

## FISCAL POLICY FOR GROWTH AND EMPLOYMENT GENERATION IN PAKISTAN

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### ABSTRACT

*This study examines the long run relationship between fiscal policy and unemployment for the country like Pakistan. The Johansen co-integration approach has been used to inspect the relationship between the fiscal variables and unemployment. The yearly data has been used from the period 1980 to 2010. The results of co-integration have indicated the long-run association between the fiscal variables and unemployment. Government expenditures and inflation both has shown positive relationship with unemployment. Whereas foreign direct investment, growth rate and tax revenue have shown negative relationship with unemployment. The Vector Error Correction Model (VECM) shows the disequilibrium factor and these disequilibrium variables will come towards equilibrium after the time period of six years. Foreign Direct Investment (FDI) has shown negative relationship with unemployment. This indicates that FDI is an effective tool against unemployment. There is need to create sound and fearless environment for the foreign investors, so that they invest in different business and projects. Due to their investment employment opportunities should be created in the country and unemployment will decrease.*

**Keywords:** Fiscal policy, unemployment, co-integration, VECM

### INTRODUCTION

Fiscal policy is the policy made by government to regulate its level of spending and manipulate the economy of the country. The Fiscal policy may be expansionary or contractionary; it depends on a country's economic situation. According to Gale and Harris (2010) an important role for fiscal policy is the migration of unemployment and stabilization of the economy. This statement shows that the important function of fiscal policy is to alleviate unemployment from the economy and economic stability. Government expenditure is the main instrument of the fiscal policy because when government expenditure increases, employment opportunities are created and at the end unemployment decreases. Leigh and Neill (2008) had also recommended government expenditure as important instrument in lowering the unemployment rate. Adams and Gangnes (2010) had also found that increased government spending has a large and instant impact on output and employment. So in the light of all these studies it is proved that solution of unemployment reduction is the use of expansionary fiscal policy. Many theories such as Phillips curve and Okun's law had shown the relationship between unemployment, inflation rate and growth respectively. But it is not applicable in every country's economy because different countries have different economic situation and the policies.

Unemployment means people who are able and willing to do work, don't get appropriate jobs. It a phenomenon present in every country or economy. Unemployment remains in every economy due to its different types such as Structural, Frictional and cyclical unemployment. These types of unemployment are present in the economy due to several reasons.

Unemployment is a central problem in a country like Pakistan because whenever unemployment rate becomes high, resources become wasted and the incomes of the people get negative shocks. People who are 10 years old or above are included in labor force in Pakistan. Increase in population gives rise to labor force but on the other hand if people don't get jobs then unemployment rate increases. In the year 1999 it was estimated that there are 2.4 million unemployed persons. The unemployment rate was estimated as 6.1% and 5.4% in the labor survey 1996-97 & 1994-95 respectively. The difference in the unemployment rates between these two surveys was approximately 0.7%. This showed that unemployment rate was increased between these two years. At that time government tried to overcome and control this increased unemployment rate. Small Business and Finance Corporation (SBFC) had played its vital role in reducing unemployment. SBFC generated employment for 28,149 persons under this program. To increase growth and self-employment, Govt started overseas employment schemes under which 104,000 persons were sent abroad for employment purpose. In addition, great attention was paid towards the improvement of infrastructure of the country. (GOP, 2000)

The aim of this study is to check the fiscal policy of Pakistan that how it is working to achieve stability towards economic growth and full employment level. As the economic situation prevailing in Pakistan is not so good due to unemployment, hyperinflation, energy crisis and war against terrorism. So, there is needed to take effective steps against these problems. Government can solve these problems by using effective fiscal policy. In this study the effectiveness of fiscal policy against unemployment has been checked. For this purpose the variables which are affected by fiscal policy are used to check the relationship between fiscal policy and unemployment.

## LITERATURE REVIEW

Many economic scholars have explored the importance and impact of fiscal policy on unemployment in the past years. Their researches have given different results about the relationship between fiscal policy and unemployment. The relationship between Fiscal policy and unemployment was checked by Battaglini and Coate (2011). They suggested that to control rising unemployment government should have to start the plans in which tax cuts and public production increases were involved. Government expenditure is the main instrument of the Fiscal policy which is used by the government to increase or decrease the development in the country. Expansion in the government expenditures is beneficial for the economic growth.

