Determinants of Unemployment: Empirical Evidence from Palestine

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Abstract

This study analyzes the determinants of unemployment in Palestine over the period 1994-2017. It employs OLS econometric analysis to examine the relationship between unemployment and the variables of GDP, inflation, labor force, external trade and restrictions on labor movement. Empirical results show the variables of GDP, inflation, labor force, external trade, as a macroeconomic determinants, and restrictions on labor movement, as an institutional one, are main determinants of unemployment in Palestine. Whilst GDP impacted unemployment significantly with a negative effect, it is found inflation, labor force and restrictions on labor movement impacted unemployment significantly and with a positive effect. Also, external trade not affected unemployment significantly. The CUSUM and CUSUMQ are showing that the model is structurally stable within 5 % of critical bound. The study recommends a number of policy implications.

1.Introduction

Unemployment is a problem of great concern for policy makers of both developing and developed countries due to its social and economics reflections.

Palestine as a developing country featured by a high levels of unemployment for more than two decades of time. Unemployment rate reached at; 20, 31, 26.6, 27 percents for the years 1997, 2001, 2008, 2017, respectively, and averaged with 22 percent over the period of study. This unemployment resulted mainly from the effects of Israeli occupation policies which disrupted the Palestinian economy and restricted the movement of Palestinian labor to Israel.

There are many factors that affect unemployment. The main factor that may affect unemployment is economic growth. Commonly believed that the connection between unemployment rate and economic growth is governed by Okun's Law. Theoretically, a high rate of economic growth may reduce unemployment. Inflation rate is another important factor affect unemployment. Notwithstanding, the Philip Curve shows a negative relationship, some studies have found the positive, negative or insignificant correlation between the two variables. Moreover, there is a trend of studies which connects unemployment to other macro economic variables and other variables at macro level.

Recently, a number of studies highlighted trends of unemployment in the Palestinian Territories in the West Bank and Gaza Strip.

Motivated by these studies, this Study adds another dimension in unemployment analysis in Palestine by investigating empirically the determinants of unemployment. It includes the macroeconomic variables of economic growth, inflation rate, labor force supply and openness of trade and restrictions on labor movement which reflected political conditions impacted Palestine.

The main objective of this study is to investigate the determinants of unemployment in Palestine over the period 1994-2017. It examines empirically the impact of macroeconomic variables of economic growth, inflation, labor supply and openness of trade, and restrictions on labor movement to Israel on unemployment rate.

This paper organized as follows: Section 2 gives an overview of selected literature. Methodology, data and descriptive statistics of the employed variables are explained in

Section 3. Next, Section 4 covers empirical results. Finally, Section 5 discusses the main findings of the paper.

2.Selected Literature Review

Numerous studies examined effects of macroeconomics variables with or without other factors on unemployment.

Tunch (2010) examined the macroeconomic variables of real GDP, consumer price index, previous unemployment and real effective exchange rate which impacted unemployment for Turkey over the period 2000-2008 by using a quarterly data set. The study employed Johansen's cointegration econometric procedures. The results showed a significant impact of real GDP, consumer price index and previous unemployment rate on the unemployment rate whereas real effective exchange rate not impacted the unemployment.

Aurangzeb and Khola (2013) tested macroeconomic determinants of the unemployment for India, China and Pakistan for the period 1980-2009. The selected Variables were inflation rate, GDP growth, exchange rate, and population growth. The study employed OLS analysis, Granger Causality test and Cointegration procedures. The results of regression analysis showed significant impact of all the variables for the three countries. GDP growth of the countries India, China and Pakistan showed positive relation with the unemployment rate. Inflation rate related positively to unemployment in India and Pakistan whilst related negatively to unemployment in case of China. Exchange rate and population growth related positively to unemployment in the three countries. Furthermore, cointegration results denoted to the existence of long run relationships among the variables for the three countries. Granger causality results showed that bidirectional causality does not exist between any of the variables for the three countries.

Arslan and Zaman (2014) examined the determinants of unemployment in Pakistan by using OLS analysis for the period 1999-2010. They concluded that inflation, GDP growth ,foreign direct investment (FDI), , and population growth are main determinants of unemployment. Also, GDP growth and inflation rate has negative impact on unemployment in contrast to positive impact of population growth on unemployment.

