

CAUSALITY POPULATION GROWTH ANALYSIS WITH ECONOMIC GROWTH OF DISTRICT / CITY IN SOUTH SUMATRA

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ABSTRACT

This study aimed to analyze about Causality Population Growth with Economic Growth Regency / City in South Sumatra. With the data examined starting in 2000-2014 in 7 districts / cities in South Sumatra. The analytical method used is the Granger Causality Test, using several stages in advance, such as the Unit Root Tests, determining the length of the lag then Causality Test. This research was conducted in seven districts / cities in South Sumatra which Lahat district, Muara Enim, Musi Rawas, Banyuasin, Ogan Ogan Ilir, Ogan komering Ulu Kota Palembang. Data is collected and used is secondary data from BPS various editions and publications, and Bank Indonesia. The results showed that only two districts with the districts Ogan Ogan Ilir and Muara Enim regency which has a one-way relationship that population growth affect economic growth. Similarly, the South Sumatra province has a one-way relationship, South Sumatra provincial population growth affect the economic growth of South Sumatra.

Keyword: Granger Causality Test, population growth, economic growth, the district / city in South Sumatra

INTRODUCTION

Background

One attempt to measure economic growth through reducing the number of poor people. According to Malthus, rapid population growth impact on the slowdown of capital accumulation. Meanwhile, according to Kelley (1988), population growth

does not have either a positive impact or a significant negative impact on economic growth.

Economic growth is an important element in the development of regions in Indonesia. Through a fairly high economic growth expected in the welfare of society will gradually be increased (Sjafrizal, 2008: 85).

The development of the value of GDP at constant prices in South Sumatra starting in 2000-2014 showed an increase. It can also be seen average economic growth of South Sumatra at 4.18 for a period of 15 years. Economic growth was highest in South Sumatra in 2011 amounted to 6.5 percent, and the lowest economic growth achieved in 2009 amounted to 4.11 percent. While population growth is the highest in South Sumatra in 2010 reached 3.15 percent, and the lowest was -1.54 percent in 2008.

Formulation of the problem

Whether there is a causal relationship between population growth and economic growth in the 7 districts / cities in South Sumatra?

Research purposes

Want to analyze the causal relationship between population growth and economic growth in the 7 districts / cities in South Sumatra.

Benefits of research

The result is expected to increase the knowledge and understanding of the causal relationship between population growth on economic growth at 7 districts / cities in South Sumatra.

THEORITICAL BASIS

Regional Economic Growth

An area is divided into regions or sub-regions. For example in the region of the province is still divided over sharing the sub-region such as county or city. Growth in these areas will be determined by the main factors which include: 1) natural resources available, 2) the availability of capital for natural resource management, 3) their facilities and infrastructure (infrastructure) which support such as transportation, communications, 4) the availability of appropriate technologies for

natural resource management, and 5) the availability of quality human resources for the management of technology.

Todaro (2000: 111) states that there are three major factors or components in economic growth, the first: capital accumulation that includes all forms and types of capital invested in land, physical equipment and human resources, second; population growth the next few years with its own carrying growth of the workforce, third; technology advances.

The economic growth associated with the increase in output per capita, which is considered is the total output (GDP), and the number of inhabitants.

Population growth as one of the important variables that will affect the economic development. According to Malthus (1798) rapid population growth impact on the slowdown of capital accumulation. Trend of population growth resulted in the increase of human resources, further indicating the increased supply of labor (Kaufmann and Hotchkiss, 2005).

The faster the rate of population growth, the greater the proportion of young population that has not been productive in the total population, and the increasingly heavy financial burden shouldered too productive population. This phenomenon is called the momentum of population growth / hidden population (hidden population momentum of growth).

Malthusian population trap theory, stating that the number pendudukdi a country will increase very rapidly in accordance with the geometric progression or geometric rate. Therefore the process of accretion of diminishing returns of a fixed number of production factors, the food supply will only increase by arithmetically or arithmetic progression.

