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GROWTH, UNEMPLOYMENT AND ITS IMPLICATION ON POVERTY: EMPIRICAL STUDY IN DISTRICTS/CITIES OF SOUTH SUMATERA PROVINCE*

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Abstract

This paper aims to study the relationship between growth, unemployment and poverty in districts/cities of South Sumatera Provinces. The research applies to Okun's law and trickle-down effect theory to explain the relationship between growth and unemployment with its implication in poverty. This theoretical model can be applied to empirical studies to examine if development activities undertaken in a region have been successful in impacting employment and reducing the number of the poor. Therefore, we used fixed effect model estimation of six variables, namely, economic growth, unemployment, poverty, government expenditure, investment, and population of 15 districts/cities in South Sumatera Province in period 2010-2017. Research findings have shown that the relationship between economic growth and unemployment support the Okun's law. The same applies to the relationship between economic growth and poverty when there trickle-down effect was happened in the analysis period.

Keywords: Economic Growth, Unemployment, Poverty, Okun's Law, Trickel-Down Effect

JEL Classifications: F43, J64, K31

1. Introduction

The quoted issue which postures a challenge for world leaders, development specialists (at the worldwide as well as national levels), and approach creators alike is that, it is the adamant perseverance of poverty in numerous parts of the world. It was just in nations of East and South East Asia (ESEA) that genuine victory in alleviating of poverty has been accomplished, in spite

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of the fact that accomplishment looked delicate amid the crisis of economics of the late 1990s. Advance in poverty alleviation exterior in that locale has been or may be baffling. This has been particularly so within the low-income nations of sub-Saharan Africa and South Asia. Whereas two-thirds of the worlds poverty exist in Asia, South Asia is domestic for most of them (Dohlman and Soderback 2007; Datt and Ravallion 2002; Skare and Druzeta 2016; Mulok *et al.* 2012).

Research and information on poverty and economic growth have changed dramatically over time, particularly within the final decade. The demeanor and role of economic growth on alleviating of poverty in the 1950s or 1970s was different. Conventional speculations of advancement have been examined independently from the occurrence of economic growth and poverty. Such an exogenous see of the early controversy about of the moment half of the 20th century driven to a resilience of income inequality and poverty length which is established on *"trickle-down"* approach (what assumed that economic growth will consequently reduce poverty), and there is a trade-off between economic growth-income inequality. Since the 1950s until 1970s, the center was on inverted "U" – curve by Kuznets (1955); rise stage by Rostow (1960); framework of valuable or fiendish circles by Nurkse (1953), and other various theories against wealth distribution. However in the 1970s, it has been viewed that even when economic growth was high, poverty grew very slowly (Fosu, 2011; Ravallion, 2009; Dollar and Clinton, 2012).

Income per capita growth is an important macroeconomic indicators used for measuring development accomplishment of a nation in a particular period (Quy, 2016; Mulok *et al.* 2012). Income per capita growth is the prime origin in poverty alleviation. This matter is supported by empiric studies of Fosu (2011); De Janvry and Sadoulet (2010); Mulok *et al.* (2012); and Skare and Druzeta (2016). Lastrapes and Rajaram (2016) claimed classifying poor people based on multiple deprivation indicators could help identify the poorest that indeed inside the wide asset-based poverty measures, the classification of destitute shifts broadly, which recommends that framing of anti-poverty approaches ought to be much more comprehensive in considering alternate measures of deprivation rather than depending on few measures that are salary- or utilization-based.

South Sumatera Province, as one of the rice granaries outside Java, has an important role for the regional and national economy. During the period of 2011-2015, the economic performance of South Sumatera Province has been slowly with an average growth rate of 5.54 percent per year, while the average poverty rate in the same period was 13.93 percent. Gross Domestic Regional Product (GDRP) per capita growth, which only grew 6.38 percent in 2011, rose 6.83 percent in 2012. This was followed by the decrease of poverty from 14.24 percent in 2011 to 13.78 percent in 2012. This case has shown that an increase in GDRP per capita growth is driven by poverty alleviation. However, in 2013 there was a decline in GDRP per capita, poverty instead actually experienced a decrease as well (BPS, 2016). This paper would contribute to the existing literature on growth, unemployment and poverty correlates in region of South Sumatera Province by identifying the Okun's law and trickle down effect theory.

