gross domestic product, what matters about growth and gdp is that it should be the growth in the real gdp not the nominal gdp that will result in the growth of the economy. As growth takes place the profits, revenue, wages, incomes increase resulting in the expansion of the economy. Consequently this growth is an important determinant of the increase in employment or a decrease in the unemployment. This effect of increase in gdp and its impact on reducing unemployment is considered by famous economist Arthur Okuns as "Okuns law". This law states an inverse law between gdp growth and unemployment. As (Brian and Dan; 2000) states that as real gdp is increased economy grows, the standard of living grows above all the goods and services that are produced sold and resulting revenues of industries and corporation grows that will expand and invest in the expansion of their business that will give chance for more employment opportunities and job prospects for the unemployed population in the labor force.

(Muhammad, *et al.*, 2014) according to original research of Okuns, a rise in gdp above 3% will result in the reduction of unemployment by 1%. Many empirical studies have been conducted to prove the law in different regions. Although many studies show a negative or inverse relation but there is no proper consensus that the relation is always negative between unemployment and gdp growth. Some studies show a mixed result while other gives a view that this relationship is weak in the regions where labor market is flexible with high employment. Some of the studies show that there are many other factors which control unemployment and economic growth. These other conditions include the labor market conditions, demographic conditions, and other factors, so it can be concluded that the relationship between is fairly negative between gdp growth and unemployment but there are situations in which it does not hold to be negative.

The relationship between inflation and unemployment has also shown to be negative which widely knew to be the Philips curve. A.W.Philips showed this relation. As we can see when there is more unemployment the incomes of unemployed population are reduced as a result less consumption and lower will be the inflation rate, on the other hand when a mass population is employed the average income is more and more goods and services will be bought and as a result the prices of goods will go up, this tells us that inflation and unemployment are inversely related but some studies have suggested a positive, neutral or insignificant correlation between these two variables. But we cannot say that this negative correlation completely diminishes it still holds.

Another important factor in the determination of unemployment is population growth rate which varies widely from country to country. There is a difference between the growth rate of population and the unemployment rate. By logic we can say that higher population naturally creates employment problems for the population, as with limited infrastructure, resources it becomes difficult for the employers to generate the specific job opportunities for mass population. There is a clear distinction between the

populations of advanced developed countries as compared with the developing countries, the developed countries have maintained a stable growth rate of population in order to cater unemployment where as in developing countries, and they mostly face the problems of unemployment and increase in the population growth.

(Habib-ur-Rehman; 2012) argues about population and unemployment problem situation prevailing in Pakistan, initially he says at the time of independence the Pakistani people faced a lot of problems. In his paper he has considered the industrial and agriculture sectors, saying that Pakistan initially depended in agriculture for employment purposes, there was disguised unemployment, also reference to the poorly developed industrial infrastructure that Pakistan had at the time of independence. Pakistan lagged in industrial development and was basically dependent on agriculture. Being cognizant of the fact that Pakistan was behind in industrial development at the time April 1948 Pakistan developed its industrial policy with an aim of developing and providing solutions to the problems of the growing populations. As a result of this policy the PIDC (Pakistan Industrial Development Corporation) was developed in the year 1950 and large scale manufacturing was encouraged at 23.4 %. The main objectives were two fold-

Firstly to utilize its own raw materials and export its finished goods to utilize its foreign reserves. Secondly the objective was that to use the surplus labor and create the employment opportunities for the increasing population.

Further he says that in the sixties decade Pakistan was rapidly growing in economy and industrial progress and employment was being created in the economy because of the independent units being created, but in seventy's decade nationalization scheme led to increase in unemployment as the nationalization policy was not properly implemented.

Another important factor which contributes to good level of employment is education, good quality education need to be brought to the system for skilled labour, white collar jobs or government jobs. As now the conditions for lower level government jobs require middle or secondary pass. (Ghayur 1989) considers about unemployment in educated sector because of three particular reasons, firstly he says that the problem of educated unemployment arises because of the malfunctioning of the education and training systems. Secondly this system is working in isolation which means it is not encompassing the demands of the industry and other institutions which is providing employment. And also the absence of effective labor market information. There remains a problem in Pakistan for employment but as well as for educated employment.

### **PROBLEM STATEMENT**

The basic aim of this research paper is to develop a relation between unemployment and selected variables that include GDP growth, population growth, inflation and GPI I e gender parity index. It also sees whether in Pakistan there is the applicability of Philips curve, Okuns law, and also what type of relation does unemployment has with population growth, is it positive or negative and also what type of relation does unemployment has with GPI, gross enrollment in primary school.

### **OBJECTIVES**

The main objectives are as follows.

1. The main objectives are as follows.
2. Relationship exists between unemployment and selected variables.
3. To what extent the selected variables impacts on unemployment.
4. Applicability of Philips curve.