Folawewo and Adeboje (2017) analyzed the relationship between macroeconomic variables and unemployment in the Economic Community of West African States(ECOWAS). They selected the variables; inflation rate, GDP growth, labor productivity, foreign direct investment and external debt. The study employed fixed-random effects and fully modified ordinary least squares(FMOLS) panel data estimation procedures on annual data for the period 1991-2014.Results show that GDP growth has a reducing but insignificant effect on unemployment rate and inflation has a positive impact on unemployment, indicating invalidity of the Phillips curve hypothesis. Also, it is found a positive impact of labor productivity on unemployment rate, meanwhile FDI and external debt exert a weak negative impact on unemployment rate.

Recently, some studies have highlighted the problem of unemployment in Palestine, but few studies have examined the impact of main determinants on unemployment.

The World Bank (2012) showed that the Palestinian labor market since 2000 year onwards has been characterized by high levels of unemployment, a steady decline in youth employment and economic participation and extremely low female labor participation rates.

Ismael and Sadeq (2016) used a quarterly time series data in Palestine over the period 1996-2015 for both unemployment rate and inflation to examine the validity of Phillips curve. The study employed both cointegration and error correction model econometric procedures. In the long run, it is found an inverse relationship between inflation and unemployment, where inflation causes fluctuations in unemployment. In addition, in the short run it is found that inflation rate affects unemployment rate positively, so the Phillips relation not applicable in the Palestinian case.

Salama (2017) discussed the challenges of unemployment in Palestine for the period 2000-2015, by using trend analysis on a data set for both the areas the West Bank and the Gaza Strip individually. The study mainly concluded an upward trend in the unemployment in the Gaza Strip compared with that of the West Bank. Also, it is denoted that the constraints imposed by the Israeli occupation in the West Bank and Gaza Strip during the Second Intifada (Alaqsa) since 2000 year onwards and the siege on Gaza Strip since 2007 year onwards are the main factors which increased unemployment rate in the Gaza Strip and Palestine as a whole.

In view of this background, this study aims to investigate the determinants of unemployment in Palestine. It examines empirically the impact of macroeconomic variables of GDP, inflation, labor force supply and openness of trade and restrictions on Palestinian labor movement to Israel on unemployment. It advanced over studies which tackled the Palestinian case in numerous aspects. It uses data set of two decades period of time. Also, it employs OLS econometric analysis to examine the impact of both macroeconomic determinants and other determinants represented by restrictions on labor movement, and hence it gives a better forecasting of unemployment rate.

3.Methodology and Data

Methodology

Guided by the empirical literature, this study introduces a model to investigate the determinants of unemployment. Based on the objective, the present study seeks to test the following hypotheses:

 • H1: There is a direct relationship between macroeconomic variables and unemployment rate.
• H2: There is a direct relationship between other variables and unemployment rate.

The analysis will be conducted using the following model:

UER = ƒ (GDP, INF, LBF,TRD, DLR) (1)

Where UER is unemployment of total labor force in percentage

Macroeconomic variables are: GDP is annual growth in the gross domestic product, INF is inflation (annual percentages of consumer prices), LBF is annual growth of total labor

force of 15 years and above and TRD is annual growth of total external merchandise trade comprises both imports and exports. External trade added here wherein we expect trade openness to affect unemployment through motivating economic growth. Other variables presented by restrictions on Palestinian labor movement.

Equation (1) can be estimated by using ordinary least squares methods which introduces unemployment rate as dependent variable and the variables; GDP, INF, LBF and TRD) in growth form as independent variables. Also, we add DLR as a dummy variable, take the value of (1) for the years since 2001 onwards and zeros for the others, which proxies restrictions on labor movement. Equation (1) formulates econometrically as follows:

$$UER_t = \beta_0 + \beta_1 GDP_t + \beta_2 INF_t + \beta_3 LBF_t + \beta_4 TRD_t + \beta_5 DLF_t + \varepsilon_t \qquad (2)$$

Here ε represents error term, β_0 is constant.

Based on empirical literature, $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ are expected to be negative or positive, negative or positive, positive, positive or negative, positive, respectively.

Having estimated equation (2) , the stability of equation checked by CUSUM and CUSUMSQ tests.

Data

The data used for unemployment, GDP in constant prices (USD) and inflation (CPI) were extracted from Economics and Social Monitor publications (ESM) and data for labor force in thousands and external trade in current prices (USD) taken from the Palestine Monetary Authority (PMA) statistics publications.

Descriptive Statistics of Study Variables

Mainly, descriptive statistics shown in Table (1) distinguished by a higher mean of unemployment rate in comparison with the other variables. Also, the minimum value of unemployment is the highest compared with the other variable.

