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The Impact of Economic Growth and Unemployment Rate on Poverty in Sulawesi

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Abstract. *This research aims to analyze several fators that may impact the provincial poverty rate in Sulawesi. Several factors considered in this research is the economic growth (growth of Gross Regional Domestic Product) and Unemployment Rate. This research uses secondary data from Central Statistics Bureau (Badan Pusat Statistik, BPS). This research uses panel data analysis on six provinces in Sulawesi during 2010-2017. This research uses Fixed Effect Model (FEM). Based on the results, it is found that economic growth and unemployment rate has significant and positive impact on poverty rate in Sulawesi.*

Keywords: Economic Growth; Unemployment Rate; Poverty.

Poverty is a socio-economic condition where a person lives below the minimum standard of living. Qualitatively, the notion of poverty is an unfit state of living. Those who are classified as the poor, needs to be addressed with poverty reduction policies. Factors such as economic growth, unemployment rate, and other factors may significantly impact poverty rates. Therefore, we need to understand the association between economic growth, unemployment rate, and poverty rate in order to define poverty reduction strategies.

Previous studies stated that economic growth has significant effect on reducing poverty rate. However, these results may be biased if we take few regions into account, because the state of income distribution, population growth, factors of urbanization may have crucial link in the effect that occurs between economic growth and poverty reduction. Hence, this research will further validate the impact of economic growth on poverty reduction.

In addition, the reduction of unemployment rate is also expected to reduce poverty. Unemployment may affect poverty directly, because it has direct impact to individual income level. If an individual has low income level due to limited access on jobs, hence, it is

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undeniable that the individual will be in poverty trap. Therefore, understanding the association between unemployment rate and poverty is important.

Various poverty alleviation policies have been carried out in Sulawesi. However, the results were not significant and poverty rate in each province in Sulawesi decreases slowly and still relatively high compared to other provinces in Java. Moreover, one province, namely Gorontalo, has fluctuated poverty rates compared to other provinces in Sulawesi. Gorontalo also has the highest poverty rate than the other provinces. According to this explanation, even though government had taken poverty alleviation policies, we need to further estimate the association of economic factors, such as economic growth and unemployment rate on poverty rate in Sulawesi.

According to Law No.24/2004, poverty is referred to as a socio-economic condition of a person or a group of people whose basic rights are not fulfilled. Kuncoro (2000) further define poverty as inability to comply minimum standard of living. Consequently, poverty may impact few aspects in life, such as health and education. Such association results in inadequate housing, low level of income, poor health services, low levels of public education attained, and will further increase the unemployment rate.

Previous studies define poverty differently. This research mainly bases the poverty measures according to the Central Statistics Bureau (2007) that uses three main indicators in measuring poverty, such as the Head Count Index, Poverty Gap Index, and Poverty Severity Index. Head count index measure the percentage of population living below the poverty line, poverty gap index measures the intensity of poverty by calculating the average poverty gap in the population as proportion to the poverty line, while poverty severity index measures poverty by calculating the income or expenditure distribution among the poor. Furthermore, Kuncoro (2006) stated that the most simple and appropriate measure of poverty is Head Count Index (HCI). Therefore, this research mainly uses HCI as the main indicator in measuring poverty.

Through macroeconomic point of view, poverty arises due to the inequality of ownership patterns on resources that further impact the income inequality. This phenomenon further occurs continuously, because with limited access on resources, impoverished individuals do not have access to economic and social resources

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that results on poverty, which is known as the poverty trap. Hence, poverty reduction policies are much needed.

Economic Growth and Poverty

Previous studies found positive association between economic growth and poverty reduction. It is found that the increase in economic growth portrays the increase of productivity that may as well create new jobs. It is also evident that job creation due to the economic boost, may further impact the increase on income level of individuals. This phenomenon will result in the decrease of poverty rate.

Unemployment and Poverty

On the other hand, unemployment may have direct impact on poverty. It is evident that the unemployed tend to live below the poverty line, due to its inability in generating income. Moreover, Okun's Law also stated that the increase on unemployment rate may decrease per capita income, therefore the amount of consumption decreases that it results in severe poverty rate.