### **HYPOTHESIS**

**Null Hypothesis H<sub>0</sub>:** A macroeconomic variable has an impact on unemployment.

**Alternate Hypothesis H<sub>1</sub>:** A macroeconomic variable does not have an impact on unemployment.

**VARIABLES**

Variables used in the study are given below:

1. **Dependent Variable:** Unemployment is used as dependent variable
2. **Independent Variables:** Following variables are used as the independent variables
  - a. Population growth
  - b. GDP
  - c. GPI
  - d. Inflation

**ECONOMIC MODEL**

The economic model used in the study is simple which shows us the relationship between the variables.

The relationship between the variables will be tested through the following equation

$$\text{Unemp} = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + e_t$$

X1 is inflation

X2 is gdpgrth

X3 is gpi

X4 is popgrwth

**METHODOLOGY**

Multiple regression analysis is conducted to find the due relationship between dependent and independent variables. Analysis conducted on the time series data of sixteen (16) years from 2000 to 2015.

**DATA ANALYSIS**

Multiple regression analysis is conducted on the time series data.

**DATA SET**

year	unemp	inflation	gdp grth	GPI	pop grwth
2000	7.1	24.89	4.26	0.68	2.26
2001	7.4	7.89	1.98	0.68	2.169
2002	7.8	2.463	3.22	0.68	2.093
2003	7.69	4.4383	4.84	0.726	2.044
2004	7.4	7.7492	7.36	0.73	2.02
2005	7.09	7.02	7.66	0.768	2.03
2006	6.09	19.05	6.17	0.791	2.045
2007	5.09	7.27	4.8	0.8329	2.05
2008	5	13.204	1.7	0.842	2.062
2009	5.19	20.6665	2.83	0.8536	2.077
2010	5.09	10.85	1.6	0.851	2.093
2011	5.09	19.64	2.74	0.8579	2.1098
2012	5.09	5.96	3.5	0.8698	2.12
2013	5.09	6.964	4.36	0.8678	2.12
2014	5.19	6.94	4.73	0.851	2.103
2015	5.9	3.5	5.538	0.84	2.075

## RESULTS

Table 1: Multiple Regression

Multiple Regression						
Stata command: reg unemp inflation gdpgrth GPI popgrwth						
unemp	Coef.	Std. Err	t	P> t	95% Conf. Interval	
inflation	-0.0183047	0.0113264	-1.62	0.134	-0.0432339	0.0066245
gdpgrth	0.0794554	0.0443872	1.79	0.101	-0.0182401	0.1771509
gpi	-14.47041	1.075745	-13.45	0	-16.83811	-12.10271
popgrwth	-1.90853	1.539745	-1.24	0.241	-5.297486	1.480426
_cons	21.43725	3.710427	5.78	0	13.27066	29.60385
<b>Number of obs</b>		16				
<b>Prob &gt; F</b>		0				
<b>R-squared</b>		0.9565				
<b>Adj. R-squared</b>		0.9406				
<b>Root MSE</b>		0.27262				

In this model, R square is 0.9565 which represents that, there is almost 95 percent variation in dependent variables is because of independent variables. The adjusted R square is 0.9406 represents that, there is 94 percent variation in dependent variable, because of independent variables.

This model represents that the gpi is significantly negatively related with unemployment at 5 % significant level having p value of 0. Inflation at 5 percent significance level whose p value is 0.134 and is negative related with unemployment. GDP growth is positively related to unemployment with p value of 0.101. Population growth is negatively related to unemployment with p value of 0.241.

Inflation, GDP growth and population growth are insignificant at 95% confidence interval, because of the multi-collinearity between the variables. R square in this model is 0.9565 or 95.65% (higher than 80%) which indicates the variables are collinear.

## CONCLUSION

The study indicates only GPI is significantly related to unemployment, on the other hand we don't have solid grounds to prove or confirm that Philips curve holds although the coefficients are negatively related but are not significant. Same goes for Okuns law.

## RECOMMENDATIONS

1. We recommend the use of econometric tests for reducing multicollinearity, or using the correlation matrix, so better results with significant results can be obtained.
2. Taking log can also show good results

## REFERENCES

1. Adil M., Ali Quereshe, M., Raheem Ahmed R. and Qadeer S. (2014): Determinants of unemployment in Pakistan. IJSS, Vol. 4.
2. Ghayur S. (1989): Educated unemployed in Pakistan: estimates of imbalances in the current flows. The Pakistan development review, pp, 603-613.
3. Habib-ur-Rehman (2012): The problem of unemployment in Pakistan: (a case study of Khyber Pakhtunkhwa). International journal of humanities and social sciences, Vol. 2 No. 8.
4. Moynihan D. and Titley B. (2000): Macroeconomic problems. Inflation, unemployment and Growth. New York, NJ: Oxford, page, 288.