MAJOR DETERMINANTS OF UNEMPLOYMENT AND THEIR IMPACT ON ECONOMIC GROWTH: A CASE STUDY OF PAKISTAN

[1]Amna Kausar, [2]Sidra Liaqat, [3]Humera Sherazi, [4]Mehnaz Bibi
Department of Economics, Lahore Garrison University, Defense Sector C Phase VI, Lahore, Pakistan
Corresponding author: [1]amnakausar@lgu.edu.pk, [3]Humera@lgu.edu.pk, [2]sidraliaqat@lgu.edu.pk, [4]mehnazbibi@lgu.edu.pk

ABSTRACT: *The study examined the unemployment's determinants with reference to Pakistan for the time period of 1985-2016 by observing the empirical association amongst the unemployment, gross domestic product, import of goods & services & export of goods and services. It is imagined that the rate of unemployment in the economy of Pakistan be strongly obstructed by these factors. To test the determinants of unemployment Autoregressive Distributed Lag (ARDL) method has been used. Empirical results disclosed that gross domestic product, import of goods & services & export of goods and services are significantly but negatively affect Pakistan's unemployment in the short-run along within the long-run. As per the theory of economics gross domestic product's current (GDPC) is negatively linked to unemployment, as an increase in gross domestic product current (GDPC) leads to a diminution in unemployment. Impact of Exports also inversely related to Unemployment. An increase in exports of goods and services (EXPGS) leads to an increase in employment opportunities. The estimated convergence term (ECM t-1) is negative & statistically significant. The model is structurally stable shown by CUSUM and CUSUMSQ within the 5% of critical bounds.*

Keywords: unemployment, ARDL, Pakistan, JEL Classifications: E24, F12, and C22.

1. INTRODUCTION

One of the great and vigorous worldwide issues is unemployment. It is a common subject in developed as well as underdeveloped countries. Unemployment rises when people are without jobs. There are many schools of thoughts, according to neo classical's, unemployment rises when rigidities are enforced on the market of labor as of the outside. But according to Keynesian, unemployment is due to the inefficiency of markets & ineffective demand for goods & services. The IMF also explains that 'unemployment is restrained yearly as a percentage of that labor force which can't find a job'. Youth employment is also very imperative to society & families, mainly in developing countries. Society & families spend a lot of capital on youth education, expecting them to be productive after the accomplishment of education. Youth employment diminishes the care burden of the families, allowing them to engage in other development activities. Youth employment also eases poverty decline among the families as the employed youth plays his role in helping the family to beat insufficient constraints. Youth employment decreases the social expenses inside the societies, decreases violence, illegal actions, drug addiction, and prostitution, which decrease public costs in the country [1].

Unemployment is the most important life incident of a human being. It can have a shocking impression on the lives of people. It disturbs the unemployed person along with family, associates & the larger community. The influence of unemployment can be life-long. Unemployment becomes worse and provokes long-term influence on the economy in the long run, often disturbing the standard of living in superannuation. The income lost by the parents can hurt the prospects of the subsequent generation.

Unemployment is also a constantly-growing phenomenon in Pakistan as well. The rate of unemployment increased in the 1990s by means of a financial contraction, low rates of economic development & due to certain other causes in Pakistan [2]. The declining tendency in the unemployment rate was observed for the duration of 2003 to 2009, but subsequently, it again happening to rise in Pakistan. It's the percentage of 8.3 percent was highest in 2004 & the lowest percentage was 1.6 percent in 1975 in Pakistan's history. Fundamentally Pakistan is an agrarian country and this sector of the economy provides jobs to 45 percent out of the total labor force [3].