2. Literature Review

2.1. Concepts

Economic growth is defined as an increase in Gross Domestic Product (GDP) for the national scale and Gross Domestic Regional Product (GDRP) for regional scale (region) that is the total value of production of goods and services which is produced by an economy in a certain period (Mankiw, 2007). The calculation of goods and services (GDP or GDRP) can be done on the demand and supply side. Economic growth through the demand side is triggered by an increase in public consumption, while economic growth through supply side is caused by increase productivity of production factors such as labor, capital, technological change and human resource quality improvement. Income per capita is the most commonly used indicator as a benchmark for the economic well-being of a country's population. It is an indicator of overall economic performance. It also is a monetary indicator of every economic activity of a country's population (Arsyad 2010).

According to Jones (2014) economic growth has been utilized nonexclusively to allude to increments in living guidelines. Be that as it may, growth also has more features, a more exact meaning, related to the exact rate of alteration of per capita GDP. Thus, it can be said that economic growth can be selected at both sides of the total output (GDP) and the population sides. The per capita GDP is the total output divided by total population.

Blanchard (2006, p. 28) defines unemployment as "the number of people who do not have a job but are looking for one". Unemployment rate is the share of the labor force that is jobless, expressed as a percentage. It is a lagging indicator, and generally rises or falls in the wake of changing economic conditions, rather than unemployment rate can be expected to rise. When the economy is growing at a healthy rate and jobs are relatively plentiful, it can be expected to fall Jones (2014). Recall from the definition that to be classified as unemployed, a person must meet two conditions: (1) he or she does not have a job, and (2) he or she is looking for one. This second condition is the one that is hard to asses.

Since alterations in socioeconomics can create medium-run changes within the unemployment rate, economists isolate unemployment into two sorts. The natural rate of unemployment is the rate that would win when the case the economy was not in one or the other a boom nor a retreat. Cyclical unemployment is the contrast between the real rate and the actual rate and the natural rate and is related with short-run vacillations, such as happen in booms and subsidence. The natural rate differentiated become frictional and structural unemployment. Frictional unemployment unavoidably comes about when laborers are changing work in an energetic economy. The huge number of occupations are made and devastated each month within the course of typical financial activity. Many workers, at that point, have to be changed for alteration each month, and the method of looking for a modern work may certainly include a spell of unemployment. Auxiliary unemployment comes from the labor education that coordinates up laborers and firms within the labor showcase. Cases incorporate enlisting and terminating costs, the level of unemployment benefits, and the level of least wage (Jones 2014).

The definition of poverty according to World Bank (2000) is pronounced deprivation in well-being. United Nations Development Programme (1990) defines it as an inability to expand choices in life by, among other things, including "lack of participation in public decision making" as an indicator of poverty. Furthermore, Bapennas (2004) defines poverty as a condition in which a person or group of men and women are unable to fulfill their basic rights to maintain and develop a dignified life. The basic rights include the fulfillment of food, health, education, employment, housing, clean water, land, natural resources and the environment, a sense of security from the treatment or threat of violence and the right to participate in socio-political activities for both men and women.

Conceptually, poverty can be distinguished by relative poverty and absolute poverty, where the difference lies in its assessment standards. The standard of relative poverty assessment is a standard of living determined and subjectively determined by local and local people and those below the standard of assessment are categorized as relatively poor. The absolute standard of poverty assessment is the minimum standard of living required to meet the basic needs of both food and non-food items.

The minimum standard of living to meet this basic need is called the poverty line. Headcount index is percentage of poor who are below the poverty line. The headcount index measures the proportion of the population that is poor. It is popular because it is easy to understand and measure. However, it does not indicate how poor the poor are.

