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An Analysis of the Relationship between Economic Growth and Human Development of South Sulawesi for 2011-2016

³ Sukri Nyompa
Department of Geography
Universitas Negeri Makassar
Makassar, Indonesia
sukrinyompa@unm.ac.id

Amal Arfan
Department of Geography
Universitas Negeri Makassar
Makassar, Indonesia
amal-geo@unm.ac.id

Rosmini Maru
Department of Geography
Universitas Negeri Makassar
Makassar, Indonesia
rosminimaru@unm.ac.id

Uca
Department of Geography
Universitas Negeri Makassar
Makassar, Indonesia
ucasiding@unm.ac.id

³ Maghfir Rafsan Jamal
Department of Geography
Universitas Negeri Makassar
Makassar, Indonesia
marajabaca@yahoo.com

Abstract—The purposes of this research are to find out: 1) the description of economic growth and human development in South Sulawesi, 2) the relationship between economic growth and human development in South Sulawesi, and 3) the cointegration relationship between economic growth and human development in South Sulawesi. The object of this research is 24 regencies or cities in South Sulawesi. Data from this research is secondary data obtained from the Central Statistics Agency of South Sulawesi and then analyzed descriptively and associatively. The description of economic growth and human development is obtained by analyzing the standard deviation and the influencing dominant components. The result of analysis using Klassen Typology showed that there were 2 regions classified to type I, 8 regions classified to type II, 4 regions classified to type III and 10 regions classified to type IV. The result of the analysis through the scatter plot showed that the increase of economic growth rate was not followed by the increase of HDI value; furthermore, the relationship between both variables was weak. Moreover, the result of analysis through cointegration test showed that there was no cointegration relationship or long-term relationship between economic growth and human development of regencies or cities in South Sulawesi.

Keywords—economic growth, human development, scatter plot, Klassen typology, cointegration test

I. INTRODUCTION

Development is an improvement in the quality of life including infrastructure, housing quality, general living standards, but also spiritual elements such as education, freedom [1]. Estimates of dynamic economic growth using standardized measurements of GDP per capita compared to estimates of the growth model in the human development index (HDI) developed by the United Nations. The only independent variables found to be significantly related to the growth of HDI are population, population growth, and the initial level of GDP [2]. The concept of economic development and economic growth differs significantly, but in some cases, it is used as a changeable idea. It is important for policy makers and decision makers to understand the relationship between the two. Development strategies must be formulated to achieve sustainable, inclusive economic

growth, and economic development [3] suggests that the rate of economic growth by up to 66% are influenced by physical capital, human capital, and labor [4]. When the coefficient of education is estimated using the time lag, contributing an annual difference in human capital growth to the difference in annual GDP growth Reached 0.64% to 0.81%. This is also in line with research Yuhendri [5] the which states that economic growth is influenced by education in West Sumatra.

The driving factor of development is the increase of human need in a region. Therefore, the development is conducted for making humans not only as a tool of development but also as the ultimate goal of development. Therefore, in managing human development, economic growth has a huge role. Otherwise, the increase of human quality in a region will encourage the rate of economic growth in the region [6].

The contribution of human development to economic growth is through increasing the capacity of manpower which can ultimately increase the economic production so that the output of society will also increase. On the other hand, the contribution of economic growth to human development is through increasing the government revenues which can then be invested in human development [7].

Economic growth represents a long-term increase in the capacity of a country to provide economic goods to its people [8]. Based on data from the Central Statistics Agency in 2015 [9], South Sulawesi has a population of 8,520,304 people. This makes South Sulawesi as a province with the largest population in Sulawesi Island. The large population is a potential human resource asset to encourage economic growth. This is proven by the achievement of South Sulawesi GRDP which is the highest GRDP in Sulawesi Island with the growth rate of GRDP which is above the national average.

However, good achievement in the economic field is not in line with the achievements of human development. Based on the Human Development Index (HDI) [6], the rank of South Sulawesi is still under the national HDI; and in the Sulawesi Island, its rank is under the North Sulawesi.

The data indicate that the region with the highest GRDP does not always have the highest HDI. The exposure of the data also shows an imbalance between economic growth and human development in Sulawesi Island, especially in South Sulawesi. This condition cannot be separated from the conditions and achievements of economic growth and human development in each regency/city from each province.

Based on the description above, this research needs to be conducted to know the relationship between economic growth and human development in South Sulawesi in order to become a reference and consideration in formulating and planning the development policy of South Sulawesi in the future, so that it can harmonize between economic growth and human development

II. RESEARCH METHOD

Based on the methodology used, the type of this research is policy research – research or analysis conducted toward the basic social problems so that its findings can become a recommendation for decision makers to take appropriate action in solving the problem.

Moreover, based on its explanatory content, the type of this research is a combination of descriptive and associative research. The descriptive study in this research is used to answer the first problem statement while the associative study in this research is used to answer the second and third problem statements. The descriptive study is conducted to find out the value of independent variables, either one or more variables without making comparisons or connecting one variable with others. Meanwhile, the associative study is conducted to find out the relationship between two or more variables.