Research Accomplished

Susanto (2013: 1 & 5) in his research on Causality Test Between Energy Consumption and Economic Growth in ASEAN by using Granger causality test and panel data concludes that there is a causality of the direction of economic growth on energy consumption in ASEAN countries. In contrast to research Waluyo, (2010: 9) that is on the Analysis Relationship Causality Between Corruption, Economic Growth and Poverty by using test of Granger Causality and Data Panel concluded that poverty and corruption have no impact on economic growth, but the economic growth impact on corruption, poverty is not impact on corruption, and corruption had no impact on

poverty. The combination of poverty and corruption have an impact on economic growth, the combination of poverty and economic growth have an impact on corruption.

While research Faishol, (2013: 3) that only use the test kaulitas Granger, Analysis of Causality between Economic Growth In Total Exports in Indonesia concluded that there is no causal relationship between economic growth and export total that exports did not affect the total exports and total exports did not affect growth economy. Estimation based on variable economic growth with total exports shown by stationary test that these two variables have been stationary, can be indicated with a coefficient of ADF method and amounted -1.103788 -0.706730. And the Granger causality test showed no causal relationship shown in lag 2 with a value of 0.9136 and 0.3679 the probability of this value is greater than = 0.05.

Further research is Noegroho, et al. (2007: 1) of the Income Disparity Regency / City in Central Java Province and its effects on regional economic growth over the period 1993-2005. The result indicates that the factor income gap, migration and local government spending has a significant positive effect for regional economic growth, regional inflation otherwise has a negative influence.

Yunita, et al. (2015: 13) in research discussed the Analysis of Economic Growth Against Inequality in Income Communities in Riau Province, using panel data suggest that the rate of economic growth of Riau province with oil and gas experienced a slowdown, Improved exactly happened on economic growth without oil and gas showing an increase every year , The level of income inequality showed a negative trend that is increasingly unequal distribution of income levels using either a calculation of Income Inequality Gini index and the World Bank, although still in the low category.

Kusmawara, (2006: 1) in his thesis examined the linkage On Economic Growth And Income Distribution Inequality in South Sumatra province. The results that the economic growth of oil and gas between districts / cities in South Sumatra is increasing economic growth, the declining level of inequality of income distribution.

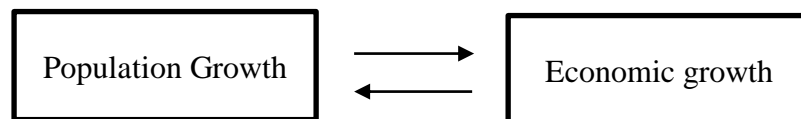
Ghazi, et al. (2013: 3) in his research on Causality Between Income Inequality and Economic Growth. The results showed that there is strong evidence in support of reverse causation running from growth in inequality during the 4 countries. For countries where inequality and economic indicators are not cointegrated, Granger causality tests performed with distinguished first-VAR, results to show that the

evidence found bidirectional causality and the causality of the growth of inequality. Although the results of the research, the development strategy in the MENA region should consider the fact that the fight against poverty decreases in income inequality is still a priority.

While Barro, (2008: 13) conducts research on inequality and economic growth in Asian countries whose cooperation concluded that the curve-relationship inverted U shape between income inequality and capita GDP is relatively stable from 1960 to the 2000s.

Framework

Based on the study of literature, either in the form of theory and previous research framework can be illustrated as follows:



Increasing and the increase in the population that can be seen from population growth will drive economic growth. Further economic growth will encourage the growth of population.

Hypothesis

The hypothesis of this study are:

H0: Growth in the number of people suspected of having a two-way causal relationship with economic growth of the district / city in South Sumatra.

Ha: Growth in the number of people allegedly do not have a two-way causal relationship with economic growth of the district / city in South Sumatra.

RESEARCH METHODS

The scope of research

This research is a study of development economics which discusses issues relating economic growth derived from the GDP ADHK 2000, and the growth of population in seven districts / cities in South Sumatra. The time period of research in the last 11 years, namely 2000 to 2014, using secondary data from the Central

Statistics South Sumatra province and of some of the literature in the form of textbooks, journals, thesis and other sources related to the issues discussed.

Mechanical Analysis

The software used in this study is Eviews 6 program. The analysis used in this study in addition to the quantitative analysis is also qualitative analysis ie causality test through Test Stationeritas of data,

If the absolute value of hasi ADF test is greater than the critical value of the t distribution or value crisis McKinnon (at $\alpha = 1\%$, or $\alpha = 5\%$ and $\alpha = 10\%$), then the data is stationary. Conversely, if the absolute value of the test ADF is smaller than the critical value τ or critical value McKinnon that the data is not stationary.