2.2. The relationship between economic growth and unemployment

Okun (1962) was the first using a simple model by regressing the first difference of the unemployment rate (U) on the percentage change in output (Y), using the quarterly data for the period 1947-1960, and obtaining the result: $\Delta U = 0.3 - 0.3\Delta Y/Y$. Okun (1962) concluded that in the absence of economic growth, the unemployment rate will increase 0.3 percent from one quarter to the next. Economic growth of 1 percent per quarter or 4 percent per year is needed to keep the unemployment rate steady. The negative and significant economic growth on the unemployment rate is supported by research conducted by Durman (2013) through Okun's law

stating that economic growth has a negative and significant effect on the unemployment rate. According to Okun's (1962) Law, if the Gross National Product (GNP) grows by 2.5 percent above the trend achieved in a given year, then the unemployment rate will fall by 1 percent, indicating that when the economic growth is higher, the unemployment rate will be declining as economic growth is more oriented towards labor-intensive production systems. Economic growth can provide an opportunity for industries to increase production that affects increased use of labor to reduce unemployment rates.

The purpose of Amezaga (2013) is to calculate Okun's coefficients to measure the impact of economic growth on unemployment rates in Peru. A study comparing results obtained from Lima and Peru results in the conclusion that there is a negative relationship between unemployment and economic growth in both countries. Akeju and Olanipekun (2014) examined the validity of Okun's law. The empirical results of this study indicate that there is a negative effect of output growth on unemployment in Nigeria, both in the short and long term. Akeju and Olanipekun (2014) recommended the need to formulate a fiscal policy that will attract more foreign investment in the economy to reduce high unemployment rates in the country.

The negative and significant economic growth on the unemployment rate is supported by research conducted by Herwartz and Niebuhr (2011) through Okun's law stating that economic growth has a negative and significant effect on the unemployment rate. Sadiku *et al.* (2015) conducted a study using a VAR approach based on quarterly data over the 2000-2012 period. The results show that there is no negative relationship between economic growth and the unemployment rate as stated by Okun's Law.

Neely (2010) stated that industrialized nation with less directed labor markets tends to have litter Okun’s coefficients. Usually since unemployment is more delicate to changes in yield since it is simpler to lay off workers. Neely (2010) states the Okun’s coefficient can alter over time since the relationship of unemployment to output development depends on laws, innovation, inclinations, social traditions, and demographics.

Irfan *et al.* (2010) and Darman (2013) examined Okun's legal validity in several Asian countries using annual data from 1980-2006. The result is that Okun Law does not apply in some developing countries in Asia. Parello (2010) introduced efficiency-wages unemployment in endogenous growth models by providing tractable growth model analysis as an alternative to the standard model of growth and search-unemployment. The results show that there is a positive relationship between economic growth and the unemployment rate.

2.3. Relationship Between Economic Growth and Poverty

The trickle-down effect theory explains that the progress of a group of people will itself trickle down to create jobs and economic opportunities, which in turn will cultivate conditions for a uniform distribution of economic growth outcomes. The theory implies that economic growth will be followed by the vertical flow from the rich to the impoverished inhabitants themselves. The benefits of economic growth will be felt by the rich people first, and then in the next stage, the poor will begin to benefit when the rich start spending on the economic growth it has received. Thus, the effect of economic growth on the decline of poverty is an indirect effect of the vertical flow from the rich to the poor. This also means that poverty will diminish on a very small scale if the poor receive only minimal benefit from the total benefits of economic growth. This condition can open up opportunities for increased poverty as a result of the increase in income inequality caused by an economic growth that is more favorable to the rich than the poor (Amri and Nazamuddin, 2018).

Some research results indicate that there is a negative relationship between economic growth and poverty (Bourguignon *et al.* 2006; Ravallion 2009; De Janvry and Sadoulet 2010; Dollar and Clinton 2012; Balakrishnan *et al.* 2013; Hussain *et al.* 2017; Chen and Ravallion 2013). The higher the economic growth is, the lower the poverty will be. Sustainable economic growth has a significant impact on poverty reduction. This sustainable and long-term growth is expected to affect all sectors, including an increase in the number of productive workers (Quy 2016). According to Datt and Ravallion (2002), in order to overcome the problem of poverty, high per capita income growth can occur faster than required.