2. REVIEW OF LITERATURE

Unemployment is a severe problem of emerging in addition to advanced economies. To search out the determining factor of unemployment numerous studies have been conducted few of which are given below. Researcher [4] Studied Pakistan's factors of unemployment. This study investigated the statistical association amongst real growth rate of GDP, unemployment, and population growth by using the time period of 1986 to 1999. A simple regression technique was used to find out the outcomes. Results revealed a positive relationship between unemployment and population and an inverse relationship between unemployment and GDP. Both GDP and population are considered the main contributors to unemployment in the economy. Researchers [5] also observed the factors of youth unemployment using data from 1991 to 2004. This paper attempts to find the macro and micro dimensions of youth unemployment problems in Pakistan at regional and gender-wise for the duration of the 1990s. Results from the simple bivariate regression model centered on 9 years of data from the Labor Force Surveys discloses that (a) If the once a year growth rate of GDP is larger than 4.25 percent per annum Youth unemployment may decline; (b) Female unemployment may decrease by increasing the growth rate of the services sector GDP as compared to the growth rate of GDP and (c) the growth in private sector investment is more favorable than public sector investment in decreasing youth unemployment. Household micro-level data exhibited that skill acquirement and vocational training have no influence on employment. Researcher [6] investigated the factors affecting unemployment in eight countries of the Organization of Islamic Cooperation (OIC), namely Iran, Egypt, Indonesia, Kazakhstan, Malaysia, Morocco, Pakistan, and Turkey using the data of 7 years from 1999 to 2006. The results of their study revealed that unemployment had an indirect and negative correlation with the gross domestic product, industrial export, and real exchange rate, whereas it had a direct and progressive association with the extent of the labor force. Researcher [7] discussed the determinants of unemployment in Namibia for the time period of 1971 to 2007. The variables used in this study are Unemployment as the dependent variable and the consumer price index

(inflation), actual and potential output, economic uncertainty; total investment is used as independent variables. The study tried to the comprehensive reflection of the suitable literature review, micro and macro model of unemployment is examined by means of the Engle-Granger two steps econometric approaches. The results show that there is an adverse association between unemployment and inflation in Namibia. If the actual output is below potential output with low wages, unemployment answers back positively. Unemployment may decrease by increasing investment significantly. Researcher [8] considered the effect of exchange rate on the unemployment rate in ten Asian countries, comprising Pakistan, India, China, Japan, Bangladesh, Argentina, Algeria, Brazil, Colombia, and Sri Lanka by unstable panel data set for the time period of 1995 to 2005. The outcome of the study showed that exchange rate volatility had a positive and significant effect on the unemployment rate in Asian countries. Researcher [9] analyzed the determinant of unemployment and its empirical evidence from Pakistan. The study contains population, GDP, FDI, EXD, PINV, as independent, whereas unemployment as the dependent variable. Data of the time period 1976 to 2012 was used. The autoregressive distributive lag approach has been applied to the model. Empirical results showed that both in the long run and in the short-run GDP, population, inflation, FDI, investment have a significant impact on unemployment. Researcher [10] investigated the economic determinants of unemployment in Pakistan. Data is taken as time series from 1973 to 2010 was used. The study used Unemployment as the dependent variable, whereas the output gap, gross fixed investment, economic uncertainty, productivity, and openness of trade are the independent variable. ARDL methodology was used to test the association between dependent and independent variables. The outcomes show that unemployment has positive and statistically significant relationships with all independent variables whereas it has statistically significant destructive relations with Gross Fixed Investment and Trade Openness. Researcher [11] discussed the Determinants of Unemployment and its Empirical Evidence from 7 Province in Indonesia. The study investigates the economic growth, inflation, minimum wage, and variables that have an insignificant impact on unemployment. Researcher [12] investigated the Determinants of Unemployment in Switzerland. To find out the ratio of actual to potential Gross Domestic Product (GDP), inflation, government spending, the Engle-Granger two steps econometric technique was used, the consequences show that the dummy variable used for democratization in 1994 of South Africa and the worldwide economic disaster of 2007-2009 is considered as factors of unemployment in Switzerland.

The literature showed that though prodigious work has been done linked with the determinants of unemployment only a few studies focused on the role of GDPC, import and export of goods and services in unemployment in Pakistan economy, consequently this paper is planned to fill this literature gap.

3. RESEARCH METHODOLOGY

In this section model testing and empirical results are presented. To investigate the short-term and long-term relationship between Pakistan's unemployment (UN), Gross Domestic Product (GDP), Import of goods and services (IMPGS), Export of goods and services (EXPGS). This study uses the recently developed time-series technique called the Autoregressive distributed lag (ARDL) model approach. In this study, the long-run behavior of unemployment and its determinants in Pakistan will be analyzed. The following regression model is tested.

$UN = \alpha o + \alpha 1\ GDPC + \alpha\ 2\ IMPGS + \alpha 3\ EXPGS + \varepsilon$ ---- (1)

Where

UN = Unemployment rate percentage of the total labor force

GDPC = Gross domestic product US $ in billion

IMPGS = Import of goods and services US $ in billion

EXPGS = Export of goods and services US $ billion

ε = Error term

The above model demonstrates that the level of gross domestic product, import of goods and services, the export of goods and services determines unemployment (UN) in Pakistan. In this study, we analyze the impact of the determinants of unemployment. αo is a constant while the parameters $\alpha 1$, $\alpha 2$, and $\alpha 3$, are the parameters showing changes in unemployment. The model explains fluctuations in the unemployment rate in relation to the variations in GDP, IMPGS, and EXPGS.

