

ECONOMIC THEORY AND REALITY

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Abstract

Observing the compatibility between reality and economic theory is one of the most interesting issues for the researchers. The purpose of this study to estimate the Gap GDP that indicates how efficiently a country is using its productive resources and investigate the relation between Gap GDP and unemployment (the one of the major subject for the macroeconomic) in Mongolian for the period of 2011-2018 (seasonably). In this paper this relationship has been examined in the context of Okun's Law. Study on the economic theory and reality would have a significant impact to policymakers and other entities in the economics field.

Keywords: Okun's law, real gross domestic product, unemployment rate

1. INTRODUCTION

The main indicator of the total production and wealth of a country is the country's gross domestic product and national income. Therefore, it is important to estimate Gap GDP and find the factors that influence the gap based on economic theory. Gross domestic product and indexes that are compared with GDP are used for macroeconomic policy development. Not only Policymakers use, business organizations employ the changes in GDP and its trend in order to make a decision on investment or operation. Trends in interdependent macroeconomic indicators such as Gross domestic product, unemployment and inflation are important factors for the participant of economic sector.

The National Statistical Office (NSO) reports macroeconomic data to the public. These data are used to assess the health of economic for the economic participants. Whereas for the analysts, it also can be required.

This paper falls into 6 sections: section 2 introduces previous and current background studies on this issue, section 3 will describe the methodology applied in this paper, section 4 is partly related to the prior section and shows specification of our developing model (which is indeed an uncompleted form, full model work in progress), then section 5 describe the model result, eventually section 6 sums up coherently major findings of the paper.

2. LITERATURE REVIEW

Many economists have framed the discussion by trying to study the relationship between economic growth and unemployment levels. Economist Arthur Okun first started tackling the discussion in the 1960s, and his research on the subject has since become known as Okun's law. The Okun's Law (Okun, 1963) is an economic model that reflects the relationship between unemployment and economic growth. He examines the growth and unemployment figures for the US economy, finds that the unemployment rate falls in the years when the real growth rate is high, whereas the unemployment rate has risen in the years when the real growth rate has remained low or even negative. (Okun, 1963) modelled economic growth and unemployment relationship as follows:

$$\Delta u = -0.5 * (-2.25) \quad (1)$$

More clearly; in the years when the average annual real growth rate of the period of 1948-1960 exceeded 2.25%, every 1% economic growth above 2.25% reduced the unemployment rate by 0.5. (Evans, 1989) studied the US economy for the period 1950-1985 and found a negative relationship between growth in production and unemployment. The Okun's coefficient is around -0.30. (Barreto, H., Howland, F., 1993) analyzed the 1953- 1982 period in Japan with regression estimation. As a result of analyze, it is stated that the coefficients accepted in Okun's are not valid for the Japanese economy.

(Villaverde, J., Maza, A, 2009) used panel data analysis for Spain and seventeen areas to examine the Okun's coefficient using data from 1980 to 2004 annually. The findings show that there is a contrary relationship between unemployment and output in many area and country-wide. Nevertheless, they found that the Okun's coefficient changes according to the region. (Ruxandra, 2015) examined the relationship between economic growth and unemployment for the post-2007 period. It has been determined that Okun's Law is valid for the Romanian economy.

3. METHODOLOGY

We had used econometric analysis model and evaluation method of reviews 10 to process our research data except the general method of academically research.

The research methodology were divided into four sections:

- Hodrick Prescott Filter
- Scatterplot graph design
- Covariance of variability and correlation matrix
- Least Squares Method

The data were taken from NSO and consists of GDP and unemployment rates of the Mongolia between first quarter of 2010 and third 3rd 2018.

In the economic theory, Okun's law considered relationship between GDP and rate of unemployment. It means 1 percent change of unemployment rate can affect GDP to 2-2.5. Based on this theory, we aimed to evaluate the coefficient between production and unemployment in Mongolian situation. The Okun's law is used as a key model in the research.

OKUN'S LAW:

