IMPACT OF UNEMPLOYMENT ON ECONOMIC GROWTH OF AFGHANISTAN 2003 TO 2019

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Abstract - Afghanistan is a country that has plentiful natural resources with a strategic location that is connecting central and south Asian countries, besides receiving more than USD 75 billion in aids from the International community during 2003-2019, Afghanistan is still suffering from a 75% of the poverty rate and 37% of unemployment rate which is the highest poverty and unemployment rate in the region. Unemployment is considered a grim problem in the world and even developing countries are also suffering from increasing unemployment rate and Afghanistan is considered as the least developing country that has a high unemployment rate, thus we have investigated unemployment in Afghanistan for the period of 2003 to 2019 quarterly data. The analysis is executed with the help of the economic model of Okun's law that has investigated the relationship between the unemployment rate and economic growth and statistical models of the Auto Regressive Distributed Lag Model (ARDL) bound test for the mentioned period.

The result of the analysis shows that there is no significant and long-run relationship between economic growth and unemployment rate from 2003 to 2019 in Afghanistan due to many reasons such as informal economy, a colossal amount of foreign aids, corruption, war, and drug trafficking.

Keywords - Unemployment, Economic Growth, Okun's Law, Autoregressive Distributed Lag Model (ARDL) Bound Test, Security, Drug addiction, Taliban, Under Unemployment.

I. INTRODUCTION

The importance of researching and analyzing the unemployment problem lies in the fact that human capital is the basis of the development process, as well as the danger posed by the ever-increasing number of unemployed and the complications arising in the political and social consequences that accompany the unemployment situation. It creates a favorable environment for the growth of unemployment, crime, extremism, and violence. The loss of income sources, which are considered to be synonymous with unemployment, leads to a decrease in living standards and an increase in the number of poor people living below the poverty line.(Reuters, 2021)Afghanistan is located in Central Asia, according to surveys, Afghanistan has more than 3-4 trillion dollars' worth of natural resourcesand 33 million populations, GDP of 19 billion dollars, an inflation rate of 2.3 percent, and economic growth of 3.9 percent in 2019 (NSIA, 2019).

Besides Afghanistan has received more than 74 billion dollars' foreign aid from 2003 to 2020 but unfortunately, the unemployment rate in the year 2020 has increased to 37% and the poverty rate has increased to 72% in Afghanistan (Tolonews, 2021). In this study, we have explored the connection among unemployment rate of Afghanistan and the economic growth (Gross domestic production) of Afghanistan for the year 2003-2019 quarterly data by using the Auto-Regressive Distributed Lag Model (ARDL) by using the economic model of Okun's law which has examined the relationship between unemployment and economic growth in the United States of America.

According to Okun's law that expresses with a 3% increase in GNP the unemployment will fall by 1%, the law is applicable if the unemployment rate is between 3%-7.5% or in case of 1% rise in GDP unemployment causes a 2% reduction in GDP (Sögner, 2001).

War, political and economic instability, has led to a weak economy and country full of corruption and drugs while Afghanistan is having an approximately 40% unemployment rate. Kabul streets are full of uneducated youths every morning; they are asking for hourly-paid works. Keeping it in mind that the Taliban and ISIS have taken good advantage of this situation and hiring youth with a twice higher salary paid by the government, they pay around $700 monthly plus food for every person which is fair enough for those families facing poverty (Youth employment decade, 2016).

Since limited researchers have investigated unemployment in Afghanistan or the relationship amongst unemployment rate and economic growth (GDP) in Afghanistan, but empirical researches are scares due to variation or nonexistence of data thus in this research the analyses are conducted by using economic models and econometric methods, to find out the relationship among economic growth and unemployment in Afghanistan. Consequently, this research would result, in changing policies and help the policymakers with taking steps for reduction of unemployment rate in Afghanistan.

