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AN EMPIRICAL ANALYSIS OF UNEMPLOYMENT IN OMAN

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Abstract:

This study aims at analyzing the reasons behind the level of unemployment rate in the Sultanate of Oman. The relationship between unemployment rate and the Oman economic growth rate can be identified to either be cyclical or structural by using the Okun's law, but it will not show the reasons behind the structural or how to find solutions for it. This study tries to investigate the fundamental component of the unemployment rate in Oman and analyze its causes concerning whether there is a relationship between the Annual GDPs and the Unemployment Rate to find out whether Okun's law applies in Oman. The research paper investigates whether a relationship exists between the Unemployment rates and the Annual GDP of the Oman Sultanate from 2000 to 2017. The findings of this research concluded that there is no significant relationship exists between the Annual GDPs and the Unemployment Rates of Oman from 2000 to 2017.

Key Words: Growth Rate, Unemployment, Okun's law, Oman and GCC

1. Introduction:

Many research papers have found a very significant correlation between economic growth and unemployment showing just how much they influence each other, which leads many developing countries for economic reforms and structural changes. However, the structural changes cannot contribute to the growth of the economy if there are high social costs of high reforms one of which is consistent unemployment (Levine, 2012).

Verter (2015) explored the possibility of a relationship existing between poverty, economic growth and unemployment. Having used the time series data for 31 years, 1970 – 2000, he concluded his research by saying that an increase in employment will increase the output of the respective country and thus economic growth will be experienced. The inverse is true; increased unemployment leads to the decreased output load and thus a simultaneous decrease in the growth of the economy.

This study aims at analyzing the reasons behind the level of unemployment rate in the Sultanate of Oman. Scholars in several types of research concluded that the high rate of unemployment associated with growth rate could be cyclical or structural. The cyclical reasons are demand-managed policies. Meanwhile, structural casuals need in-depth and targeted tackles. Using the Okun's law would determine the nature of the association between economic growth and the unemployment in the Oman Sultanate identifying whether it is cyclical or structural, but does not show the reasons behind the structural or how to find solutions for it. This study tries to investigate the fundamental component of the unemployment rate in Oman and analyze its causes concerning whether there is a relationship between the Annual GDPs and the Unemployment Rate to find out whether Okun's law applies in Oman. The economic literature that investigates the relation between unemployment and economic growth is very ample. The high rate of unemployment in any country is one of the cores concerned of the decision makers. Okun's law (1962) stills the primary basis for studying this phenomenon. The proposal indicates that 3% more output would be reduced from the overall output by a 1% reduction in the rate of unemployment. Numerous studies tested the empirical relationship between unemployment and economic growth. These studies exposed the strength of the relation between output and unemployment rate. The results vary across countries and regions and between developed and developing countries.

2. Literature Review:

Many studies have been conducted regarding the relationship that exists between unemployment and economic growth worldwide with regards to Okun's law. According to Okun's law states that a one-point increase in the cyclical unemployment rate is associated with two percentage points of negative growth in real GDP. Bankole and Fatai (2013) estimated the Okun's coefficient in Nigeria where the law's validity was checked based on the annual data during the 1980 – 2008. A fully modified OLS along with the Engle granger co-integration test was put to use in this study. There was evidence of a positive regression coefficient based on the empirical evidence that was output from the respective statistical analyses implying that the interpretation of the Okun's law is not applicable in Nigeria. The recommendation suggested that the

government and policymakersshould adopt structural change oriented economic policies and reforms in the labour market. Ball, Leigh, and Loungani (2013)also tested the Okun's law to investigate how well it suites some of the U.S. short-run movements of unemployment since 1948 and in twenty advanced economies since 1980. The findings of the research showed that there is a strong Okun's law relationship in most countries and that the Great Recession did not significantly affect this relationship. Reports such as the Emergence of "Jobless Recoveries" that talk about the breakdown in the law were found to be invalid. Additionally, the coefficient of the relationship was found to vary quite significantly; how the one percent change in unemployment rate affects the output. The distinctive features of national labour markets explain part of this variation between countries while the differences in the legislation of employment protection share no relation.