3. Research Methods

This study uses panel data which is a combination of time series data and cross section data from 15 districts / cities in 2010-2017. The data used are secondary data obtained from the Central Bureau of Statistics (BPS) of each districts/cities. The focus of this study on the influence of economic growth on unemployment and poverty in the district/cities of South Sumatera Province. This research was conducted in 15 districts / cities from 17 districts/cities in South Sumatera Province. Two other districts, Pali and Muratara, were formed in 2013, so the available data was still very limited. The method used in this study was multiple linear regression consisting of variables (i) Economic growth, (ii) Unemployment, (iii) Poverty, (iv) Government Expenditure, (v) Investment, (vi) Population.

This study will carry out a regression model to identify the determinants of unemployment and poverty in terms of household environmental health indicators. The use of multiple regression model to determine unemployment and poverty correlates of income per capita, government expenditure, private investment and population has wider conduct by Quy (2016).The model built in this research was as follows:

$$Unm = f(EG, Gex, Inv, Pop)$$
$$Unm_{i,t} = \propto_0 + \propto_1 LnEG_{i,t} + \propto_2 LnGex_{i,t} + \propto_3 LnInv_{i,t} + \propto_4 LnPop_{i,t} + \varepsilon_1 \quad (1)$$

$$Pov = f(EG, Gex, Inv, Pop, Unm)$$
$$Pov_{i,t} = \beta_0 + \beta_1 LnEG_{i,t} + \beta_2 LnGex_{i,t} + \beta_3 LnInv_{i,t} + \beta_4 LnPop_{i,t} + \beta_5 Unm_{i,t} + \varepsilon_2 \quad (2)$$

where, *Unm* was unemployment, *EG* was economic growth, *Gex* was government expenditure, *Inv* was investment, *Pop* was population, and *Pov* was poverty. α, β illustrated the regression coefficients, whereas ε_1 & ε_2 was error term. α_1 , β_2 each described the elasticity of economic growth on unemployment and the elasticity of economic growth against poverty, i was district/city i and t was year t.

4. Empirical Results

4.1. Model 1 Where Unemployment As Dependent Variable

Panel data by Least Square Dummy Variable (LSDV) model was used in the estimation of Model 1. The model can absorb effects of particular time invariant specific factors of regions and avoid biased estimate. The Hausman Test for random effect was calculated and was found to be 15.81271, which confirmed *the fixed effect model*.

Based on the results of the fixed effect model, the data analysis has been done using the Eviews 8.0 Program, then the results were obtained as shown in the Table 1. Economic growth (EG), government expenditure (Gex), private investment (Inv), and population (Pop) have an effect on unemployment (Unm) in districts/cities on South Sumatera Province. The cities were Palembang City, Prabumulih City, Pagar Alam City and Lubuk Linggau City.

Table 1. Estimated result of Model 1

Dependent Variable: UNM Time Series: 2010-2017	
Independent Variables	**Coefficient**
Constant	28.2801 (2.1191)
EG	-0.5254** (-0.6639)
GEX	-0.5397* (-0.8962)
INV	-0.0956** (-1.1182)
POP	-0.3989** (-0.4747)
Estimated Region specific fixed effects	
OKU District	-0.2801**
OKI District	1.7036**
MUARA ENIM District	0.9210**
LAHAT District	-0.9117**
MUSI RAWAS District	-2.8690**
MUSI BANYUASIN District	-0.0180**
BANYUASIN District	0.3337**
OKU SELATAN District	-3.0141**
OKU TIMUR District	-1.8520**
OGAN ILIR District	-1.9364**
EMPAT LAWANG District	-2.0104**
PALEMBANG City	6.7351**
PRABUMULIH City	1.6899**
PAGAR ALAM City	-0.4410**
LUBUK LINGGAU City	1.9496**
N	120
F statistics	15.812
P value	0.0000
R^2	0.74