RESEARCH METHODOLOGY

Types and Sources of Data

This research uses secondary data from Central Statistics Bureau (Badan Pusat Statistik, BPS). The datasets include data of poverty rate, economic growth, and unemployment rate. This research uses panel data on examining the association between poverty rate, economic growth, and unemployment rate in six provinces in Sulawesi during 2010-2017.

This research aims to investigate the impact of economic growth and unemployment rate on poverty reduction. Correspond to the needs of the objective of this research, we develop the functional model as written in Equation 1 and the panel-data model in Equation 2, as follows:

$$P = f(g^{\in}, U,) \quad (1)$$

$$Poverty_{it} = \beta_0 + \beta_1 g^{\epsilon}_{it} + \beta_2 U_{it} + \Sigma \quad (2)$$

where Poverty is annual poverty rate (percent), $g^{\in}$ is the rate of economic growth (percent), U is the unemployment rate, i is province, and t is year.

RESULTS

This research uses two approaches of panel data regression, which is the fixed effect model (FEM) and the random effect model (REM). FEM is panel data regression that assumes differences of values of intercepts, while it assumes that slope is equal. While REM is panel data regression that is mostly utilized in estimating biased parameter due to dummy variables.

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Model Specification Test

This research uses FEM and REM as the model of panel data regression. This research will further consider the most appropriate model by estimating Chow Test to validate the hypothesis. The decision in rejecting or not rejecting the hypothesis are as follows:

- If the value of chi square (X^2) > value of table chi-square (X^2), then H_o is rejected and the model used in this research is the fixed effect model.
- If the value of chi square (X^2) < value of table chi-square (X^2), then H_o is not rejected and the model used is random effect.

Results of Redundant Fixed Effect Test-Likelihood Ratio (Chow Test) in this research are as follows:

Table 1. Redundant Fixed Effect Test-Likelihood Ratio (Chow Test)

Redundant Fixed Effects Tests Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	47.163822	(5,40)	0.0000
Cross-section Chi-square	92.681558	5	0.0000

Source: Author's Calculation, 2019

From the results of the Chow Test above shows that the value of chi-squares (X^2),) > chi-squares (X^2),) in the table (1% = 15.09, 5% = 11.07, and 10% = 9.24) with a probability value (p-value) = 0.0000 which is lower than the significance level ($\propto = 0.05$), then the most appropriate model for this research is the Fixed Effect Model (FEM).

Selection of FEM and REM with Hausman Test

As estimated through Chow Test, it is found that the most appropriate model in this research is FEM. Consequently, we need to further estimate FEM or REM in this research by applying Hausman Specification Test that is formally developed by Hausman. Hausman Test is a statistical test to determine whether FEM or REM is the most appropriate model in the research. This test bases its idea that both

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OLS and GLS analysis are both consistent, but OLS is inefficient in analyzing the null hypothesis. While on the other hand, the alternative hypothesis is that the OLS method is consistent and GLS analysis is inconsistent. If Hausman test is shows that the criteria of the Chi-Square statistics < table Chi-Square, then the appropriate model is REM. Conversely, when the value of Hausman statistics shows that Chi-Square statistics > Chi-Square Tables, then the most appropriate model is FEM.

Hausman test results are as follows:

Table 2. Hausman Specification Test

Correlated Random Effects - Hausman Test Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	5.137480	2	0.0766

Source : Author's Calculation, 2019

From the results of the Hausman Test above shows that the value of chi-squares (X^2) > table chi-squares (X^2) significant at 10%, therefore the most appropriate model in this research is FEM.

DATA ANALYSIS

Empirical results of this research is written in Equation 3 as follows:

$$Poverty = 10{,}127 + 0{,}030LnPDRB + 0{,}473Unemp + \varepsilon \quad (3)$$

According to the empirical results, poverty rate in the six provinces in Sulawesi reaches 10,127 percent without the influence of other variables. In general, this result shows that economic growth has positive impact on poverty rate, where an increase of a percent of economic growth may increase poverty rate by 0,030 percent *ceteris paribus*. Unemployment rate has significant and positive impact on poverty rate, where one percent increase of unemployment rate may increase poverty rate by 0,473 percent *ceteris paribus.*

Normality Test

We conduct normality test to identify whether the data or variables used in this research are distributed normally or not. The hypothesis for the normality test is as follows:

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- H_o means that datasets in this research were distributed normally, while H_1 means that datasets in this research were not distributed normally.