Owyang and Sekhposyan (2012) also researched to examine whether Okun's law had any contribution with regards to the U.S. recession. They assessed the output fluctuations over the business cycle and the degree of time variations in unemployment based on the consideration of various Okun's law specifications. They also performed the analysis on three of the recent most recessions in the U.S. as well as with the great depression with great attention to detail. A degree of instability in Okun's laws was found to have existed in its historical performances. A positive correlation was found between the Okun's law breakdowns and the business cycle. The break dates that were detected that were associated with the most significant coefficient changes appeared around the recessions. In general, the key findings of the research suggested that an increase in the unemployment rate on average is experienced and reported in the occurrence of a recession. During all the four different U.S. recessions that were looked into, the output fluctuation changes and unemployment correlated significantly. Irrespective of these findings, the increased sensitivity of the gap fluctuations to the unemployment rate is seen to be highly correlated despite these shifts no always being significant.

The validity of the Okun's law was checked and the coefficient estimated for some Gulf countries by IrfanLal et al. (2010). The study employed an annual data time series between 1980 to 2006. The co-integration techniques used by Engle Granger (1987) were also employed to help with finding out about the association in the long run between different variables while error correction mechanism (ECM) was employed for the short run dynamics. The empirical evidence of the analysis informed the research that the Okun's law interpretation might not be applicable in some of the Gulf developing countries as well as the NAIRU principle which does not hold its validity in the respective countries. The same results were seen in Imran, Mughal, Salman, and

Makarevic (2015)study which concluded that the unemployment rate influences the growth of Gulf countries.

Moosa (1997) focused on the G7 countries and tested Okun's law. Using Harvey's structural time series model, the output was used to extract the cyclical factor. The findings showed that North America has a higher Okun's coefficient compared to lower Japan. In another effort of testing just how relevant Okun's law is, economists for the G7 countries conducted a professional forecast of output growth and unemployment. The data used by Pierdzioch et al. (2010) covered the period 1989-2007. The findings of the analysis confirmed that there is a consistency between the professional economists' change forecasts in both output growth and unemployment and the Okun's law. A direct relationship was also found in between the output gap and the magnitude of the unemployment. However, there is research literature that shows how the Okun's law has been tested for validity in different countries and, the difference in the coefficients, as well as the disparity existing between output and unemployment, were reportedly frightening. In countries such as Nigeria where the respective disparity is far much more alarming, it only makes sense to test the Okun's law empirical validity. In the Malaysian economy, the Okun's law was tested for validity by Noor, Nor and Judhiana (2007). The empirical results reported no inverse relationship between output and unemployment.

In the estimation of the potential Lebanese output, an Okun-type association between output and unemployment was applied to the Lebanese equation by Naimy (2005). More clearly, 400 households participated in the empirical study and the BLS criterion was used to evaluate the employment status to determine the most significant labour market measures. Unemployment in Lebanon was found to be extremely harmful to the economy given the fact that it was found to be $32 billion below its employment output. Because of the economic and financial deadlock situation, unemployment in Lebanon is on the rise. The human resource of a nation is the critical factor that defines the pace and character of how its economy grows as well as the social development it experiences and not the physical capital and natural resources it has passive to the production process isphysicalcapital and natural resources. It is human beings or rather the people that make up the nation that is responsible for actually accumulating the capital, exploiting the natural resources, building the relevant social, political and economic organizations, and carrying forward the development of a nation. A country that lacks the

ability, intelligence and commitment needed to develop its people's skills and knowledge as well as the making good use of their skills in the national economy is not in a position to bring any form of significant development into life.

Doğru (2013) investigated the association that exists between output and the unemployment rate in the Euro Area. The findings of the research indicated support for the Okun's' law in a majority of the countries and panel cointegration showed that there had been a significant long-term association between real output and unemployment. Sogner (2001)used quarterly data of GDP growth and unemployment rates to evaluate Okun's law in the Austrian economy. The resulting coefficient was found to be 4.16, yet initially, the coefficient was reported to be between 2-3. Prachowny (1993) used the gap version of Okun's law to protect its validity. Additionally, he performed calculations to identify the non-accelerating inflation rate of employment and the output gap before verifying the negative association that was showing between the respective variables involved. Freeman (2001) found that the Okun's coefficient set at three is presently less than two GDP growth points for every 1% unemployment rate change for some countries after experiencing Okun's law in ten industrial countries.