The location of this research is in South Sulawesi. Site selection was conducted purposively because South Sulawesi is one of the provinces with high economic growth, but its human development index (HDI) is still below the national average.

This research studies the Analysis of Economic Growth and Human Development Index (HDI) of regencies/cities in South Sulawesi during 2011-2016. The scope of this study is in 24 regencies/cities in South Sulawesi.

Furthermore, the variables of this research are as follows:

A. Economic Growth

Growth Rate of Gross Regional Domestic Product

B. Human Development

Human Development Index

The data of this study is a secondary data obtained from various literature published by the Central Statistics Agency of South Sulawesi.

The method analysis in this study is quantitative analysis using panel data. The analytical model used to identify the pattern of the relationship between economic growth and human development index (HDI) in South Sulawesi is illustrated by scatter plot and Klassen Typology analysis. Meanwhile, to examine the long-term equilibrium relationship, this research employs Cointegration test.

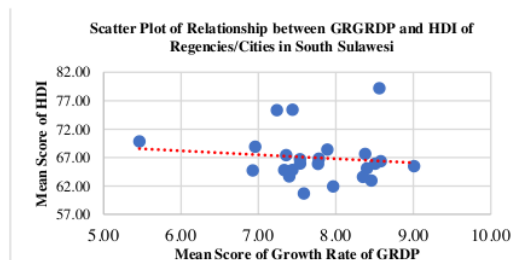
Cointegration test is conducted to find out whether between the dependent variable and independent variable indicates that there is a relationship or linkage which can be used as a long-term estimation.

III. RESULT AND DISCUSSION

A. The Relationship between Economic Growth and Human Development in South Sulawesi for 2011-2016

Based on the scatter plot diagram in Figure 1, it indicates that the trend line shows a negative slope because the line decreases along the increase of Growth Rate of Gross Regional Domestic Product (GRGRDP) value which means that the increase of GRGRDP value is not followed by the increase of HDI. In addition, the existence of points on the diagram seems to spread which means that the relationship between the two variables is weak. From the correlation results, it can be concluded that the relationship between economic growth and human development in this research is negative and not significant.

The result of the analysis in Figure 1 shows circumstance that does not fit the theory in which economic growth should be able to affect human development in a positive correlation. This circumstance cannot be separated from local government development programs which are not appropriate, especially in terms of budget allocation and job creation. As it is known that the appropriate development program setting will be effective in bridging the effect of the increase of economic growth which will help the increase of human development.



Source: An Analysis of Secondary Data for 2011-2016
Fig. 1. Scatter Plot of Relationship between GRGRDP and HDI of Regencies/Cities in South Sulawesi

The budget allocation, in this case, is to prioritize the development in the field of education and basic health. The amount of allocation indicates how great the commitment of local governments to improve human development. Meanwhile, job creation that is equal to sectorally and conducive not only can increase the growth of the regional economy but also can produce the ideal income distribution for the community. Therefore, people can not only meet the primary needs in the field of education and health but also can meet the secondary and tertiary needs which reflect the increase in human development.

To actualize the relationship between economic growth and ideal human development, the first thing needed to know is the type of relationship between economic growth and human development in each regency/city in South Sulawesi in order to determine the right policy and the ideal development program for each regency/city. The analysis used to determine the type of relationship is through using

Klassen Typology analysis that divides the regencies/cities into four types of a group based on the average ratio of GRGRDP and HDI of regencies/cities with GRGRDP and HDI of South Sulawesi. If the average of GRGRDP and HDI of each regency/city is greater than GRGRDP and HDI of South Sulawesi, it is classified as high classification, and vice versa.

The four types of relationship resulted from this analysis are, type I, i.e., regions with high GRGRDP and high HDI; type II, i.e., regions with high GRGRDP and low HDI; type III, i.e., regions with low GRGRDP and high HDI; and type IV, i.e., regions with low GRGRDP and low HDI

TABLE I. THE RESULT OF KLASSEN TYPOLOGY ANALYSIS FOR REGENCIES/CITIES IN SOUTH SULAWESI

Regional Typology	Mean Score of Growth Rate of GRDP	
	High	Low
High	Type I	Type III
	8.33 %	16.67 %
	2 Regencies/ Cities	4 Regencies/ Cities
	Pinrang & Makassar	Enrekang, East Luwu, Parepare & Palopo
Low	Type II	Type IV
	33.33 %	41.67 %
	8 Regencies	10 Regencies
	Selayar, Bantaeng, Takalar, Maros, Pangkep, Bone, Sidrap & North Toraja	Bulukumba, Jeneponto, Gowa, Sinjai, Barru, Soppeng, Wajo, Luwu, Tana Toraja & North Luwu

^b Source: An Analysis of Secondary Data for 2011-2016

After knowing the type of each regency/city, then it can be determined the right policy and development program for each regency/city so that economic growth can be in line with human development. Furthermore, the directions of development and policy which can be taken are as follows:

- 1) *Type I (high GRGRDP and high HDI)*
 - Strengthening the role of government to prioritize budget allocation for health and education sectors efficiently;
 - Strengthening the government's role in creating employment which is equal to sectorally and conductively in order to balance the distribution of income.
- 2) *Type II (high GRGRDP but low HDI)*
 - Balancing the proportion of budget allocation between the health and education sectors with budget allocations for other sectors such as economic infrastructure;
 - Opening infestation pathways in health and education sectors in order to support the improvement of the quality of human resources.
- 3) *Type III (low GRGRDP but high HDI)*
 - Maximizing the development and utilization of the existing human resource potentials to boost economic growth;
 - Opening investment opportunities with easy licensing under applicable terms and standards, and also maximizing its monitoring process.