Note: *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively. The values in parentheses are t-statistics

According to the analysis results, partially economic growth variable has a negative sign and it is statistically significant at 5% level. This result shows that a 1% increase in economic growth decreases the unemployment value by 0.5 percent. Government expenditure has a negative coefficient and statistically significance at 10% level. The higher the government expenditure, the lower the unemployed created will also be. Similarly, the private investment variable has a negative sign and statistically has a significant effect on unemployment at the level of 5%. This means that an increase in the amount of private investment will affect the decrease in the number of unemployed. The private investment increase 1% will reduce unemployment by 0.09 percent. The population variable regression coefficient is negative and the probability value is smaller than 0.05 at 5% level, which means that the population has a negative and significant effect on unemployment. The population increase of 1% will reduce unemployment by 0.4 percent.

Theoretically, the relationship between economic growth and population would be a positive correlation. It means that as one increases, the other also increases. As a population rapidly grows, so does the number of unemployed people. This occurs because rapid population growth generally isn't met with growth of employment opportunities at an equal rate. As a population grows, more and more people are competing for the jobs that currently

exist, and not every body can be hired; therefore, more people are left unemployed. Therefore, the result of this research demonstrate that negative correlation between population and unemployment. It was caused the higher population will be potential market for goods and services production, so that encourage increased demand. Finally, demand of labor will increase, unemployment will decrease.

Economic growth, government expenditure, private investment, and population have an effect on the unemployment in the district / city of South Sumatra Province during the period 2010-2017. The result is shown as in Table 1. It can be concluded that economic growth (EG), government expenditure (Gex), private investment (Inv) and population (Pop) affect unemployment (Unm). The value of a coefficient of determination (R2) of 0.7380 means that unemployment variation in the districts/cities of South Sumatera Province can be explained by the model of 74 percent and the remaining 26 percent is explained by other variables outside the model.

Region specific effect indicates unemployment ranking, the lowest is Oku Selatan District and the highest is Palembang city. It can be seen from Table 1. Which the intercept value of specific effect is the highest negative for Oku Selatan District and highest positive for Palembang City.

As a result, it was determined that the increase in the economic growth determined as the focus point positively affected decreasing the unemployment rates in this study conducted with the data of 2010-2017 period of the districts/cities in South Sumatera Province.

4.2. Model 2 Where Poverty as Dependent Variable

The result of hausman test of random effect is 13.5281 that indicate the model 2 more appropriate use *fixed effect model estimation*. Based on the results of the analysis using the program eviews 8.0 shown in Table 2, it can be seen that economic growth variables, government spending, private investment, and unemployment have significantly affect the poverty at 5% level in the districts/cities of South Sumatera Province. While population variable that has *sig value* > 0.05 indicates that population has a significant effect on poverty at 10% level.

The regression coefficient of economic growth (*EG*) sign negative 0.1669 indicating that there is an inversely relationship between economic growth and poverty. It means that if economic growth increases, poverty will decline. Conversely, if economic growth decreases, poverty will increase.

Government expenditure (*Gex*) has a negative regression coefficient value of 0.2197. It shows that government expenditure has a negative influence on poverty. The higher the government expenditure, the lower the poverty created will also be. On the other hand, on the off chance that the quantity of government consumption diminishes, destitution will increment.

Private investment (Inv) additionally has a negative coefficient estimation of 0.0950. It demonstrates that Private venture impacts neediness. The higher the Private venture, the lower the neediness made will likewise be. On the other hand, in the event that the quantity of Private venture diminishes, neediness will increment. Unemployment (*Unm*) also has a positive coefficient regression of 0.1302. It shows that unemployment impacts poverty. The higher the unemployment, the greater the poverty. Then, if the amount of unemployment decreases, poverty will increase.