Leigh and Neill (2008) together studied the impact of government spending on unemployment. They found that the government spending shows positive impact on the employment level. This was due to the reason that whenever government increases its development expenditures automatically employment opportunities are generated. People get jobs and unemployment decreases.

The effectiveness of the Fiscal policy cannot be judged before its implication. The out coming result of the Fiscal policy shows that how much effective it was. For this purpose Farmer (2009) checked the effectiveness of the Fiscal policy. His analysis suggested that if private expenditures are replaced with government expenditures then this would be very much effective and can restore full employment. Fiscal policy has microeconomic effects as well as macroeconomic effects. Its macroeconomic effects could be different from its microeconomic effects. Macroeconomic effects of Fiscal policy were investigated by Afonso and Sousa (2009). Their empirical results suggested that expansion in the government

spending shows a small and positive impact on Gross Domestic Product (GDP) and a negative impact on private investment.

The expansionary Fiscal policy also showed a negative impact on unemployment. When the long-term impacts of Fiscal policy were checked they found that interest rates, private investment and GDP become more responsive. Another study conducted by Fatas et.al (1998) also presented the macroeconomic impacts of Fiscal policy. They found that impact of investment was not affected significantly with the increase in government expenditure. Consumption also decreases due to increase in the government spending because of the negative wealth effects. On the other hand there was a positive and significant impact of government spending on employment.

Unemployment is a problem which can be seen in every developed and underdeveloped country. This is a great challenge for every government to create jobs in its country. The problem of job creation and the policies which create jobs were explored by Adams and Gangnes (2010). They particularly looked at the impact of American Recovery and Reinvestment Act Program (ARRA) which was adopted in 2009. They found that increased government spending on government consumption and investment has large and instant impact on output and employment. The program ARRA also contributed a lot in the way of employment and job creation. So the government investment on programs like ARRA is very effective for employment generation.

Fiscal regulation and economic performance has a positive long-run association. Gale and Orszag (2003) had examined the long-run relationship between them. According to them there is a negative effect on economic growth due to deficit in the budget. It causes the national saving to reduce and increases the long-run cost on economic growth. When the government faces budget deficit its expenditures automatically decreases. This decrease in expenditures leads to increase unemployment in the country.

Plotnikov and Farmer (2011) had checked that how expansion in the government expenditures leads to decrease private consumption and reduce unemployment. They found that expansionary Fiscal policy increases economic growth and reduces unemployment in the short-run but due to this consumption is reduced in the short-run. According to Keynes if the economy is not self-confident then expansion in the Fiscal expenditures would not be the effective way to increase employment.

The different policy initiatives taken by government to reduce unemployment from the country were inspected by Amjad (2005). He found that the government policies showed that it is taking unemployment as a serious problem and main concern of the government is to eliminate poverty from the country. According to him government is giving his special attention towards the education and the skill improvement of the people in the country. Due to this they would be able to take part in the global economy. He suggested that government should have to pay a lot of attention Public Sector Development Plan to start more employment creation projects according to need. Government should also have to find the other different ways to increase employment.

To check out the working of the Phillips curve in Pakistan Gul et.al (2012) conducted a study. They found that the Phillips curve is still working in Pakistan. Due to increase in inflation, unemployment in the country is decreasing. They also found a positive relationship between unemployment and tax rate. They concluded that there are many problems which are causing unemployment in the country. Different developments are made but no attention is paid on the regulation of these plans. At the end no results are obtained.

All the literature discussed above shows that there is a strong association between Fiscal policy, unemployment and growth. Government can use its Fiscal instruments such as government expenditures and tax revenue to control unemployment in the country. Through Fiscal policy government can made different plans to attract foreign direct investment (FDI). By controlling inflation government can control unemployment in the country. So there is need to check the relationship of all these variables which are affected by Fiscal policy with unemployment.

**HYPOTHESIS**

After analyzing the past study, following hypotheses are set in order to achieve the objectives:

- H<sub>1a</sub>:** Government expenditure has negative relationship with Un-Employment.
- H<sub>2b</sub>:** Growth rate has negative relationship with Un-Employment.
- H<sub>3c</sub>:** Foreign Direct Investment has negative relationship with Un-Employment.
- H<sub>4d</sub>:** Tax revenue has positive relationship with Un-Employment.

**METHODOLOGY AND DATA COLLECTION**

**Data Collection**

The data used for estimation has collected on yearly basis for the period from 1980 to 2010. Reliable sources were selected for the data collection like International Financial Statistics (IFS). Central Bank of Pakistan (SBP) and World Development Indicator (WDI).