$$\frac{Y-\bar{Y}}{\bar{Y}} * 100\% = -2.5(u - \bar{u}) \quad (2)$$

\bar{Y} - Potential gross domestic product

Y - Real gross domestic product

α - The factor relating changes in unemployment to changes in output

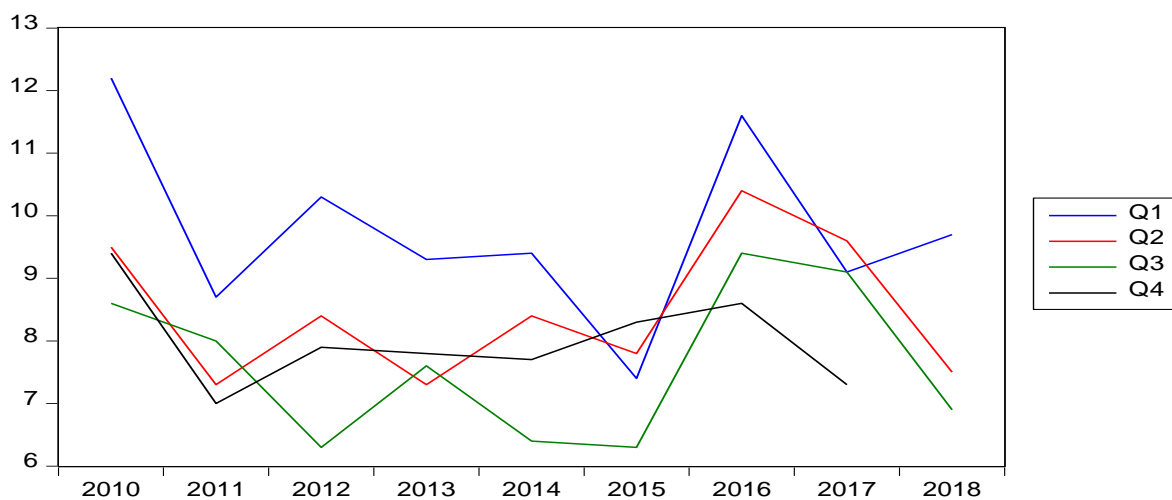
u - Actual unemployment rate

\bar{u} - The natural rate of unemployment

GDP and Unemployment rate in Mongolia

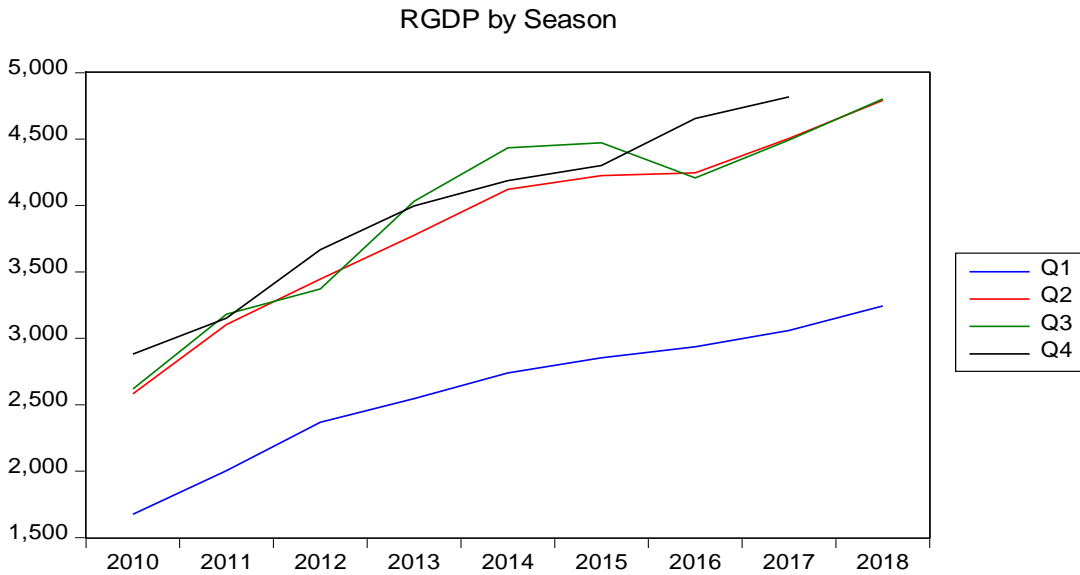
The high rate of unemployment makes bad consequences for society and economy. Considering the unemployment rate by season shows the first quarter is higher than other due to recovery of economic situation. However the low level in the other quarters was related to economic recovery.

Unemployment by Season



Source: www.1212.mn

This result showed that small amount of real GDP in the first quarter is somewhat related to the high unemployment rate at the same time.



Source: www.1212.mn

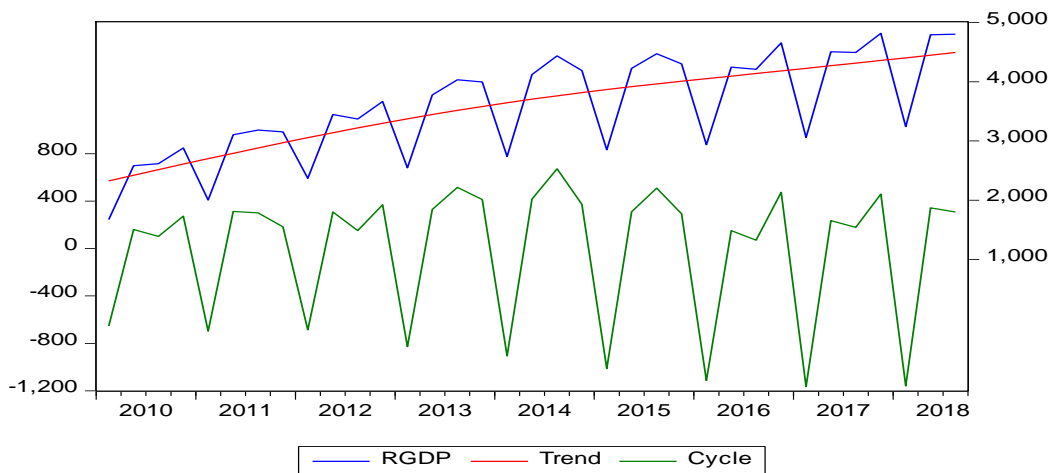
Figure 1 Real Gross Domestic Product by season