Following are the results of normality testing on poverty data for provinces in Sulawesi

Table 3. Jarque-Berra (JB) and Probabilities

	Jarque-Bera (JB)	Prob.
Poverty_Gorontalo	6,933021	0,03123
Poverty_Sulsel	1,648805	0,4385
Poverty_Sulteng	3,132668	0,20881
Poverty_Sultra	2,211477	0,33097
Poverty_Sulbar	0,640117	0,72611
Poverty_Sulut	0,336444	0,84517

Source: Author's Calculation, 2019

According to the results provided, JB value for poverty rates in all provinces in Sulawesi is distributed normally.

Multicollinearity Testing

In testing classical assumptions, one of the assumptions used is the absence of a linear relationship between independent variables. The relationship between independent variables in a regression is called multicollinearity (Widiarjono, 2013). To detect the multicollinearity, we measure the Variance Inflation Factor (VIF) of each R-Square (R^2).

Table 4. Multicollinearity Test Results

Variable	R-Square	VIF
Economic Growth	0.562910	2,2878
Unemployment Rate	0.720616	3,5790

Source: Author's Calculation, 2019

The results above show that the value of VIF of the two independent variables is less than ten (<10), thus, it is safe to say that there is multicollinearity between the independent variables in the model.

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Heteroskedasticity Testing

Aside from multicollinearity, other BLUE assumption that needs to be addressed in the model is homoscedasticity. Multiple regression method assumes that the disturbance variable (ei) has an average of zero or E (ei | Xj) = 0, has a constant variance or Var (ei) = σ^2 (Widiarjono, 2013). Consequently, if the model is not homoscedastic, the OLS estimator is biased, because the model is no longer BLUE. Therefore, it is important to examine whether the model is homoscedastic or heteroscedastic. To detect heteroscedasticity, the Glejser method is used, by comparing results of the F-statistics and F-tables obtained through the merging of the residuals. F-statistic obtained from the above results is 0.9144. Therefore, the F-table is still greater than the F-statistic (F-stat < F-table), so it can be concluded that the model is homoscedastic.

Autocorrelation Testing

Autocorrelation is the absence of correlation between one observation interruption variable with other observations that are different in time. To detect autocorrelation problems the Durbin Watson (DW) method is used with the following conditions (Makridakis et al, 1983):

- If the value: 1.65 <DW <2.35, it can be concluded that autocorrelation did not occur.
- If the value: 1.21 <DW <1.65 or 2.35 <DW <2.79, no conclusion can be drawn.
- If the value: DW <1.21 or DW> 2.79, it can be concluded that autocorrelation occurred

From the results of the above analysis, the Durbin Watson value is 1.132927. This value is less than 1.21, so there is autocorrelation in the model. However, with the consideration that the regression model obtained in this study is not used for forecasting / forecasting, the impact of this autocorrelation can be ignored in this research.

CONCLUSION

This study was conducted to examine the impact of economic growth and unemployment rate on poverty rate in six provinces in Sulawesi during 2010-2017. Based on the results of the research, it can be concluded that economic growth and unemployment rate have positive and significant effect on poverty rate in six provinces in Sulawesi during 2010-2017. Economic Growth and Unemployment on the Poverty Rate in Sulawesi in 2010-2017.

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Based on the conclusion, this research further recommends that each province in Sulawesi to encourage economic structural transformation, because it is apparent that provinces in Sulawesi relied on agricultural sector, that it has no impact in the reduction of poverty rate. It is also evident through the research that if the provinces still relied on agricultural sector, then each province need to increase technological change in agriculture so that the agricultural products will be more competitive.