**Methodology**

There are numerous methods and techniques to inspect the long run association between variables. In this study we have used Co-integration test presented by Johansen Juselius (1990) to measure the long-run relationship between the understudied variables

**Johansen Co-integration Test**

J-J approach of co-integration test is based on maximum likelihood approach and was introduced in 1988. If there are more than two variables in the model then there is possibility of at least two co-integrating vector in the model.

$$Y_t = B_1 Y_{t-1} + B_2 Y_{t-2} + \dots + B_k Y_{t-k} + u_t \text{ ----- (1)}$$

This can be express in VECM form as follows:

$$\Delta Y_t = \Omega_1 \Delta Y_{t-1} + \Omega_2 \Delta Y_{t-2} + \dots + \Omega_{k-1} \Delta Y_{t-k-1} + \pi Y_{t-1} + u_t \text{ ----- (2)}$$

Where  $\Omega_i = (I - B_1 - B_2 - \dots - B_k)$  ( $i = 1, 2 \dots k-1$ ) and  $\pi = -(I - B_1 - B_2 - \dots - B_k)$

The above matrix is  $\pi$  is 3x3 because we assume that there are three variables in the model.  $\pi = \alpha\beta'$  where  $B$  is the speed of adjustment to the equilibrium coefficients and  $\beta'$  is the long-run matrix of coefficients.

**Model Specification**

This study explores the long term relationship between the understudied variables. Using co-integration approach the model can be written in a following way:

$$\text{Log UM}_t = \beta_1 \text{LogGE}_{t-1} + \beta_2 \text{LogFDI}_{t-1} + \beta_3 \text{LogINF}_{t-1} + \beta_4 \text{LogGR}_{t-1} + \beta_5 \text{LogTR}_{t-1} + \epsilon \text{--- (3)}$$

The natural log is taken to make the variables continuous and linear. T-1 is showing the lag and  $\beta_1, \beta_2, \beta_3, \beta_4$  and  $\beta_5$  are the parameters. Where  $\epsilon$  is the error term in the model.

The co-integration test estimates the number of co-integrating equations or vectors present in the model. It has two likelihood ratios, one is Max-Eigen statistics and second in Trace statistics. The Max-Eigen statistics can be calculated in a following way:

$$\lambda \text{ max} = -T \ln (1 - \lambda r + 1) \text{ ----- (4)}$$

The second method is Trace statistics test. The Trace statistics can be calculated by using the following formula:

$$\lambda \text{ trace} = -T \Sigma \ln (1 - \lambda I) \text{ ----- (5)}$$

Trace statistics and Max-Eigen statistics will help us to find the number of co-integrating equations or vectors present in the model. To find out the relationship between the variables the R model used for this purpose can be formulated in a following way:

$$\Delta LUM_t = \beta_1 + \Sigma \beta_2 i \Delta LGE_{t-1} + \Sigma \beta_3 i \Delta LFDI_{t-1} + \Sigma \beta_4 i \Delta INF_{t-1} + \Sigma \beta_5 i \Delta GR_{t-1} + \Sigma \beta_6 i \Delta TR_{t-1} + \epsilon \text{ --(6)}$$

In the above equation t is the time,  $\Delta$  is the difference term, I is the lag length and  $\epsilon$  is the stochastic error term.

## RESULTS AND INTERPRETATIONS

### Descriptive Analysis

The table 1 given below includes the values of mean, median, mode, skewness and kurtosis etc. the mean value shows that there is 1.643% positive change or increased the unemployment, 12.975% in government expenditures, 4.52% in foreign direct investment, 2.02% in inflation rate, 1.573% in growth rate and 12.18% in tax revenue over the year respectively. The standard deviation explains deviation from the equilibrium at same percentage except the tax revenue. It means that the variable tax revenue is sowing more disequilibrium as compared to other variables. The skewness statistics is showing that unemployment rate, inflation rate and growth rate are negatively skewed. But the government expenditures, foreign direct investment and tax revenue are positively skewed. Kurtosis is showing normality in the behavior of two variables: foreign direct investment and growth rate.

