POSTER BİLDİRİ

JOB CREATION AND LOCAL ECONOMIC GROWTH THROUGH EFFICIENT FINANCIAL REPORTING

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ABSTRACT: The policy environment for job creation is becoming even more complex and interconnected. Creating more and better quality jobs is key to boosting growth, reducing poverty and increasing social cohesion. At the national level, job creation requires a stable macroeconomic framework coupled with structural policies that encourage innovation, skills and business development. This paper provides research on how policy makers can boost local job creation and achieve sustainable inclusive growth, while meeting challenges such as use of information of effective financial reporting, i.e. financial statements that could be a base for efficient investment decisions. Some of the key messages highlighted include the need to: finance the innovative projects and to develop sound, transparent system of financial reporting.

Key Words: jobs, boost, growth, financial, statements

JEL code: O20, M41

INTRODUCTION

The concept of economic growth and unemployment are the most important variables in implementing economic policies. Reducing unemployment and achieving a high rate of economic growth are the most important priorities in every country.

The concepts of unemployment and growth are important both in terms of economic and social policy makers. Economic growth represents the most essential indicator of achieving macroeconomic targets for all developed and developing countries. The concept of unemployment is a very important indicator in terms of social indicators. These variables are important in that they have the power to influence economic and social life.

The debate on unemployment and employment has been on for many years both for the developed and developing countries.Levinson (2008) says that unemployment is associated with social problems such as poverty, crime, violence, loss of morale and degradation. This predicament increases the cost of doing business in any country as aggregate demand falls while increasing country risk. The economic growth rate would therefore decline as the environment will not be conducive for investment.

To attain high and sustainable output growth with low levels and stable rates of unemployment is the major objective of macroeconomic policies. Kingdon and Knight (2007) highlight some of the economic and social implications of unemployment in a nation's results in the erosion of human capital, social exclusion, protests, as well as increased crime rates. Unemployment is a major contributor to widespread poverty and income inequality. Therefore, it is of utmost importance to understand the relationship between unemployment and economic growth to ensure sound policies that will boost economic growth.

In theory, an increase in the growth rates of GDP is expected to increase employment levels thus reducing unemployment. This is a widely accepted economic theory, which is well documented through the theoretical proposition relating output and unemployment which is known as Okun's law. Okun's Law reveals that there is an inverse relationship between unemployment rates and economic growth.

Okun (1962), investigated is based on the fact that the increased workforce must produce more goods and services. Arthur Okun found that the unemployment rate declined in the years when the real growth rate was high, whereas the unemployment rate increased in the years when the real growth rate remained low or even negative.

This model is specified as:
$Rgdp = f(\text{Unemployment})$

In this study we will examine the relationship between economic growth and unemployment in the Republic of North Macedonia .

The Republic of North Macedonia is particularly affected by high youth unemployment rates. According to World Bank statistic, the unemployment, youth total (% of total labor force ages 15-24) is 52,57 on average in the period 2006-2018.

Young women, the low skilled, youth living in rural areas are even more likely to be exposed to unemployment or informal employment. Gender gaps in labour force participation, employment and wage levels persist, despite the higher educational level of young women compared to their male peers. For instance, unemployment with advanced education, male (% of male labor force with advanced education) is 18,65% on average in the period 2006-2017, while female is 24,03% during the same period of time.(World Bank, database).

If we make comparison with the countries in the region, the Republic of North Macedonia has 1,1% higher employment rate than the average in Western Balkans-6, but 15,5 lower employment rate than the average in other countries in South Eastern Europe. See table 1

Table 1. Employment rate in % of population, period average

Country	Employment rate
Albania	50,3%
Bosnia and Herzegovina	33,9%
Kosovo	27,4%
Montenegro	45,9%
North Macedonia	44,1%
Serbia	46,7%
Western Balkans -6	43.0%
Austria	64,2%
Bulgaria	57,7%
Croatia	57,3%
Hungary	59,3%

Source: World Bank database

1. LITERATURE REVIEW

A lot of studies exist on the causality between unemployment and economic growth. We summarize some studies that addressed this issue as follows:

Bankole and Fatai (2013) estimated the Okun's coefficient, and checked the validity of Okun's law in Nigeria, using the time series annual data during the period 1980-2008. The empirical evidences showed that there is positive coefficient in the Regression.