ARDL methodology for co-integration analysis and the resulting error correction model is used as the following equation shows.

$$UN_t = b_o + \sum_{i=1}^{m} b_{1i}\,\Delta UN_{t-i} + \sum_{i=0}^{m} b_{2i}\,\Delta GDPC_{t-i} + \sum_{i=o}^{m} b_{3i}\,\Delta IMPS_{t-i} + \sum_{i=0}^{m} b_{4i}\,\Delta EXPGS_{t-i} + b_5\,UN_{t-1} + b_6\,GDPC_{t-1} + b_7 IMPGS_{t-1} + b_8 EXPGS_{t-1} + \epsilon_t \text{----------(2)}$$

To observe the long-run affiliation between UN, GDP, IMPGS, EXPGS we conducted the bounds testing technique of Pesaran et al. The bound testing technique is the main step of the ARDL model and is centered on the F or Wald-statistics. Therefore, we establish a joint null hypothesis of no co-integration or no long-run affiliation ($Ho = a_1 = a_2 = a_3 = a_4$) against the presence of a long-run association. The F-statistic has a non-standard distribution. The intended F-statistic is related to the critical value provided by Pesaran (1997) or Pesaran *et al.* .[13] In these critical values, one set assumes that all variables should be integrated at order zero i.e. 1(0) and the other undertakes that all are integrated at order one i.e. 1(1). If the test statistics surpass the upper critical value the null hypothesis of no long-run relationship can be rejected irrespective of the order of integration whether it is zero or one. In the same way, if the test statistic decreases under a lower critical value. Then the rejection of the null hypothesis is not possible. However, if it remains among the upper and lower critical bounds, the result would be inconclusive. If the order of integration of the variables is known and all the variables are integrated of order one. 1(1). The conclusion is based on the upper bound. Correspondingly, if all the variables are integrated of order zero, 1(0), then the conclusion is centered on the lower bound. After confirming the existence of co-integration among the given

variables we move to the second stage. In this stage, the long-run association is assessed by means of the designated ARDL model. And the model is selected by using the model selection criteria like Schwartz-Bayesian criteria (SBC) and Akaike's information (AIC). After finding a long-run relationship among variables existence of an error correction representation is checked. After a short-run shock, the result of the error correction model specified the speed of adjustment back to the long-run equilibrium.

A general error correction representation of the ARDL model for equation (2) is given by:

$$\Delta UN_t = b_0 + \sum_{i=1}^{m1} b_{1i}\,\Delta UN_{t-i} + \sum_{i=o}^{m2} b_{2i}\,\Delta GDPC_{t-i} + \sum_{i=o}^{m3} b_{3i}\,\Delta IMPGS_{t-i} + \sum_{i=o}^{m4} b_{4i}\,\Delta EXPGS_{t-i} + AEC_{t-1} + \mu_1 \quad \text{---------- (3)}$$

Where m_1, m_2, m_3, m_4, represents the best possible length selected by the ARDL method. Th$\lambda$is is the speed of adjustment parameter and EC is the residuals that are attained from the assessed co-integration model. To determine the goodness of fit regarding the Auto Regressive Distributed Lag Model some stability tests are conducted. The diagnostic tests related to normality, serial correlation, functional form, and heteroscedasticity associated with the model. Furthermore, structural stability tests based on the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares of recursive (CUSUMSQ). The CUSUM and CUSUMSQ statistic are efficiently plotted against the breakpoint of the model. If the plot of these statistics falls within the critical bound of 5% significance it is considered that the coefficients related to available regression are smooth and stable. The graph is used to demonstrate these tests.

4. DATA SOURCES

In this study, unemployment is described by the Gross Domestic Product (GDP), import of goods and services (IMPGS), the export of goods and services (EXPGS). Therefore, the study consists of three main variables i.e. GDP, IMPGS, EXPGS, the data related to GDP, IMPGS, EXPGS, is taken from World bank indicator, IMF world economic outlook data base, Pakistan bureau of statistics and online service. The study used annual time series data. The data used in this study covers 30 years' time period i.e. starting from 1985 and ending 2016.