II. LITERATURE REVIEW

Employment Challenges in Afghanistan; Afghanistan's recession has raised concerns about rising unemployment. Similarly, Afghanistan has a fertility rate of more than five children per woman, and Afghanistan has the fastest growing population, the highest youth dependency, and the youngest generation in South Asia. Afghanistan's demographic characteristics and composition have posed major challenges to public finance and the labor market. Especially the high level of dependence has severely damaged savings and investment, limiting high public expenditures, especially health and education. The Afghan government has to create an estimated 400,000 jobs in the market every year in the labor market for new workers, which is a major challenge in the absence of economic growth and limited budgets for public investment (World Bank, 2015). In research from Osman (2018) on unemployment in Afghanistan, has stated that there is a positive relationship between economic instability, violence, and unemployment in Afghanistan. Besides other causes, unemployment is one of the effective causes of continuous insurgency in Afghanistan. According to evidence, many Afghan youths joined antigovernment rebel groups for buying a loaf of bread for their families, indeed they don't follow them believes or ideology and they are fighting just for earning money. According to research on the impact of unemployment in Afghanistan during 2001-2008 shows that unemployment has a worse impression on economic growth in Afghanistan besides that it has increased the migration of labor forces to neighboring countries and western countries, increased the recruitment of insurgency and drug production groups although Afghanistan government most budget is founded on foreign aids (Amiri, 2009).

In a research study conducted regarding the impact of unemployment on the economic growth of 12 developing Asian countries by using Pooled OLS method and fixed effect technique and the panel data from 1982 to 2011, these methods are used to find out that there is a negative relationship between unemployment and GDP growth and the result is significant (Imran, 2015). An empirical investigation on the impact of unemployment over the GDP of Ethiopia from the year, 1974-2014 for 40 years' data by using Johnsen's' Cointegration and VEC methods has been conducted. The result shows that real GDP is being negatively impacted by unemployment; with a 1% rise in unemployment, the real GDP is reduced by 0.82% (Ali, 2016). A research paper was conducted to investigate the relationship between unemployment and economic growth in Saudi Arabia from 2000 to 2015 to find out the cause of increment in unemployment and the consequences of unemployment. The findings of this research express that government expenditure, exports, investments, and real income has a negative impact on unemployment; although, there is a positive relationship between imports and unemployment. It is suggested that the government should enhance its citizens to work in the private sector (Meteb, 2017).

An investigation was conducted regarding the effect of unemployment on the economic growth, and causal relationship amongst them in Tanzania from 1991 to 2016 by using Dynamic Ordinary Least Square, Cointegration, and Granger causality test methods. The result of this empirical study shows that variables are Co-integrated, thus the Dynamic Ordinary Least Square estimations reveal that there is a positive impact of unemployment over the GDP growth but this result was insignificant (Suleiman, 2017). In a case study regarding impacts of international mobility and unemployment on the economic growth of several developed countries and the researcher has used panel data from 1992-2017; the data is gathered based on convenient sampling methods and it belongs to 7 developed countries such as; United Kingdom, Canada, France, United States, Australia, Switzerland, and Germany. The result shows that unemployment and international labor mobility are considered as two sides of one coin and they have a significant impact on economic growth. The author has suggested a variety of implications for governments and related immigration departments (Faisal, 2019).

In a case study of the social and economic impact of unemployment on the economic growth of Slovakia, and central plus eastern Europe countries for the period of 2000-2012 after the structural changes occurred in these countries, as a result, the changes made some of them developed and some of them developing economies thus the trend and the impact of unemployment on the economic growth are analyzed. It is stated that the economic structural changes had a significant negative effect in the start years but later it led to economic growth and then economic growth led to stabilizing the unemployment rate in later years; it is also stated that direct investment had also a positive effect on reducing the unemployment level and jobs creation (Vojtovic, 2013). In a research paper that examines the relationship between the unemployment rate and economic growth in 19 European countries in the long and short run. The analyses are conducted in group and individual levels for countries that consist of Hungary and Turkey from 1977 to 2008. The author has used several different panel techniques for analyses thus some evidence showed unemployment hysteresis in all countries. The Okun's coefficient estimations resulted to be significant and true; the economic growth and unemployment were different among countries (Tatoglu, 2011). In an empirical study conducted to find out the relationship and