Owyang and Sekhposyan (2012), examined whether Okun's law contributed to the the Great Recession of U.S. The paper found a great degree of instability in the historical performance of Okun's law. The breakdowns in Okun's law seem to be highly correlated with the business cycle.

Irfan Lal et al. (2010), estimated the Okun's coefficient, and checked the validity of Okun's law in some Asian countries. For this purpose they used the time series annual data during the period 1980-2006. They found out long run association between these variables.

Abdul-Khaliq et al, 2006, investigate the relationship between unemployment and GDP growth in Arab countries for the period of 1994 to 2010 using unit root testes methodology and Pooled EGLS (Cross-section SUR). They find that the economic growth has negative and significant effect upon the unemployment rate. It means that 1% increase in economic growth will decrease the unemployment rate by 0.16%.

Rigasetal (2011) examined whether the Okun's law is valid in Greece, France and Spain. The results of the study conclude that the reaction of GDP to changes in unemployment and, more generally to Okun's coefficient differ substantially among the three countries.

Pierdzioch et al. (2009) examined the relationship between economic growth and unemployment focussing on the G7 countries, covering the period 1989-2007. Their results confirmed the consistency between Okun's law and professional economist's forecasts of changes in unemployment rate and the real output growth rate.

Chang-Shuai Li and ZIJuan Liu (2012) conducted a study on the relationship between Chinese unemployment rate, economic growth and inflation. They employed VAR and VECEM model to estimate the causality and co-integration among the variables, respectively. The study revealed that unemployment impact negatively on growth while inflation affects growth positively in China.

Neftçi (1984) predicted the asymmetric relationship between the economic growth and the unemployment rate in the U.S using quarterly data for the period between 1948 and 1981.

Lee (2000) evaluated the validity of Okun's law based on the post-war data for 16 OECD countries. The sample period for all countries is 1955-1996 except for Germany which is 1960-1996. Lee's results show that the trade off between the economic growth and the unemployment rate is rather small after the 1970s since there is a structural break in 1970s and also the findings differ from country to country.

Kreishan (2010) investigated the relationship between the economic growth and the unemployment rate in Jordan using annual data covering the period 1970-2008. His findings suggest that Okun's law is not valid for Jordan.

Jardin and Stephan (2012) studied non-linear Okun's law in a panel framework for 16 European countries, using quarterly data from 1984 to 2009. Their estimations support that the unemployment reacts strongly to the output in the early recession phases and during the period of expansion. By contrast, in the middle of recessions and during the period of recoveries, the impact of the output on the unemployment tends to be weaker.

Hence, taking the above literatures as a hint and base line, this study empirically investigates the impact of unemployment on economic growth in Macedonia

This section explores the econometric methodology applied in the study to establish the impact of unemployment on economic growth in the Republic of North Macedonia

2. DATA AND METHODOLOGY

This section identifies the sources of our data, presents the data, describes the dependent and independent variables and explains the regression model that we used to analyze the relationship between unemployment and growth rate in the Republic of North Macedonia. We use quarterly data for the period 2013-2018. As a indicator for growth rate we use gross domestic product GDP . The data are taken from official web site of State Statistical Office in the Republic of North Macedonia.

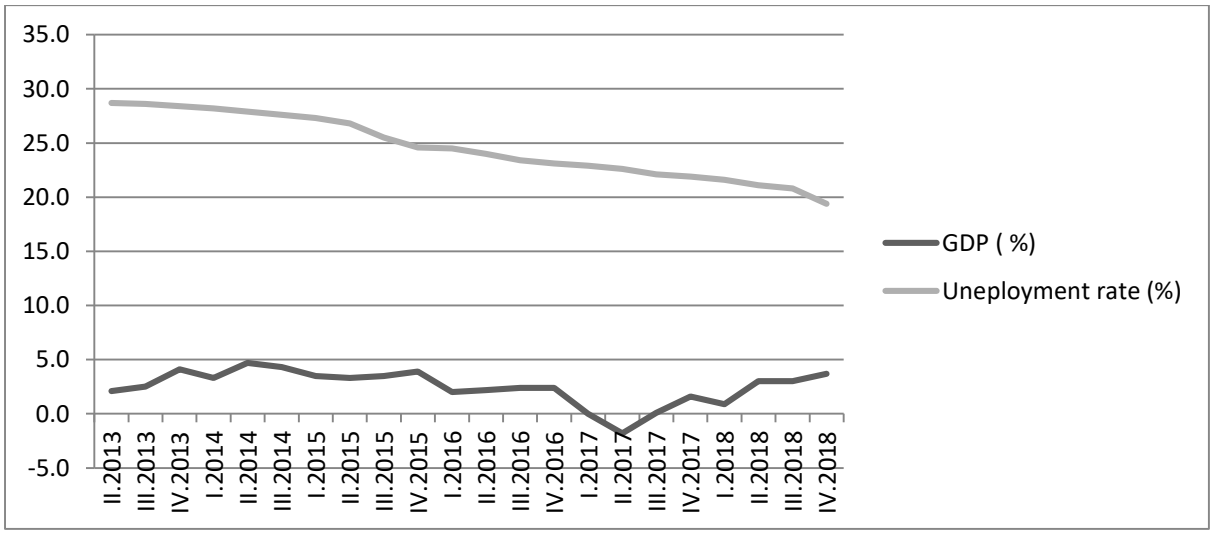
At the beginning we present the descriptive statistic of the variables of interest