5. RESULTS

Table 5.1: **ARDL (1, 0, 1, and 0) Model Long Run Results Dependent Variable is UN**

Regressors	Coefficients	Standard Error	T-Ratios
GDPC	-.13148	.040616	3.2371[.004]
IMPGS	-.33016	.11389	2.8990[.008]
EXPGS	-.49032	.19192	2.5548[.018]

R^2=.66180, $\bar{R}^2$= .58828, F (5, 23) = 9.0016 [.000]

Note: indicates the significance at 5% level

Table 5.1 shows the results of long-run coefficients under the ARDL method. Results reveal that all independent variables gross domestic product current (GDPC), import of goods and services (IMPGS), and export of goods and services (EXPGS) have a significant effect on unemployment. According to economic theory gross domestic product current (GDPC) is negatively related to unemployment. This is logical as a rise in gross domestic product current (GDPC) will lead to a decrease in unemployment. Exports also have a negative impact on Unemployment. An increase in the export of goods and services (EXPGS) leads to a decrease in unemployment (UN). The finding of this study is comparable to the outcomes of [14] according to which cointegration exists among Gross domestic product, exchange rate, export and import of goods and services. The finding of the result is similar to the [15] according to that research paper Autoregressive Distributed Lag (ARDL) method has been applied to examine the causes of unemployment. Empirical findings show that gross domestic product, inflation, population, and foreign direct investment are considered significant elements of unemployment in Pakistan in the short and in the long-run as well. The finding of the result is similar to the [16] the results specify that the economic growth has a weak significance, but inversely related to short and long-run on unemployment. The long-run results show that GDP has an inverse and significant relationship with the rate of unemployment in China. Foreign direct investment and the inflation rate have a positive and insignificant association with the rate of unemployment. The short-run results specified that GDP, inflation, and foreign direct investment has a negative and insignificant affiliation with the unemployment rate. Therefore, the assumption is that unemployment rises due to the decrease in GDPC, IMPGS, and EXPGS may hold in Pakistan. There are many other variables that effect unemployment in Pakistan.

Table 5.2: The Diagnostic Test Statistics

Residual Correlation	$\chi^2_{SC}(1)$	1.3414 [.259]
Functional form misspecification	$\chi^2_{FF}(1)$	.0017043 [.967]
Heteroskedasticity	$\chi^2_{H}(1)$	3.7296 [.164]

The Auto-Regressive Distributed Lag approach based on AIC (Akaike Information Criterion) and SBC (selection-based criterion results)) sanctioned the variety of diagnostic tests, for example, residual correlation, functional form miss-specification, and heteroskedasticity as probability values of all tests are greater than 5%. The error correction presentation empirical results of ARDL of equation (3) are given in table 5.3. The empirical finding regarding the Schwarz Bayesian criterion is displayed below in Table 3.

Table 5.3 Error Correction Representation for ARDL (1, 0, 1, and 0) Model Dependent Variable is ΔUN

Regressors	Coefficients	Standard Error	T-Ratios
ΔGDPC	.088680	.025397	3.4917 [.002]
ΔIMPGS	-.094133	.057880	-1.6263[.117]
ΔEMPGS	-.33071	.12230	-2.7040[.012]
ECM (-1)	-.67448	.14768	-4.5673[.000]

R^2=.53821, $\bar{R}^2$= .43782, F (4, 24) = 6.7016 [.001]

Note: *indicates the significance at 5% level of significance.

The results of the error correction model in table 5.3 show that in the short-run Gross domestic product Current (GDPC) shows a strong and significant effect on the unemployment rate. The export of goods and services has a

considerable and negative effect on unemployment both during the short run and long run. The negative sign of export of goods and services and import of goods and services confirms that there exists a link between unemployment rates. The coefficient of ECM term is statistically significant having a precise negative sign. This declares a long-run relationship between the variables given in equation (1). The coefficient of the ECM term indicates that the correction procedure is moderately speedy. The disequilibrium related to the unemployment rate in the preceding year from its equilibrium path will be corrected in the coming year.