Determining Long Lag

Before doing causality test is necessary to determine the long lag. Determination of the optimal lag became one of the important procedures that must be done in the modeling. In general there are some parameters that can be used to determine the optimal lag length, such as AIC (Akaike Information Criterion), SIC (Schwarz Information Criterion) and LR (Likelihood Ratio). Determination of the optimal lag length obtained from the equation VAR with a value of AIC, SC or LR smallest.

Granger Causality Test

Causality is a two-way relationship between variables. So, if there is causality in the econometric model can be stated that there is not an independent variable but all is the dependent variable (Widarjono, 2013).

RESULTS AND DISCUSSION

Population economically viewed from two sides. On the one hand people are considered as objects of development, on the other hand is also considered as the subject of development. As the object of development, the population of the fruits of development, meaning development aimed at improving the welfare of the population. On this side of the population relatively passive role. As the subject of development penduduklah which carry the development process. Therefore the role of residents is required for activation. Success or failure of a development process is

highly dependent on its population. The dual role that carried the population has important implications on the development process itself. If the people just tend to be passive, it can be a burden on the state, whereas if the active population will be the potential for even basic capital development is very large.

Similarly, the total population of a country or regions in the country is the capital once a dependent or a burden to other residents. Population is the main target of development. The construction carried out will form a complete Indonesian man of all Indonesian people.

Economic Growth in South Sumatra Province

Of the 16 cities / regencies in the province of South Sumatra, in this study only taken 7 cities / districts, namely Lahat, MuaraEnimMusiRawas, MusiBanyuasin, OganOganIllir, OganOganUlu Kota Palembang will explain the data is populated as follows.

1. Lahat

Lahat District is one district in the province of South Sumatra, Lahat district has an area of 4361.83 km². In 2014 the district population Lahat is as much as 389 304 inhabitants, with a population density of 89.2 people per km². Pertumbuhan rate of population in Lahat regency during the period 2005-2014 amounted to 1.15%. Most of the population tends to be centered on Lahat district, sub-district while the least population was GumayUlu districts.

2. MuaraEnim

Number of residents in MuaraEnim in 2014 according to projections of a population of approximately 590 975 people. During the period 2005-2014 there is a growth of 1.61 percent per year. Distribution of the population according to districts in MuaraEnim uneven. Districts with the largest population is subdistrict of MuaraEnim. Districts are inhabited by approximately 68 063 inhabitants. While districts with a population of at least MuaraBelida is a population of around 7,739 people.

3. MusiRawas

The population in MusiRawas in 2014 according to the projected population of approximately 543 349 people. During the period 2005-2014 there is a growth of 1.43 percent per year. Distribution of the population according to districts in

MusiRawas uneven. Districts with the largest population is MegangSakti districts, districts are inhabited by approximately 49 461 inhabitants. While districts with a population of at least are UluRawas with a population of about 11 095 people.

4. MusiBanyuasin

MusiBanyuasin population in 2014 reached 602 027 people, with distribution of the population in 14 districts. Distribution of the population in MusiBanyuasin uneven, the largest population in the sub Sekayu amounted to 81 905 people, while the number of residents in the district at least BatangLeko amounted to 22 617 people.

5. OganOganIlir

The population of OganOganIlir in 2014 as many as 776 263 increase over the year 2013 which had a population of 764 894 inhabitants. Distribution of the population according to districts tida evenly. Of the eighteen districts in OganOganIlir, Lempuing districts have the largest population of 76 361 inhabitants, followed by subdistrictsKayuagung City of 66 770 inhabitants, while the East Pedamaran districts have a population of at least as many as 21 753 people.

6. UluOganOgan

The population of UluOganOgan has increased from year to year, it is due to have more and more improvement and development progress made by the government. The population in UluOganOgan in 2014 as many as 344 932 jiwa. Penyebaran UluOganOgan population in 12 districts were not evenly distributed. East Baturaja Subdistrict as capital UluOganOgan has the largest population of as many as 97 202 people, while the smallest population in the district of Muara Jaya is just as much as 6,994 people.