Table 2. Descriptive statistic of the variables

	GDP	UNEPLOYM...
Mean	2.486364	24.59091
Median	2.750000	24.25000
Maximum	4.700000	28.70000
Minimum	-1.800000	19.40000
Std. Dev.	1.576704	2.929799
Skewness	-1.038802	0.028036
Kurtosis	3.762761	1.683780
Jarque-Bera	4.490057	1.590947
Probability	0.105925	0.451368
Sum	54.70000	541.0000
Sum Sq. Dev.	52.20591	180.2582
Observations	22	22

Table above shows descriptive statistics of the dependent and explanatory variables used in the study for the period 2013-2017. The number of observations is 22, where general unemployment in average is 24%, with standard deviation of 2,92 %, whereas the minimum value of unemployment is 19,4%, and the maximum is 28%. GDP average of the value is 2,75% with standard deviation 1,58% whereas the minimum of the value of GDP is -1,8% with maximum being 4,7%

In the sequence, we will present graphically the relation between these two variables.



Graph.1 Relationship between GDP and unemployment rate (quarterly data) 2013-2018

From the graph above we can notice that these two variable move together in the period 2017-2018, as well as in the period 2015-2016

2.1. Model, estimation and results

For this analysis, first we start with the model of simple linear regression between two variables that we will use. One variable will be dependent, whereas the other independent. As a dependent variable in this analysis will be GDP (%) , and as independent variable will be unemployment rate. GDP is a measurement parameter of economic growth within a country or a state. The model of simple linear equation is:

$$yt = \beta o + \beta 1u + et \qquad (1)$$

Where:
y = dependent variable
u = independent rate
e = The white-noise disturbance term

Therefore, by applying this formula one can also use simple linear regression model, by using the dependent variable – GDP and the independent one – Unemployment (U) The model will be:

$$GDP = \beta 0 + B1U + Ɛ \qquad (2)$$

In Eq. 2 the parameter (B) is known as the Okun coefficient and indicates changes in BDP rate caused by changes in unemployment rate.

Low estimates of Okun's coefficient suggest little correlation between economic growth and employment rate, while high estimates of the slope coefficient provides support of Okun's law.

In this model we use time series data. From the theory its well know that this data should be stationary if it has zero mean, constant variance and the covariance between any two time periods depends only on the distance, or lag between the two periods and not on the actual time. However, in reality most macroeconomic variables are non-stationary. A non-stationary series has a different mean at different points in time and its variance increases with the sample size. If these non-stationary variables used for estimation, the result would be spurious. In such cases, in order to avoid the problem associated with spurious regression, pre-testing the variables for the existence of unit roots (i.e. non-stationary) becomes compulsory.

In order to obtain reliable regression results, we first need to make sure that our model could not be subject to "spurious regression" (Gujarati, 1995). Therefore, we first test the nature of the time series to determine whether they are stationary or non stationary and also their order of integration. For this purpose we perform unit root test on the time series macro-variables in our sample.