impact of unemployment on the economic growth of Nigeria; The data regarding the study was the unemployment rate and GDP from 1986-2015 and Error Correction, ARDL, and ARDL bound tests were used. The result of the analysis shows that unemployment and GDP growth have no long-run relationship, but it has shown that long-run effective policies, will have a significant effect on GDP growth. The short-run result with the ECM method showed that in the third period with a 1% increase in unemployment, real output hasa 20.6% increase as a result. Unemployment is growth-promoting by the informal sector in Nigeria and the Error Correction Term described 65.5% adjustment speed in disequilibrium situation in the short and equilibrium in long run (Seth, 2018).

In a research paper that investigated the relationship between unemployment and Gross Domestic Product (GDP) growth in Arab countries. The researcher has analyzed the data regarding 9 Arab countries from 1994 to 2010 and the regression model used for this analysis was the Pooled EGLLS Cross-Section SUR model. The result of the analyses found out that economic growth and unemployment have a negative relationship. An increase in economic growth will decrease the unemployment rate. For instance, with a 1% increase in GDP growth; unemployment will reduce by 0.16% (Abdul-Khaliq, 2014).

In a study that is conducted to find out the relationship between unemployment, entrepreneurship, and economic growth in Nigeria the data researcher has used secondary data from 1991 to 2011. The author has used empirical and descriptive methods for this study and the analyses are conducted by Error Correction and Ordinary Least Square methods. The result shows that entrepreneurial activities such as investment and new businesses and unemployment have a positive and statistically significant relationship with economic growth. The researcher suggests, for enhancement of entrepreneurial movements that could lead to economic growth and living standard of people (Akinyemi, 2018).

In a research paper that examined the relationship between unemployment and economic growth in Jordan and the data used for analyses was from 1970-2008. The researcher has followed Okun's law method for this research.

The main analyses are conducted by the usage of Okun's coefficient, the empirical investigations outcomes demonstrate the dis-application of Okun's law in Jordan. Indeed, low economic growth cannot define unemployment in this country. The author suggests that demand management policies cannot help with the reduction of unemployment but the policies that could bring structural changes and bring reforms in the workforce market is more accurate to be considered (Kreishan, 2011).

III. EMPIRICAL METHODOLOGY

This vital relationship among changes in the unemployment rate and changes in economic growth was first, recognized and statistically and empirically investigated by Arthur Okun in the year 1962 in the United States and it is known as Okun's law.It can be stated as the decline in the GDP growth rate is due to an increase in the unemployment rate. Thus, there is a negative relationship between unemployment and gross domestic product. In simple words laborers who work make participate in the production process and produce an output although labors who don't work, don't produce anything (Andrei, 2017).

$\Delta Ut = \alpha + \beta(\Delta Yt/Yt-1) + \varepsilon t$ …….... (1)

Where

Δ is a difference operator

UT = Unemployment Rate

YT = Real Gross Domestic Product

α = intercept of the model

T represents the number of time point observations

εt is an i.i.d. N (0, $\sigma 2$) random variable or error term.

The parameter β is typically referred to as Okun's coefficient, which economic theory expects to be negative. Equation (1) models the contemporaneous relationship between changes in the unemployment rate and real GDP in percentage terms. The second approach is based on the Gap equation (Zanin, 2014).