4) *Type IV (low GRGRDP and low HDI)*

- Allocating budgets proportionally to the health and education sectors and also in the field of economic infrastructure; furthermore, conducting investments promotion in those both sectors;
- Multiplying programs that can support the improvement of human resources quality such as training to improve the skills for community and conducting improvement in the internal governance, especially in terms of inconsistencies of government policy.

B. *The Cointegration Relationship between Economic Growth and Human Development of Regencies/ Cities in South Sulawesi for 2011-2016*

Before conducting the cointegration test, it is necessary to conduct a unit root test. By using Eviews, the unit root test is conducted to determine whether the variables of the economic growth and the human development index in this study are stationary or not. As known, the requirement for the cointegration test is that the research variables must be in a stationary state. Furthermore, the result of the unit root test for the variables of economic growth and human development can be seen in table II and III.

TABLE II. THE RESULT OF THE UNIT ROOT TEST FOR THE VARIABLE OF ECONOMIC GROWTH (GRGRDP)

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-12.9622	0.0000
Im, Pesaran and Shin W-stat	-4.07041	0.0000
ADF - Fisher Chi-square	82.4403	0.0015
PP - Fisher Chi-square	103.715	0.0000

^c Source: An Analysis of Secondary Data for 2011-2016

TABLE III. THE RESULT OF THE UNIT ROOT TEST FOR THE VARIABLE OF HUMAN DEVELOPMENT (HDI)

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-10.0163	0.0000
Im, Pesaran and Shin W-stat	-2.25051	0.0122
ADF - Fisher Chi-square	60.0489	0.1138
PP - Fisher Chi-square	69.1973	0.0242

^d Source: An Analysis of Secondary Data for 2011-2016

Tables II and III show the result of stationarity test for panel data studied by using LLC (Levin, Line & Chu), IPS (Im, Pesaran & Shin), ADF Fisher and PP Fisher methods. The result of the unit root test toward the variable of economic growth in Table II shows that all methods used display probability value less than 5 percent. Meanwhile, in Table 3, ADF Fisher method shows a probability value above 5 percent, namely 0.1138. However, three other methods have shown probability values less than 5 percent so that only the dominant result of the three methods can represent the result of the unit root test for the variable of human development in Table III.

From these results, it is known that both variables have a probability less than 5 percent so that the null hypothesis which stated that variables studied have the unit root is rejected. Therefore, it can be concluded that both variables used in this study have been stationary at the level of 1st difference or having the same degree.

Once it is known that both variables used in this study are stationary or integrated on the same degree, the next step to do is to conduct a cointegration test between variables of economic growth and human development. In this study, it can be seen in Table IV.

The results of the cointegration indicate that the probability value obtained in panel v-Statistic, rho-Statistic, PP-Statistic and ADF statistics show probability value above 5 percent so that the null hypothesis which stated that there is no cointegration relationship between both variables is failed to be rejected or accepted. Therefore, it can be stated that economic growth and human development of regencies/cities in South Sulawesi has no cointegration relationship or long-term relationship.

TABLE IV. THE RESULT OF COINTEGRATION TEST

Alternative hypothesis: common AR coeffs. (within-dimension)				
	Statistic		Weighted	
	Statistic	Prob.	Statistic	Prob.
Panel v-Statistic	-0.755869	0.7751	-0.731549	0.7678
Panel rho-Statistic	2.450167	0.9929	2.419849	0.9922
Panel PP-Statistic	1.813740	0.9651	1.638529	0.9493
Panel ADF-Statistic	2.143052	0.9839	1.865700	0.9690
Alternative hypothesis: individual AR coeffs. (between-dimension)				
	Statistic		Prob.	
	Statistic	Prob.		
Group rho-Statistic	4.623407	1.0000		
Group PP-Statistic	2.940425	0.9984		
Group ADF-Statistic	3.504173	0.9998		

^a Source: An Analysis of Secondary Data for 2011-2016

The results of this cointegration test indicate that economic growth and human development of regencies/cities in South Sulawesi do not have the same movement direction because, in each short-term period, both variables tend not to adjust each other to achieve the equilibrium or long-term equilibrium.

IV. CONCLUSIONS

Economic growth and human development of regencies/cities in South Sulawesi have a negative and insignificant relationship. From Klassen Typology analysis, it is known that there are 2 regions categorized in type I, 8 regions categorized in type II, 4 regions categorized in type III, and 10 regions categorized in type IV. The result of the cointegration test indicates that there is no cointegration relationship or long-term relationship between economic growth and human development of regencies/cities in South Sulawesi.

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