**Table 1. Descriptive Statistics**

	<i>LOGLUM</i>	<i>LOGGE</i>	<i>LOGFDI</i>	<i>LOGINF</i>	<i>LOGGR</i>	<i>LOGTR</i>
<i>Mean</i>	1.643775	12.97577	4.524145	2.027926	1.573129	12.17785
<i>Median</i>	1.750069	12.9522	4.439493	2.069528	1.722767	12.3305
<i>Max</i>	2.112272	14.76214	5.950768	3.009937	2.197225	14.20961
<i>Min</i>	1.122003	11.55054	3.304503	1.069573	0.530628	10.33277
<i>Std. Dev</i>	0.319417	0.926882	0.641766	0.496326	0.454362	1.127702
<i>Skewness</i>	-0.259976	0.188363	0.433844	-0.32791	-0.89006	0.03623
<i>Kurtosis</i>	1.747447	1.929306	3.085832	2.300477	3.034139	1.876267

Source: IFS, SBP & WDI

## Unit-Root Test

Before applying co-integration we have to fulfill the condition of stationarity of the series. To check the order of stationarity Augmented Dicky-Fuller (ADF) test has been applied. The results of Unit root test are shown below in the table 2.

First we have taken the logarithm (log) of every variable to convert them in linear form. After this we have applied unit-root test on each variable to check its stationarity. The stationarity have been taken at 5% level. The t-statistics value of the dependent variable (unemployment rate) is 1.62476 less than critical value 3.67017 (at 5% level). So the variable is stationary at first difference because its t-statistics value 7.5319 is greater than critical value 3.67932. The stationarity of other variables is checked in the similar way. Results clearly indicate that all the variables are stationary at 1<sup>st</sup> difference. It means that the variables are integrated of order one I (1). This shows that co-integration test can be applied on this time series data.

**Table 2. Unit Root Test**

Variables	ADF TEST		Stationarity
	t-statistic value		
	Level	1 <sup>st</sup> Diff	
LOGLUM	-1.62476	-7.5319*	I(1)
LOGGE	0.47383	-6.41942*	I(1)
LOGFDI	-2.40149	-6.20321*	I(1)
LOGINF	-2.1892	-5.7385*	I(1)
LOGGR	2.75156	5.482650*	I(1)
LOGTR	0.92827	-4.21254*	I(1)
<i>Critical Values</i>			
At 1% level	-3.67017	-3.67932	
At 5% level	-2.96397	-2.96777	
At 10% level	-2.62101	-2.62299	

\*significant at 5% level Source: IFS, SBP & WDI

## Johansen Co-integration Test Results

After getting the confirmation that data is stationary at first difference. We have employed co-integration test. In co-integration we have used maximum likelihood ratio test in which trace statistics and max Eigen value statistics are included. The lag length is taken of two years. The results of trace statistics are shown in the table3. Null hypothesis indicates that at none there is no co-integration between unemployment and the fiscal variables for the period of 1980 to 2010. At null hypothesis trace statistics value is 136.5518 is greater than critical value 95.75366 so we have rejected this null hypothesis that there is no co-integration among the variables. Alternate hypothesis of this null is that there is at least one co-integration vector in the variables. We have also rejected this hypothesis because the trace statistics value 82.03710 is greater than the critical value 69.81889. The alternate hypothesis is there are at least two co-integrating vectors in the variables. We have not rejected this hypothesis because

the trace statistics value 40.27372 is smaller than the critical value 47.85613. So the trace statistics has shown that there are at least two co-integrated equations or two co-integrating vectors among the variables at 5% level. So, we can say that there exists co-integration among the variables. For the purpose of confirmation we have also checked the Max-Eigen. This has also confirmed that two co-integrating vectors are present among the variables.

**Table 3. Co-integration Test**

<i>Hypothesized</i>	<i>Eigen Value</i>	<i>Trace Statistic</i>	<i>Critical Value</i>	<i>Prob. **</i>
<i>No. of CE(s)</i>			<i>5%</i>	
None *	0.857292	136.5518	95.75366	0.0000
At most 1 *	0.774976	82.0371	69.81889	0.0039
At most 2	0.464442	40.27372	47.85613	0.2129
At most 3	0.413206	22.78925	29.79707	0.2566
At most 4	0.244138	7.862951	15.49471	0.4802
At most 5	0.000923	0.025867	3.841466	0.8722

Trace test indicates 2 co-integrating equation(s) at the 0.05 level \*denotes rejection of the hypothesis at the 0.05 level \*\*Mackinnon-Haug-Michelis (1999) p-values Source: IFS, SBP & WDI

For the purpose of confirmation we have also checked the Max-Eigen value in the Table 4. The Max-Eigen statistic has also showed the same results and also confirmed the presence of two co-integrating vectors among the variables.