First, the Dickey-Fuller test was applied to both variables to detect if these variables were stationary or non-stationary. Both variables proved to be non-stationary; (GDP become stationary on the first difference, while unemployment rate on the second difference) therefore, our regression tests were applied to the second differences. The results are obtained in Table 2

Table 3. Stationary test

Augmented Dickey-Fuller Unit Root Test on D(UNEPLOYMENT_RATE____,2)

Null Hypothesis: D(UNEPLOYMENT_RATE____,2) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.297786	0.0041
Test critical values:	1% level	-3.857386	
	5% level	-3.040391	
	10% level	-2.660551	

Augmented Dickey-Fuller Unit Root Test on D(GDP_____,2)

Null Hypothesis: D(GDP_____,2) has a unit root
Exogenous: Constant
Lag Length: 2 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.306770	0.0044
Test critical values:	1% level	-3.886751	
	5% level	-3.052169	
	10% level	-2.666593	

Source: Author's own calculations

The results of simple linear regression analysis can be seen in the following table

Dependent Variable: C
Method: Least Squares
Date: 05/24/19 Time: 21:49
Sample: 1 22
Included observations: 22

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP	-0.020984	0.017353	-1.209289	0.2407
UNEPLOYMENT_RATE	0.042281	0.002050	20.62340	0.0000

Mean dependent var	1.000000	S.D. dependent var	0.000000
S.E. of regression	0.117061	Akaike info criterion	-1.365739
Sum squared resid	0.274065	Schwarz criterion	-1.266553
Log likelihood	17.02312	Hannan-Quinn criter.	-1.342373
Durbin-Watson stat	0.110447		

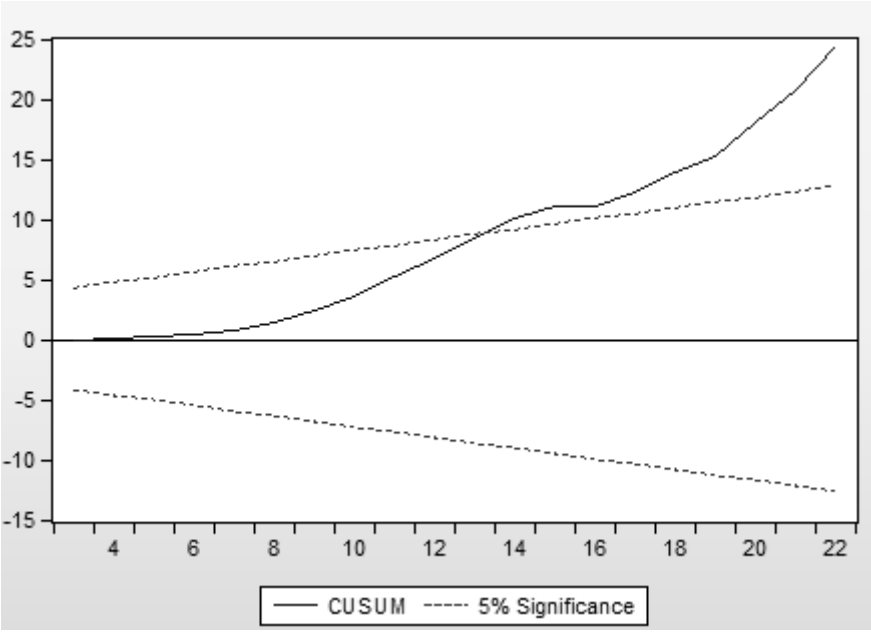
Before we start to analyze the results that we gain from the model we have to make all Diagnostic tests: serial correlation, heteroscedasticity, normality and specification of the model. The results of all these tests are presented in the Table 3

Table 4. Diagnostic test for the model

	F statistic	Probability
Normality		
Jarque - Bera	0.56	0,756730
Serial Correlation		
Breusch-Godfrey LM Test	0,0000	0,0001
Heteroscedasticity		
ARCH	0,0000	0,0001
Specification Error		
Ramsey reset Test	1,156.00	0,0000

As shown in the table above the diagnostic test carried out show that the model is well specified. But, according to other tests, model has serial correlation ,its not fulfill the requirement for heteroscedasticity, and is not well specified.

Furthermore we want to check if our model, i.e. if our dependent variable is stable. For this purpose we use CUSUM Test. The results from the test are shown below



From this graph we can conclude that our model is not stable.