P-Value F statistic of Model 2 lower than 0.05, it indicates economic growth, government expenditure, private investment, population, and unemployment affected the poverty simultaneously in the district / city of South Sumatra Province during the period 2010-2017. This can be seen from estimated result from Model 2. It can be concluded that economic growth (EG), government expenditure (Gex), private investment (Inv) , population (Pop), and unemployment (Unm) have an effect on the poverty.

Table 2. Estimated result of Model 2

Dependent Variable: POV **Time Series: 2010-2017**	
Independent Variables	**Coefficient**
Constant	22.0966 (3.4366)
EG	-0.1669** (-0.4465)
GEX	-0.2197** (-0.7711)
INV	-0.0950** (-2.3448)
POP	-0.1141* (-0.2876)
Unm	0.1302** (2.7772)
Estimated Region specific fixed effects	
OKU District	-1.7321**
OKI District	1.8579**
MUARA ENIM District	0.6727**
LAHAT District	4.7185**
MUSI RAWAS District	4.6319**
MUSI BANYUASIN District	5.2945**
BANYUASIN District	-1.5075**
OKU SELATAN District	-2.4562**
OKU TIMUR District	-3.8328**
OGAN ILIR District	-0.1767**
EMPAT LAWANG District	-0.3995**
PALEMBANG City	0.1061**
PRABUMULIH City	-2.3318**
PAGAR ALAM City	-5.0011**
LUBUK LINGGAU City	0.1562**
N	120
F statistics	121.3390
P value	0.0000
R^2	0.8584

Note: *, **, and *** respect statistical significance at the 10%, 5%, and 1% levels, respectively**.** The values in parentheses are t-statistics.

The poverty intercept with special effects showed that the highest negative value was for Pagar Alam City and the highest positive value for Musi Banyuasin District. This means that the City of Pagar Alam has the lowest poverty rate, while the Musi Banyuasin District has the highest poverty rate during the analysis period 2010-2017.

The research findings show that economic growth has a negative effect on poverty. This result in line with the the trickle-down effect theory which explains that the progress obtained by a group of people will automatically trickle down so as to create jobs and various economic opportunities which in turn will foster various conditions in order to create equitable distribution of the results of economic growth.

5. Implications of the Results

High economic growth is needed in the effort to overcome unemployment and poverty. High growth will encourage job creation, due to increased government spending and private investment. Increased government spending on infrastructure will improve the mobility of resources from and into the region. In addition, the increase of government expenditure in

education and health will encourage the improvement of the quality of human resources so that it will improve the ability of the community, especially the productive community groups in accessing job opportunities created.

In addition, improving the quality of human resources has led to an increase in population as a potential market for manufactured goods and services that will increase demand for goods and services that will drive increased production. Next, private investment increases that will create new employment opportunities. Both increasing employment opportunities and economic access of various community groups in production activities will be able to reduce the number of unemployed so that the welfare of the society increases and poverty is reduced.

6. Conclusions

Development without anyone else's input may not be dependable and supportable. It is accordingly fundamental to base the system of neediness decrease on quick yet continued PDRB per capita growth. The degree to which development decreases neediness relies on how we measure destitution, on absorptive limit of poor people, the pace and example of the development. Today, as billions of individuals still live in neediness, the most vital test for approach producers is to guarantee institutional pre-conditions and to join master development and expert poor arrangements that will empower the poor to partake in the chances and to add to future.

The simultaneously economic growth, government expenditure, private investment and populations have a significant effect on unemployment in the districts /cities of South Sumatera province. The regional governments should also concentrate on cautioning the rising unemployment rate in their regions. This could be achieved by the establishment of programs that will encourage the unemployed populace in skill development which invariably leads to self-employment irrespective of their locations. If this is done, a reduction in waste of manpower will be observed and this will contribute the buoyancy of the nation's growth.

Economic growth, government expenditure, private investment, population, and unemployment have a significant effect on poverty in districts/cities of South Sumatera Province. Handling activities undertaken by local governments accompanied by increased government spending (in infrastructure, education, and health) and increased private investment through labor-intensive programs will help create employment opportunities. Thus, it will absorb a lot of productive labor so that community welfare increases and poverty is reduced.

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