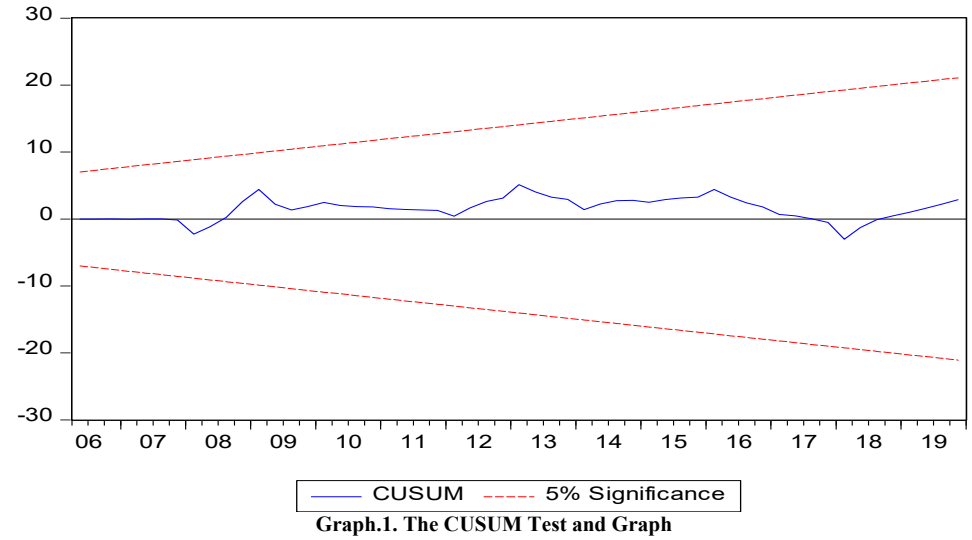
Since in this research the relationship between unemployment and economic growth in Afghanistan is investigated by using Okun's law model. The variables that are used in the model are Gross Domestic Product Per Capita Growth (GDPC) as the independent variable and unemployment rate as dependent variables, the data used for this research is from 2003-2019 quarterly data. According to the above model and variables stationarity level, the Autoregressive Distributed Lag (ARDL) model and ARDL bound test which is endorsed by (Pesaran, 2001). This statistical model is highly recommended by researchers due to two main reasons first, the model can accommodate variables of different integration orders mostly if variables are having combined stationarity of level (0) and first difference (1). Secondly, the ARDL model makes a researcher able to find out the relationship and equilibrium among variables in the long and short run. We have conducted our analyses using secondary data and the data is taken from the World bank data bank and our variables consist of, Gross Domestic Product Per Capita Growth (GDPCG) as an independent variable and Unemployment rate as the dependent variable, and Inflation deflator as a controlled variable for the period of 2003-2019 quarterly data.

IV. FINDINGS AND DISCUSSION

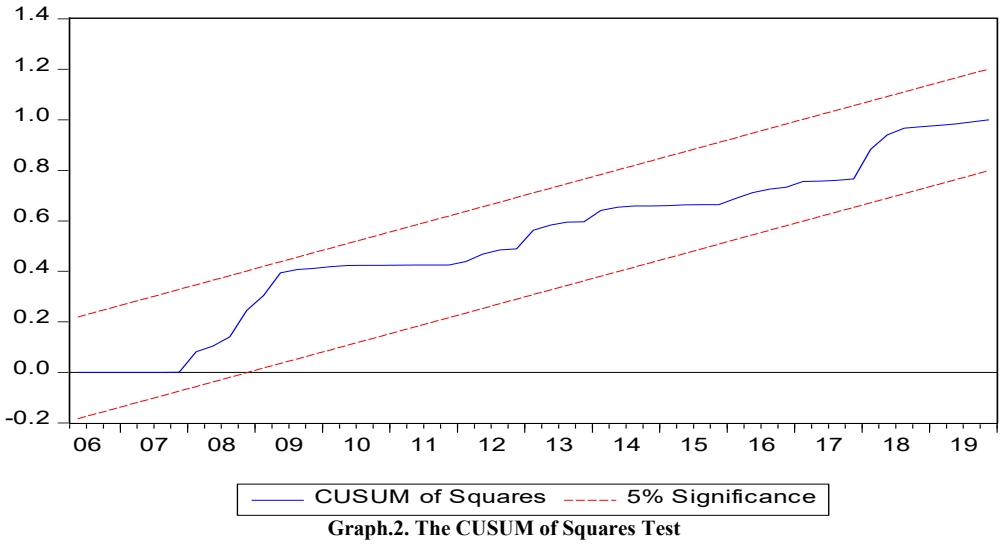
Variables	t-Statistics	Prob.*	Stationarity level
TUR	-6.42	0.03	I(1)**
GDPPCG	-2.99	0.04	I(1)**
INGDPD	-3.51	0.01	I(1)**
***, **, * indicates the 1%, 5%, and 10% levels respectively. Null Hypothesis there is the unit root; Alternative Hypothesis There is no unit root			

Table.1. Augmented Dicky Fuller Unit Root Test
Source: Table.1. is the author's work; data is taken from the world bank data bank.