Moosa (2008) applied the Okun's law in countries such as Egypt, Algeria, Tunisia and Morocco. He discovered that economic growth for these countries is not helpful for employment, which indicates that Okun's coefficient statistically is insignificant. The same result found for study for MENA countries (Bank, 2007), where these studies suggested that the observed annual gross GDP impact was not significant for all the countries involved in the unemployment survey. Al Habees and Abu Rumman(2012) have investigated Okun's law in Jordan and investigated the real output – unemployment relationship. They concluded that even though the rate of growth is confident in a period of the study, with results supporting the lack of a significant relationship between economic growth and unemployment rates in Jordan. Al Qudsi (2006) in his research the unemployment evaluation in GCC economies applied the Granger causality tests, panel data models and OLS regressions to determine unemployment persistence and to measure the effect of output gaps on unemployment progression. He found that unemployment in GCC is varied, mostly involuntary, and correlated with output gaps. Al Amoudi (2017) studied the factors that affect the rate of unemployment in GCC countries. He reported Okun's law to be significantly

occurring in the case of GCC countries. At the same time, structural unemployment occurs and other forces besides the business cycle cause it.

A simple model of unemployment and growth government outlays was constructed by Wang & Abrams (2007)using data from 20 OECD countries. The data that was used belonged to the 1970-1999 period, which makes for the three recent decades. According to their examination, their negative unemployment and economic growth relationship is courtesy of another cause referred to as government outlay. Adjemian et al. (2010) did a study on the economic growth and unemployment rate association in labour market institutions. More than 183 European regions made the list of countries whose data was used in the research the data being from the 1980 – 2003 period. The findings showed that higher unemployment rates and lower economic growths were as a result of trade union power and high labour costs. Ahmed et al. (2011) tested Okun's law in the Nigerian economy using secondary data from the period 2000-2008. The results of the regression analysis imply that the effect of unemployment on the Nigerian GDP growth is 65.5% and the relationship is negative. Stephen (2012) combined the Okun's law research on the Nigerian economy with investment levels and inflation rates. A negative relationshipwas shown by the research between economic growth and urban employment.

3. Methodology:

Based on the knowledge and insight gained from the surveyed literature, the herein adopted study model is the Okun's law standard version written below.

$$y_t = \beta_o + \beta_1 u + e_t$$

Where:

- y = real output product
- u = level of unemployment
- e = white-noise disturbance term

The Okun's coefficient, the parameter (B), is the part of the equation that shows the real output change against change in the unemployment rate. The estimated elasticity provides a measure of the association between economic growth and the unemployment rate. Low Okun's law

estimates show little correlation between the economic growth and unemployment rates while high correlations imply support for Okun's law.

The data is Oman's annual GDPs and unemployment rates from the year 2000 to 2017, which were retrieved from the central bank of Oman and national center for statistics and information. This study desired to understand whether a relationship exists between the unemployment rate and economic growth in the Sultanate of Oman. The research question and hypotheses are therefore as below.

RQ: Is there a relationship between the Annual GDP and the Unemployment rates of the Sultanate of Oman from 2000 to 2017?

H0: There is no significant relationship between theAnnual GDP and the Unemployment rates of the Sultanate of Oman from 2000 to 2017.

H1: There is a significant relationship between theAnnual GDP and the Unemployment rates of the Sultanate of Oman from 2000 to 2017.

The data is analyzed using the IBM SPSS Statistics Software Version 25. The statistical analyses conducted are descriptive statistics through the Explore analysis, Correlation analyses and a Linear Regression analysis.

4. Results and Discussion:

Descriptive Statistics

Table One: Processing Summary

			Statistic	Std. Error
Annual GPD %	Mean		5.117	.7965
	95% Confidence Interval for Mean	Lower Bound	3.436	
		Upper Bound	6.797	
	5% Trimmed Mean		5.007	
	Median		5.100	
	Variance		11.419	
	Std. Deviation		3.3792	
	Minimum		-.9	
	Maximum		13.1	
	Range		14.0	
	Interquartile Range		3.4	
	Skewness		.760	.536
	Kurtosis		1.230	1.038
Unemployment Rate %	Mean		18.217	.3369
	95% Confidence Interval for Mean	Lower Bound	17.506	
		Upper Bound	18.927	
	5% Trimmed Mean		18.263	
	Median		18.500	
	Variance		2.043	
	Std. Deviation		1.4292	
	Minimum		15.8	
	Maximum		19.8	
	Range		4.0	
	Interquartile Range		2.6	
	Skewness		-.658	.536
	Kurtosis		-1.031	1.038