**Table 4. Co-integration Test**

<i>Hypothesized</i>	<i>Eigenvalue</i>	<i>Max-Eigen</i>	<i>Critical Value</i>	<i>Prob. **</i>
<i>No. of CE(s)</i>		<i>Statistic</i>	<i>5%</i>	
None *	0.857292	54.51466	40.07757	0.0006
At most 1 *	0.774976	41.76338	33.87687	0.0047
At most 2	0.464442	17.48447	27.58434	0.5385
At most 3	0.413206	14.9263	21.13162	0.2941
At most 4	0.244138	7.837084	14.2646	0.3955
At most 5	0.000923	0.025867	3.841466	0.8722

Max-eigenvalue test indicates 2 co-integrating equation(s) at the 0.05 level

\*denotes rejection of the hypothesis at the 0.05 level

Source: IFS, SBP & WDI

### Vector Error Correction Model (VECM)

The co-integration test has shown the presence of two co-integrated equations. It means that there is a long term relationship between the desire variables. Vector Error Correction Model (VECM) has been also applied due to the presence of co-integration between the variables. The coefficient is -0.163285. This shows that the variables are 16.32% deviated from the equilibrium and after the time period of six years they will again come towards the equilibrium. The deviation of variables from their equilibrium is due to some causes. The VECM results have also shown the long-run and short-run relationship among the variables.

### Impulse Response Analysis

An impulse response function reveals the response of the endogenous variables towards the disturbances present in the system. The graphs in appendix 1 show the change in other variables due to change in one variable. We have achieved our objective because the co-integration test has indicated the long term association among the fiscal variables and unemployment. The results of vector error correction model (VECM) have rejected our hypothesis; H1a and H4d. The results indicate that government expenditures & inflation has positive and significant relationship with unemployment in case of Pakistan. This is against the economic theory and Phillips curve. The relationship of tax revenue has been found to be negative, which is also against our hypothesis. In the study our three hypotheses are accepted.

The growth rate and foreign direct investment has shown negative relationship with unemployment. The relationship of growth rate was found to be significant and negative. This is according to economic theory and Okun's law. Our last hypothesis (H5e) is also accepted that inflation and unemployment has positive relationship. The VECM has shown that inflation and unemployment has positive and significant relationship. In the study it has been found that the fiscal variables have both long-run and short-run relationship with unemployment.

### CONCLUSION

The relationship of government expenditure with unemployment was found to be significant and positive. This is against our hypothesis. The reason of positive relationship between unemployment and government expenditure in case of Pakistan is due to increase in non-development expenditures. Pakistan is facing so many problems. Government is spending much portion of its revenue on war against terrorism, defense and political expenditures. Due to this reason non-development expenditures are more than development expenditures. That's why government expenditure is showing positive relationship with unemployment rate. This means that due to increase in non-development expenditures, unemployment is significantly increasing. The second variable foreign direct investment (FDI) had shown negative relationship with unemployment. This is supporting our hypothesis. This means that FDI is very important for reducing unemployment from Pakistan. Our third variable inflation rate has shown significant but positive relationship with unemployment. This is according to our hypothesis but against the Phillips curves theory. The reason of their positive relationship is that there is 'hyperinflation' in Pakistan. Hyperinflation is due to the problem of energy crisis. Due to short fall of electricity so many industries had shut down and people are hesitating to invest in any kind of business. This problem is further lowering the production and increasing the unemployment at the end supply of goods is decreasing. Increasing aggregate demand is giving further rise to price level. That's why hyperinflation and unemployment are prevailing in Pakistan at the same time. Phillips curve had become ineffective in the economy of Pakistan. Growth rate had shown significant and negative relationship with unemployment. This is according to our hypothesis. This means that



increase in unemployment is decreasing the growth rate of Pakistan. Our last variable tax revenue had shown negative relationship with unemployment. This finding has not supporting our hypothesis.

Government should has to use expansionary fiscal policy but for the development purpose. So that the employment opportunities should be created. The non-development expenditures must be shifted towards development side. Government should have to allocate major portion of its budget in the important sectors like infrastructure, education, health and agriculture. Subsidies should be provided to those sectors which are not showing development, due to this these sectors will show development and employment will increased. FDI is an effective way to eradicate unemployment from Pakistan. So the government should have to improve the infrastructure, law & order situation, political stability and to solve the energy problem. In this way there should become a good environment for FDI.

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Appendix 1