According to this graph GDP in Mongolia has reached 1674.57154 in the first quarter of 2010 and it's increased to 4801.7 in third quarter of 2018

4. ESTIMATION OF THE RELATION BETWEEN GAP GDP AND UNEMPLOYMENT

We estimated potential gross domestic product using the Hodrick-Prescott Filter. Through determining the gap between the real gross domestic product and potential gross domestic product, GDP losses were taken into account by Eviews 10.0

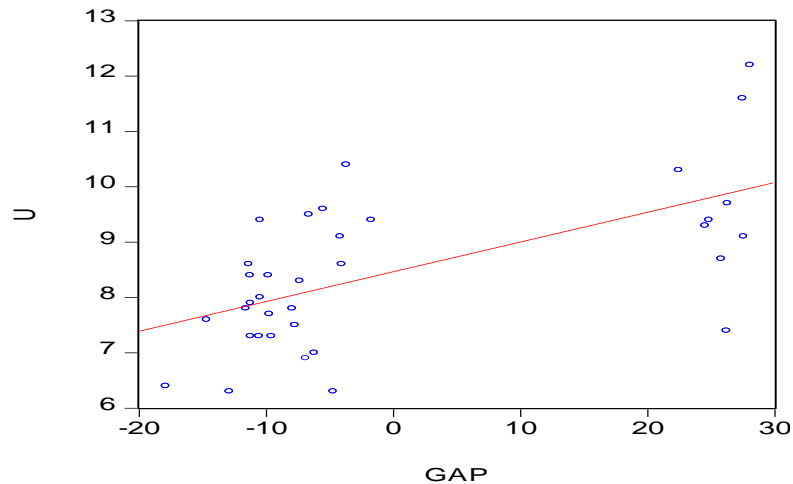
Hodrick-Prescott Filter (lambda=1600)



Source: Researcher's estimation

Figure 2 Hodrick-Prescott Filter

The relationship between independent and dependent variables has evaluated by designing scatter diagram.



Source: Researcher's estimation

Figure 3 Scatterplot graph

As we can see, unemployment rate as independent variable and Gap GDP as dependent variable have had direct relationship positively. In this study Regression analysis method was used and the findings are shown:

	$\widehat{gap}_t = -57.95 + 6.85 U$		
s.e	(0.15)	(0.14)	
prob	[0.04]	[0.000]	
	$R^2 = 36.84$	$DW = 2.62$	$SER = 12.7$

Source: Researcher's estimation

The result of Regression analysis examined when the unemployment rate (U) rises one percent, the real GDP will increase by 6.85 percent. This is explained by the law of A. Ouken as 2-2.5 percent but it was figured highly dependent in mongolia. The coefficient of determination shows that the unemployment rate accounts for 36.84 percent of Gap GDP. The results of Durbin Watson test 2.62 indicate that there is no autocorrelation between the sample data.

5.CONCLUSION

The present paper tried to evaluate the relation between Gap GDP and Unemployment based on Okun's law. However the results indicate that the Okun Law is valid for Mongolia, the coefficient that expresses relation between Gap GDP and Unemployment is twice as high. The aforementioned study is giving some suggestion such as:

- The unemployment rate should be reduced to increase the gross domestic product or production level.
- It is necessary to spread the study and to estimate other factors that influence the volume of the gross domestic product.

REFERENCES

1. Barreto, H., Howland, F. (1993). There are two Okun's law relationships between output and unemployment. .
2. Evans, G. (1989). Output and unemployment dynamics in the United States: 1950-1985. *Journal of Economic Practices Econometrics* .
3. Okun, A. (1963). Cowles Foundation for Research in Economics . *Potential GNP: its measurement and significance* , 98-103.
4. Ruxandra, P. (2015). The Specifics of output growth. . *The quarterly journal of economics*, 65-94.
5. Villaverde, J., Maza, A. (2009). The robustness of Okun's law in Spain, 1980-2004: Regoanaol evidence. *Journal of Policy Modeling*, 289-297.
6. www.mongolbank.mn
7. www.nso.mn.