Table Two: Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Annual GPD %	.196	18	.065	.936	18	.243
Unemployment Rate %	.176	18	.145	.868	18	.016

a. Lilliefors Significance Correction

Correlations:

Table Three: Parametric Correlations

		Annual GPD %	Unemployment Rate %
Annual GPD %	Pearson Correlation	1	.329
	Sig. (2-tailed)		.183
	N	18	18
Unemployment Rate %	Pearson Correlation	.329	1
	Sig. (2-tailed)	.183	
	N	18	18

Table Four: Nonparametric Correlations

			Annual GPD %	Unemployment Rate %
Spearman's rho	Annual GPD %	Correlation Coefficient	1.000	.323
		Sig. (2-tailed)	.	.191
		N	18	18
	Unemployment Rate %	Correlation Coefficient	.323	1.000
		Sig. (2-tailed)	.191	.
		N	18	18

Table Five: Regression

		Unemployment Rate %	Annual GPD %
Pearson Correlation	Unemployment Rate %	1.000	.329
	Annual GPD %	.329	1.000
Sig. (1-tailed)	Unemployment Rate %	.	.092
	Annual GPD %	.092	.
N	Unemployment Rate %	18	18
	Annual GPD %	18	18

Table Six: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.329[a]	.108	.052	1.3914	.108	1.936	1	16	.183

a. Predictors: (Constant), Annual GPD %

b. Dependent Variable: Unemployment Rate %

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.748	1	3.748	1.936	.183[b]
	Residual	30.977	16	1.936		
	Total	34.725	17			

a. Dependent Variable: Unemployment Rate %

b. Predictors: (Constant), Annual GPD %

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	17.506	.607		28.831	.000					
	Annual GPD %	.139	.100	.329	1.391	.183	.329	.329	.329	1.000	1.000

a. Dependent Variable: Unemployment Rate %

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	Annual GPD %
1	1	1.842	1.000	.08	.08
	2	.158	3.409	.92	.92

a. Dependent Variable: Unemployment Rate %

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	17.381	19.326	18.217	.4696	18
Residual	-2.4005	1.7886	.0000	1.3499	18
Std. Predicted Value	-1.780	2.362	.000	1.000	18
Std. Residual	-1.725	1.285	.000	.970	18

a. Dependent Variable: Unemployment Rate %

Tables form one to six above shows that the histograms for both variables in the descriptive statistics; the data points are not normally distributed. The histogram bars do not form a bell shapes curve. Additionally, both the parametric and nonparametric correlations show that there is no significant correlation between these variables. The regression analysis confirms what the correlation analysis insinuates which is no statistically significant relationship exists between the Annual GDP and the Unemployment rates in the Sultanate of Oman. Irrespective of the fact that they share a positive relationship, the Annual GDP is not a good predictor of unemployment rate given the non-significant p-value of 0.183 at both the .01 and the .05 scales of significance. At no confidence level is the t-statistic absolute value for the slope coefficient (1.4) statistically significant.

Additionally, given that the B value of the Annual GDP % variable is positive and that of the constant which is the Unemployment Rate variable is also positive, the relationship between both variables is positive which is quite the opposite of what Okun's law suggests. That goes to show why Okun's law is not considered that much when it comes to research looking into the association between economic growth and unemployment for the Sultanate of Oman.

5. Conclusions and Recommendations:

In conclusion, this research paper looks back at the objective of the research. This research intended to answer the research question about the Sultanate of Oman which is, is there a relationship between the Annual GDP and the Unemployment rates of the Sultanate of Oman from 2000 to 2017? Given the results of the regression analysis, this research adopts the null hypothesis and rejects the alternative hypothesis. This research, therefore, concludes that there is

no significant association whatsoever between Unemployment rates and the Annual GDP of Oman Sultanate from 2000 to 2017.

Furthermore, this research recommends the use of a more extensive data set in when conducting further research on the same topic. The larger the data set, the more the validity of the research.Also, further research must also ensure that the data set has more than just two variables for the sake of gaining more insight on the actual factors that define the nature of the association between the Unemployment rates and the Annual GDP. The data set was the main limiting factor of this research.

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