We continue our investigates using other appropriate model, in order to find best model which will describe our variables of interest We will apply vector error correction model VECM. Before we run VECM model we have to check if the variables are co integrated using both

Unrestricted Cointegration Rank Test (trace) and Unrestricted Cointegration Rank Test (Maximum Eigenvalue Test). Results are shown below

Series: GDP UNEPLOYMENT_RATE
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.404785	10.68626	15.49471	0.2315
At most 1	0.015361	0.309604	3.841466	0.5779

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.404785	10.37666	14.26460	0.1884
At most 1	0.015361	0.309604	3.841466	0.5779

Source: Authors own calculations

As we can see from the results above, according to both tests Unrestricted Cointegration Rank Test (trace) and Unrestricted Cointegration Rank Test (Maximum Eigenvalue Test) both variables have long run association shape, meaning that in the long run they move together. f the variables are co integrated we can apply vector error correction model VECM.

In order to obtain both the short run and long run relationship, one can go to what is known as co integration. The starting point in this procedure is formulation of unrestricted vector autoregressive (VAR)

At the beginning we have to choose numbers of legs. In our case we have to choose 0 legs. See table 5.

Table 5. VAR lag order selection criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-32.86303	NA*	0.207225*	4.101533*	4.199558*	4.111277*
1	-32.21598	1.065735	0.309657	4.495998	4.790073	4.525229
2	-28.83921	4.767207	0.342791	4.569319	5.059444	4.618038
3	-28.52398	0.370861	0.566060	5.002821	5.688996	5.071028
4	-25.73670	2.623316	0.747817	5.145494	6.027720	5.233189

* indicates lag order selected by the criterion

In case of VAR we use variable in 1st difference because VAR automatically transform them into second difference, as we need in the model.

Below we present the result from VAR model

Dependent Variable: D(DGDP)
Method: Least Squares
Date: 05/24/19 Time: 22:16
Sample (adjusted): 5 22
Included observations: 18 after adjustments
D(DGDP) = C(1)*(DGDP(-1) - 1.04980256007*DUNEMPLOYMENT_RATE(-1) - 0.382138858696) + C(2)*D(DGDP(-1)) + C(3)*D(DGDP(-2)) + C(4)*D(DUNEMPLOYMENT_RATE(-1)) + C(5)*D(DUNEMPLOYMENT_ RATE(-2)) + C(6)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-1.167124	0.516622	-2.259145	0.0433
C(2)	0.075004	0.392499	0.191093	0.8516
C(3)	0.108420	0.279160	0.388379	0.7045
C(4)	-2.044417	1.084578	-1.884988	0.0839
C(5)	0.402524	1.209868	0.332700	0.7451
C(6)	0.077348	0.306768	0.252137	0.8052

R-squared	0.640566	Mean dependent var	0.083333
Adjusted R-squared	0.490802	S.D. dependent var	1.814403
S.E. of regression	1.294724	Akaike info criterion	3.615673
Sum squared resid	20.11572	Schwarz criterion	3.912464
Log likelihood	-26.54106	Hannan-Quinn criter.	3.656597
F-statistic	4.277167	Durbin-Watson stat	1.777219
Prob(F-statistic)	0.018226		

The value of the adjusted R-squared is 0.49 meaning that about 49% of variation in gross domestic product is explained by the unemployment rate. The fitness of the model is tested by the F - statistic (4.277167) which is well above the probability value (0.018226). The Durbin-Watson statistic of 1.78 means that there is no serial correlation in the variables.

If the coefficient C(1) is negative in sign and significant than we can say that there is a long run causality running from unemployment rate to GDP. In our case coefficient is negative and significant.

To check short run causality we have to investigate weather C(5)=C(6)=0. If this coefficient are equal to 0, there is no short run causality running from unemployment rate to GDP. For this purpose we use WALD test.

Wald Test:
Equation: Untitled

Test Statistic	Value	df	Probability
F-statistic	2.042092	(2, 12)	0.1725
Chi-square	4.084185	2	0.1298

Null Hypothesis: C(4)=C(5)=0

According to WALD test there is no short run causality running from unemployment rate to GDP.

3. CONCLUSION

The main target of this paper is to analyze the relation between unemployment and GDP rate according to Okun's Law in the Republic of North Macedonia. The simple linear regression model does not fit our purpose. Furthermore we continue with VAR model mostly because our tests show that the variables are co integrated .

We found a long run causality running from unemployment rate to GDP, but, there is no short run causality running from unemployment rate to GDP. That means that in short time there is no causality between the variables of interest. However and most important there is long run causality running from independent to dependant variable, results which can be used by the policy makers in our country

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