Further, to examine the stability of short-run and long-run coefficients of model 1 this study uses [17] stability testing technique. [18] also used a similar technique. This technique is identified as a cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares of recursive residuals (CUSUMSQ) stability tests. The graphs of CUSUM and CUSUMSQ to confirm the steadiness for the short and long run time period are embodied in figure 5.1 and 5.2

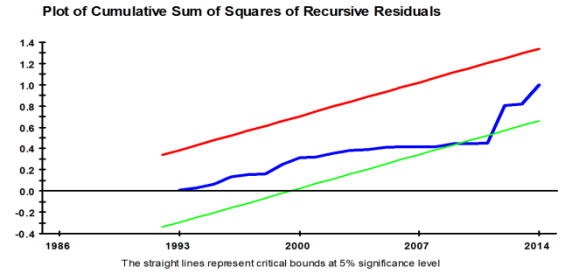

Figure 5.1

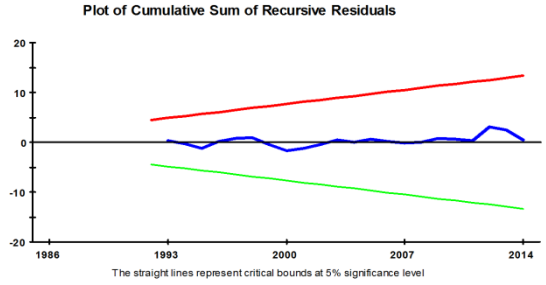

Figure 5.2

The statistics related to CUSUM and CUSUMSQ are updated continuously and graphed in opposition to the critical limits. When graphs of CUSUM and CUSUMSQ statistics remain between certain bounds it depicts that the given model is stable. It explains that the null hypothesis regarding the stability of regression coefficients may be accepted. Figures 5.1 and 5.1 shows that the graphs of CUSUM and CUSUMSQ statistics fall inside the determined boundaries indicating the stability of the model.

SUMMARY AND CONCLUSION

The main intention of this study was to highlight the determinants of unemployment with reference to Pakistan. Although the relationship between unemployment and economic growth is not clear as it is recommended that unemployment is an obstacle to the country's economic development indeed a higher level of unemployment is very harmful to the economy. However, in many developing countries the role of unemployment in economic growth is really critical and Pakistan is one of them. This study provides the determinants of unemployment and its influence on economic growth in a country such as Pakistan to suggest the most appropriate strategy for controlling unemployment in Pakistan. The choice of appropriate policy becomes difficult for developing countries such as Pakistan due to political volatility where short-run goals of unemployment are favored compared to long-run policy goals. This simple study practices those determinants of unemployment that are not already used in Pakistan by taking the annual time series data for the time span of 1985 to 2016. Auto-Regressive Distributed Lag (ARDL) method is used to examine the long-run, short-run relationship, and Error Correction Model to find the association between unemployment and its determining factors. [19]

This study analyzed the determining factor of unemployment, gross domestic product current targeting, the export of goods and services targeting, and import of goods and services targeting to handle the issue of unemployment in the country. The results of the Econometric model indicate that GDP per capita, exports of Goods, and Imports of Goods and services significantly and inversely related to Unemployment as per economic theory when these determining factors increase unemployment decreases

If we analyze the past and the present unemployment situation in Pakistan during the year 2000-06 unemployment burden of unemployment on Pakistan's economy was growing that it was hampering Pakistan's economic growth. But recently Pakistan's Unemployment rate has been reduced to 5.90 percent in the fourth quarter of 2015 from 6 percent in the 2014th fourth quarter. Pakistan's average Unemployment rate is 5.46 percent from 1985 up to 2015, getting an all-time higher of 7.80 percent in the second quarter of 2002 and it was recorded low up to 3.10 percent in the fourth quarter of 1987. Due to favorable circumstances and some satisfactory economic policies of a country, the unemployment rate becomes low in the second half of the decades of 1980s. [20]

POLICY IMPLICATION

This Study gives certain policy implications or recommendations that may be supportive in the instant decline of the unemployment rate of Pakistan.

Firstly, the Government should devise some strategies to check population growth. Population pressure is the main cause of urbanization that creates unemployment because of the low resources of Pakistan. Secondly, the use of debt must spend on productive resolutions. So, that new job opportunity may open for every citizen equally. Investment opportunities for locals and foreigners must enhance. For this Political stability is required, Law and order conditions may improve, corruption should be controlled, and the reduction of terrorism may decrease the rate of unemployment. Capital investment should be improved that will boost demand for goods and its new dimensions in the industry. Rise demand and output will sustenance investment in new capital machinery which will further support to maintain the growth in the economy by increasing long-run aggregate supply.

Thirdly, in less developed countries like Pakistan, an appropriate education system is very supportive to astound the unemployment rate in the economy.

Another suggestion is for future researchers. One can investigate the long-run impact of this variable along with the trade openness, literacy rate, foreign exchange rate, CPI inflation, gross fixed capital formation, with economic growth and unemployment rate in Pakistan.

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