REFERENCES

Ahmad, Khalil, dan Riaz, Ammara, "An Econometric Model of Proverty in Pakistan: ARDL Approach to co-Integration", Asian Journal of Bisiness and Management Sciences, Vol. 1 No. 3, pp. 75-84.

Badan Pusat Statistik "Data Pertumbuhan Ekonomi 2010-2017".

Badan Pusat Statistik "Data Pengangguran 2010-2017".

Badan Pusat Statistik "Data Kemiskinan 2010-2017".

Badan Pusat Statistik (2017) "Indikator Kemiskinan"

Barika. (2013). "Pengaruh Pertumbuhan Ekonomi, Pengeluaran Pemerintah, Pengangguran, dan Inflasi terhadap Tingkat Kemiskinan di Provinsi se Sumatera". Jurnal Ekonomi dan Perencanaan Pembangunan (JEPP), Vol. 05. No. 01, (JEPP) 27-36.

Bayyina Zidni Falah, Mustafid, Sudarno (2016), "Model Regresi Data Panel Simultan dengan Variabel Indeks Harga yang Diterima dan yang Dibayar Petani", Jurnal Gaussian, Vol. 5, No. 4, Tahun 2016, Halaman 611-621

Elvi Suhendah, Yosi Eka Putri, Rian Hidayat, "Pengaruh Pertumbuhan Ekonomi, Pengangguran, dan Inflasi terhadap Kemiskinan di Indonesia tahun 1998-2014", Jurnal-Skripsi STKIP PGRI Sumatera Barat 2016.

Fitri, A. (2012). Pengaruh Pendidikan, Pengangguran dan Inflasi Tehadap Tingkat Kemiskinan Di Kawasan Timur Indonesia (KTI) Periode 2001-2010. Ekonosain, x no 2, 158-169.

Kumalasari, Merna, dan Poerwono, Dwisetia, "Analisis Pertumbuhan Ekonomi, Angka Harapan Hidup, Angka Melek Huruf, Rata-rata Lama Sekolah, Pengeluaran per kapita, dan Jumlah Penduduk terhadap Tingkat Kemiskinan di Jawa Tengah", Jurnal-Skripsi Universitas Diponegoro Semarang.

Prastyo, Adit Agus. (2010). "Analisis Faktor-Faktor yang Mempengaruhi Tingkat Kemiskinan", Skripsi, (Semarang Fakultas Ekonomi Universitas

Email: roflanbadu15@gmail.com

Diponegoro, 2010), hal 1 (Publikasi)

Puspita, D. W. (2015). "Analisis Determinan Kemiskinan di Provinsi Jawa Tengah", Journal of Economic, 8(1), 100-107.

Putro, P. B., Mintarti, S., & Wijaya, A. (2017). "Analisis Determinasi Pertumbuhan Ekonomi dan Kemiskiana". Inovasi, 13(2), 135-140.

Sery Jefry Adil Waruwu, 2016. "Analisis pengaruh pertumbuhan ekonomi, pengangguran, belanja pemerintah dan investasi terhadap tingkat kemiskinan di Indonesia tahun 1995-2014" Skripsi, Universitas Sanata Dharma Yogyarkarta.

Sindi Paramita Sari, Deky Anwar, dan Darussamin. "Analisi PDRB, Tingkat Pendidikan dan Tingkat Pengangguran terhadap Tingkat Kemiskinan di Provinsi Sumatera Selatan Periode 2004-2013", I-Economic Vol. 2. No. 1 Juli 2016.

Sukino, Sadono, Makro Ekonomi. Edisi Ketiga, Jakarta: PT. Raja Grafindo Persada, 2004.

Windra, Marwoto, P. B., & Rafani, Y. (2016). "Analisis Pengaruh Inflasi, Pertumbuhan Ekonomi, dan Tingkat Pengangguran terhadap Kemiskinan di Indonesia. Jurnal ilmiah progresif manajemen bisnis, 14(2), 19-27.

Woyanti, N. (2013). "Pengaruh Pertumbuhan Ekonomi dan UMP terhadap Kemiskinan di Jawa.