7. Palembang City

The population of the city of Palembang in 2014 amounted to 1,558,491 inhabitants, annually a total population of Palembang city increased by about 1.47 percent. Distribution of the population in the city of Palembang is uneven, there are 16 districts in the city of Palembang. District which has the largest population is SeberangUlu subdistrict 1 as many as 174 945 people, while district which has a population of districts is at least as mature as many as 36 983 lives Form.

Results and Discussion

This section will discuss the results of testing of models based on analysis of statistical and economic analysis. Some statistical tests to determine the significance of variables equation, covering Root Test Unit (Unit Root Test), Test Long Lag Test, Cointegration, Causality Test and see the results of VAR Estimates. The economic analysis will explain the meaning of the parameters obtained from the regression that includes suitability direction parameters investigated with the hypotheses that have been set based on economic theories, including the meaning of the coefficient values themselves and also see how much influence change in the dependent variable the other dependent variables.

ADF test results also showed that Eg do not experience problems Probability unit root t-Statistic also shows a smaller value than $\alpha = 5\%$ ($0.073 < 0.05$), so that data of economic growth in South Sumatra province did not experience the roots of the unit and can be used to the next step.

Granger Causality Test

Granger's Causality is used to test the causality between economic growth in South Sumatra province with total population growth in the province of South Sumatra. If the value is smaller than the probability of tolerance α of 5% then H_0 is rejected that there was no correlation between population growth and economic growth in the province of South Sumatra.

Granger causality test results between economic growth and population growth in the province of South Sumatra. the results are one-way relationship from economic growth (EG) in the direction of growth of the population, because the probability value 0.0351 F-Statistic is smaller than the critical value of 5% / 12:05. This means that the greater the economic growth would tend to increase the population growth in the province of South Sumatra.

Lahat

ADF test results indicate that the economic growth data Lahat not experiencing problems as indicated by the unit root Dickey-Fuller statistic value that is greater than the Mackinnon critical value at 5% and a confidence level of 10%. Probability T-Statistic also shows a smaller value than $\alpha = 5\%$ ($0.0119 < 0.05$), so that

data is not experiencing economic growth Lahat roots units and can be used for the next step.

ADF test results indicate that the population growth data in Lahat regency not experiencing problems as indicated by the unit root Dickey-Fuller statistic value that is greater than the Mackinnon critical value at 5% and a confidence level of 10%. Probability T-Statistic also shows a smaller value than $\alpha = 5\%$ ($0.0168 < 0.05$), so that the economic growth data in Lahat regency did not experience the roots of the unit and can be used for the next step.

Granger causality test is very sensitive to lag length used. After conducting trial error to the length of lag, then the decision was made to use the optimal lag length is 3 based on the criteria for selecting the optimal lag in seeing the value of LR is the largest and the value of AIC, SC, FPE and the HQ of little value. Testing the long lag by using Eviews may be easier to determine the optimal lag to see the sign (*) the most on any existing selection lag. The results of the long lag determination are presented in the following table:

Based on the optimal lag is the lag Table 3 as indicated by the sign (*). Therefore, in the next process to estimate the model using lag 3 as the optimal lag.

1. Granger Causality

Granger's Causality is used to examine the causal relationship between the economic growth of the province of South Sumatra with a total population growth in Lahat regency. If the value is smaller than the probability of tolerance α of 5% then H_0 is rejected that there was no correlation between economic growth in Lahat district with a growing number of panduduknya.

The above table presents the test results of Granger causality between economic growth and population growth in Lahat regency. The result is there is no causal relationship between economic growth and population growth in Lahat district, because the probability of F-Statistic value of 0.97 and 0.99 is greater than the critical value of 5% / 12:05.

MuaraEnim

Granger Causality Test

Granger's Causality is used to examine the causal relationship between the economic growth of South Sumatra province with total population growth in the district of MuaraEnim. If the value is smaller than the probability of tolerance α of 5%

then H_0 is accepted that there is a relationship between economic growth in MuaraEnim district with population growth.

The above table presents the test results of Granger causality between economic growth and population growth in the district of MuaraEnim. The result is there is a relationship in one direction of growth of total population (PPME) in the direction of economic growth (PEME), because the value of the F-Statistic 0.0077 probability is smaller than the critical value of 5% / 12:05. This means that the greater the number of residents in MuaraEnim will tend to increase economic growth in the region.