As per the ADF unit root test, it is observed that our variables are stationary at the first difference and according to the P-value of 5%, it is significant therefore, all variables are integrated of order 1 [I (1)] thus we can execute ARDL test.



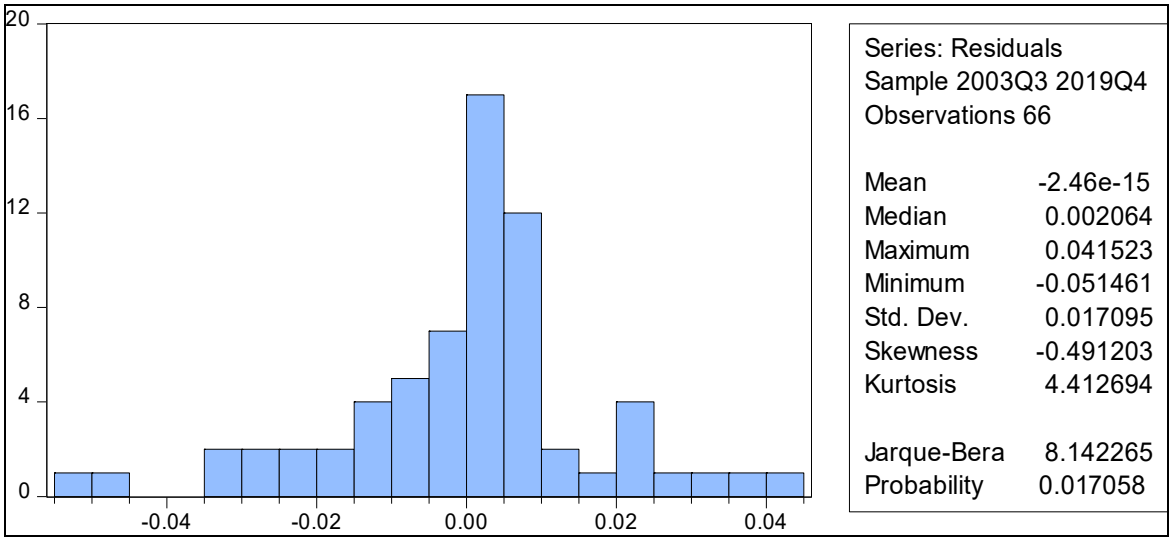
Graph.1. The CUSUM Test and Graph



Graph.2. The CUSUM of Squares Test

Source: Graph 1. & 2. is the author's work.

As per the above the CUSUM and CUSUM of Squares tests with a significant level of 5%, we can observe that the model is dynamically stable and it is observed that the blue line is not crossing the red line boundaries, therefore, it can be expressed that our model is stable and acceptable.



Graph.3. The Histogram Normality Test
Source: Graph.3. is the author's work.

The above Histogram Normality test shows that the Probability value is lower than 5% besides, the Jarque-Bera value is also more than 5% as a result we can conclude that the model is normal, stable, and significant so far we reject the null hypothesis and accept the alternative hypotheses and we can add that our result is reliable for the short/long-run relationship among total unemployment rate, inflation deflator and GDP per capita.

As it can be observed that the above tests showthe model is robust and significant, the ARDL model will be executed to find out the short/long term relationship.