Table (1): Descriptive Statistics

(Unemployment percents and annual percentage change for other variables)

	UER	GDP	INF	LBF	TRD
Mean	22..4875	6.3200	4.3929	3.6067	9.3904
Median	23.7000	6.7000	3.3750	3.9223	4.9014
Maximum	31.2000	42.5600	14.0000	7.8281	78.1942
Minimum	10.0000	-13.2500	-0.2200	-3.0868	-23.7038
Std.Dev.	5.2868	11.3224	3.5049	2.0864	19.7436
Mean/Std.Dev.	4.2535	0.5582	1.2534	1.7287	0.4756
Obs.	24	24	24	24	24

Taking the ratio of Mean to Standard Deviation as a measure for variation shows that the highest variation per unit of standard deviation are for unemployment rate and labor force supply.

4-Empirical Analysis

Table (2) presents the regression estimation for unemployment rate (UER). We included four models in order to: a) test the impact of different combinations of explanatory variable. B) to end with a comprehensive model for determinants of unemployment.

Table(2): OLS Estimation Results

	Dependent Variable UER			
	1	2	3	4
Constant	24.2151	22.9766	23.0133	12.2233
	(3.1974)	(4.0777)	(4.2031)	(2.8930)
	(7.5733)*	(5.6376) *	(5.4754) *	(4.2252) *
GDP	-19.2987	-20.8450	-20.9451	-21.5567
	(8.4794)	(7.8402)	(8.1500)	(5.8202)
	(-2.2760) *	(-2.6587) *	(-2.5699) *	(-3.7037) *
INF	0.4130	0.4692	0.4610	0.5364
	(0.2943)	(0.2831)	(0.2969)	(0.2124)
	(1.4032)	(1.6573)	(1.5526)	(2.5253) *
LBF		41.1285	41.3764	51.9059
		(29.8401)	(30.7954)	(22.1989)
		(1.3783)	(1.3436)	(2.3382) *
TRD			-0.4449	0.5842
			(3.1587)	(2.2428)
			(-0.1409)	(0.2605)
DLR				10.6630
				(2.6048)

				(4.1550) *
Diagnostics				
R^2	0.5666	0.6065	0.6070	0.8296
Adjusted R^2	0.4982	0.5191	0.4914	0.7657
F Statistic (Prob. Value)	8.2793	6.9369	5.2514	12.9820
	(0.0010)	(0.0015)	(0.0043)	(0.00002)
D.W. Statistic	1.2918	1.3981	1.3828	1.4351

Notes: The values in the parenthesis are standard errors and t-statistics values, respectively.
 * denote t-statistic values significance at 5 %, respectively.

In Table (2) all models have noticeable explanatory power with adjusted R-squared ranging between 49% and 83%. The Durbin-Watson statistics values show no serious serial correlation and the F-statistics and probabilities values show the significance of these models.

By shifting from model (1) to (4), we find the following;

The constant term is statistically significant in the Palestinian case.

GDP growth has a negative significant effect on unemployment rate. This result agrees with theory, that GDP growth has a reducing effect on unemployment and with the empirical evidence in studies of (Maqbool, et. al, 20013) and (Arslan and Zaman ,2014) in Pakistan and to some extent with (Folawewo and Adeboje , 2017) in Western African Countries.

Inflation rate has a positive effect on unemployment and turned to having a positive significant effect on unemployment in the complete model (4). Whilst this result contradict with theory it confirmed by the study of (Ismael and Sadeq, 2016), which shows positive effect of inflation on unemployment in the short run in case of Palestine. The invalidity of Phillips curve in Palestine is due to the reality that inflation is considered as exogenous variable and transmitted fully to Palestine through imports from the Israeli dominant partner, (Abugamea, 2010)and (Ismael and Sadeq, 2016) .

Also, by checking models (2) to (4), we found labor force growth has a positive significant effect on unemployment in the complete model (4), a situation mirrors the effects of population growth, in a large extent, as highlighted in the literature, (Arslan and Zaman , 2014) and Aurangzeb and Khola , 2013).

Again, by checking models (3) and (4), it is found that trade growth has a negative effect on unemployment rate in model (3) and has a positive effect one in model (4), but both are insignificant statistically. This case reveals the weak nexus between trade and economic growth and hence with employment (Abugamea, 2015). Thus, in the Palestinian case with a limited chances of trade under the Israeli imposed restrictions, the effect of trade on reducing unemployment not captured as compared for example with the Pakistani case in (Maqbool et. al., 2013).

Latter, by including a dummy variable for restrictions on labor movement in model (4) , it is shown that restrictions affect unemployment significantly with a positive effect.