Variable	Coefficient	Std. Error	t-Statistc	Prob.*
TUR(-1)	1.610	0.12	12.42	0.00
GDPPCG	3.805	0.00	0.08	0.93
INGDPD	-0.005	0.00	-8.02	0.00
C	0.50	0.14	3.46	0.00
R-sqrd	0.99	Mn D.V.		11.3
AdjR-sqrd	0.99	S.D. D.V		0.18
S.E. of reg	0.01	A.I. C		-5.0
Sum sqrd R	0.01	S. C		-4.7
Log-L.L	174	H.Q. C		-4.9
F-sta	909	Durbin W. C.		2.02
P(F-sta)	0.00			

Table.2. ARDL (Autoregressive Distributed Lag) Model
Source: Table-8 is the author's work; data is taken from the world bank data bank.

As per the above ARDL test result that shows the short-term impacts of independent variables such as total unemployment rate and inflation GDP deflator on dependent variable GDP per capita income growth, and in accordance with Probability value and t-Statistic and Durbin-Watson value the result is statistically significant and robust.

The result can be interpreted as; in the short run with 1% increase in the total unemployment rate will result to increase the total unemployment rate by 1.6% but the inflation GDP deflator will be decreased by 0.5% although the impact over GDP per capita growth is not significant and robust due to Probability value. It is to mention that independent variables have a 99% effect on the dependent variable due to the value of R-square and Adjusted R-squared.

Furthermore, to find out the long-run relationship among our variables the Bound test and long-run relationship of ARDL (Autoregressive distributed lag) model.

Conditional Error Correction Regression				
Variable	CoEfcnt	Std. Err	t-Statistic	Prob.
C	0.50	0.14	3.46	0.00
TUR(-1)*	-0.04	0.01	-3.47	0.00
GDPPCG**	3.80	0.00	0.08	0.93

INGDPD(-1)	1.07	0.00	0.00	0.99
D(TUR(-1))	0.65	0.12	5.18	0.00
D(TUR(-2))	0.27	0.13	2.04	0.04
Case 2 Restricted Constant and No Trend				
Variable	CoEfcnt	Std. Error	t-Statistic	Prob.
GDPPCG	0.00	0.01	0.081	0.93
INGDPD	2.43	0.00	0.002	0.99
C	11.3	0.09	125.6	0.00
EC=TUR-(0.00*GDPPCG+0.00*INGDPD+11.34)				
F-Bounds Test		Null Hypothesis No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	3.196	10%	2.63	3.35
K	2	5%	3.1	3.87
		2.5%	3.55	4.38
		1%	4.13	5

Table.3. ARDL Bound Test
Source: Table.3. is the author's work; data is taken from the world bank data bank.

As we can see in the above ARDL Bound test Cointegration long run test analysis we conclude that our result is significant based on Probability value which is less than 5% and T-statistics which is absolute value is more than 2 for unemployment and inflation GDP deflator although in the case of GDP per capita growth the result is insignificant. Thus the result can be interpreted as; the total unemployment rate has a negative effect on the inflation GDP deflator although, the total unemployment rate has no impact on GDP per capita growth.

The ARDL Bounds test was conducted to find out the long-run relationship among the dependent variable GDP per capita and other independent variables, total unemployment rate, and inflation deflator in Afghanistan. The null hypothesis is; there is the existence of no long-run relationships among variables if the F-statistics value falls between the lower bound (I0) and the upper bound (I1). In the case of the ARDL Bounds test, we can see that the F-statistics value is 3.2 which drops among the lower bound (I0) and upper bound (I1) value thus we conclude that at all probability percentages such as 10%, 5%, and 1% level of significance. The result can be explained as below;

This result indicates that there is no long-run relationship between our dependent variable and independent variables.

V. CONCLUSIONS

This analysis is executed with the help of the economic model of Okun's law that has investigated the relationship among unemployment rate and economic growth and statistical models of the Auto Regressive Distributed Lag Model (ARDL) bound test for the period of 2003 to 2019 in Afghanistan

The result of the analysis shows that there is no significant and long-run relationship between economic growth and unemployment rate during 2003 to 2019 in Afghanistan, while it is confirmed that economic growth and unemployment rate have a negative relationship according to Okun's law, however, in case of Afghanistan there no relationship among them and according to literature it can be due to factors such as drug trafficking, war, international aids, informal economy, corruption, etc.

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