Figure 1: The Plot of Cumulative Sum of Recursive Residuals
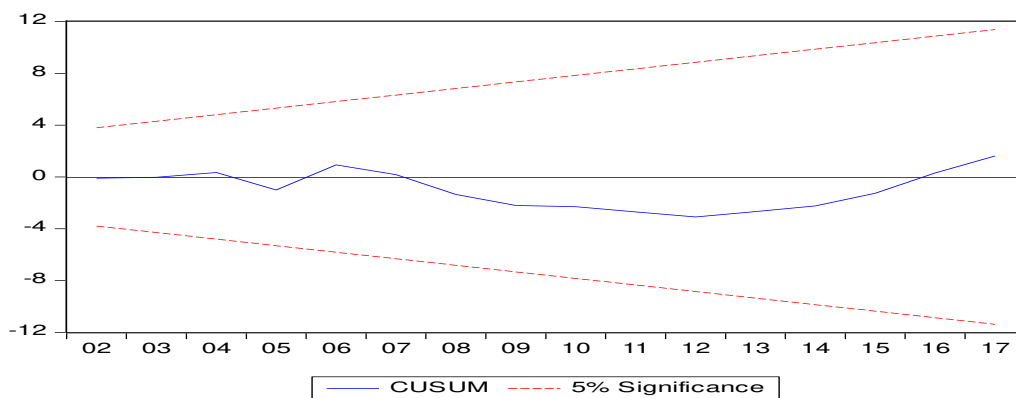
Figure2: The Plot of Cumulative Sum of Squares Recursive Residuals
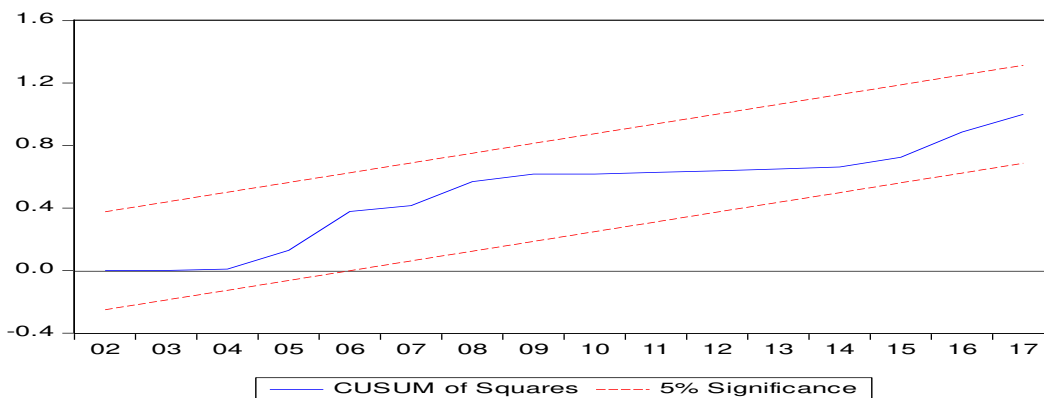
To check for the stability of the complete model (4) , figures 1 and 2 are showing the cumulative sum of recursive residuals and the cumulative sum of squares of recursive residuals respectively. Both CUSUM and CUSUMSQ within critical bound of 5%. So it reveals that the model is structurally stable.

Thus, overall results show that unemployment rate related negatively to economic growth, positively to both inflation rate, labor supply growth and restrictions on labor movement, and related insignificantly in either signs to external trade growth.

5-Conclusions

The objective of this study is to explore the determinants of unemployment in Palestine. The study examines the relationship between unemployment and the variables of GDP, inflation, labor force, external trade and the restrictions on labor movement. It is hypothesized that these variables exert an impact on unemployment in Palestine over the period 1994-2017.

Via employing OLS analysis results show that the mentioned variables are main determinants of unemployment. It is found that GDP impacted unemployment significantly with a negative effect, meanwhile inflation, labor force and restrictions on labor movement impacted unemployment significantly and with a positive effect. Also, external trade not affected unemployment significantly. The CUSUM and CUSUMQ are showing that the model is structurally stable within 5 % of critical bound.

Results imply a number of policy implications which include: to reduce unemployment rate the Palestinian economy needs an expansion of both public and private spending to promote economic growth and to absorb a steadily growth in labor supply, effective commercial policies needed to support exports and redirect imports , a situation strengthen linkages between trade and economic growth and hence unemployment reduced and with the continuous of Israeli restrictions on Palestinian labor movement to Israel there is a need to access the surrounding Arab labor markets to reduce unemployment.

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