MusiRawas

1. Unit Root Tests

The unit root test aimed to see whether the data used stationary or not, and make the data to be used as stationary. The method used to perform Unit Root Test in this study is the Augmented Dickey-Fuller Test (ADF Test).

Granger Causality Test

Granger's Causality is used to test the causality between economic growth in the province of South Sumatra with a total population growth in MusiRawas. If the value is smaller than the probability of tolerance α of 5% then H_0 is rejected that there was no correlation between economic growth in MusiRawas with population growth.

The above table presents the test results of Granger causality between economic growth and population growth in MusiRawas. The result is there is no causal relationship between the growth in total population (PPMR) and economic growth (PEMR) in MusiRawas, because the probability of F-Statistic value of 0.9472 and 0.2451 is smaller than the critical value of 5% / 12:05.

MusiBanyuasin

Granger Causality Test

Granger's Causality is used to test the causality between economic growth in South Sumatra province with the district population growth Banyuasin. If the value is smaller than the probability of tolerance α of 5% then H_0 is rejected that there was no correlation between economic growth in MusiBanyuasin with population growth.

The above table presents the test results of Granger causality between economic growth and population growth in the district Banyuasin. The result is there is no causal relationship between economic growth and population growth in MusiBanyuasin, because the probability of F-Statistic value of 0.7310 and 2.4822 is greater than the critical value of 5% / 12:05.

OganOganIlir

Granger Causality Test

Granger's Causality is used to test the causality between economic growthSumsel the total population growth in South Sumatra. If the value is smaller than the probability of tolerance α of 5% then H_0 is accepted that there is a relationship between economic growth in OganOganIlir district with population growth.

The above table presents the results ujii Granger causality between economic growth and population growth in OganOganIlir regency. The result is there is a relationship in one direction of growth of total population (PPOKI) towards the economic growth of the number (PEOKI), because the value of the F-Statistic 0.0202 probability is smaller than the critical value of 5% / 12:05. This means that the greater the number of residents in OganOganIlir will tend meningkatkan economic growth in the region.

UluOganOgan

Granger Causality Test

Granger's Causality is used to test the causality between economic growthSumsel Growing Number of residents in UluOganOgan. If the value of probability is smaller than α tolerance of 5% then H_0 is rejected that there was no correlation between economic growth in the district OganOganUlu growing population.

The above table presents the test results of Granger causality between economic growth and population growth in the district of UluOganOgan. The result is there is no causal relationship between economic growth and population growth in the district of UluOganOgan, because the probability of F-Statistic value of 0.1867 and 0.7906 is greater than the critical value of 5% / 12:05.

Palembang

Granger Causality Test

Granger's Causality is used to examine the causal relationship between economic growth and population growth in Palembang. If the value is smaller than the probability of tolerance α of 5% then H_0 is rejected that there was no correlation between economic growth in Palembang with population growth.

CLOSING

CONCLUSION

The conclusion that can be drawn from the above analysis is the causality test results turned out to have a relationship one-way, meaning that the population growth in the province of South Sumatra affect economic growth in the province of South Sumatra. Then after Causality Test to seven cities / counties in the province of South Sumatra there are only two districts are districts OganOganIlir and MuaraEnim regency which has a one-way relationship, namely population growth affect economic growth in the district OganOganIlir and MuaraEnim regency them.

SUGGESTION

In this paper the authors suggestions that will be presented related to the issue in this paper is the need for government policies that support those aspects that can boost economic growth, and improving the quality of human resources so that it can make a major contribution to the area.

BIBLIOGRAPHY

Arsyad, Lincoln, 1992, Economic Development, STIE YKPN, Yogyakarta

_____, 1999, Introduction to the Planning and Economic Development of Regions, BPFE UGM, Yogyakarta.

The Central Bureau of Statistics, South Sumatra, 2000-2014, Database Edition Various province of South Sumatra, Palembang

Dumairy 2008, the Indonesian Economy, publisher Jakarta.

Hakim, Abdul, 2004, Economic Development, EKONOSIA, FE UII, Yogyakarta.

HJ. deBlij, et al. In: Geography, Regions and Concepts, John Wiley and Son Inc. Canada, 1992.

Ismail, Munawar, 1995, Growth and Equity: Analysis and Empirical Evidence, Prisma 1 Year XXIV, January, Jakarta.

Jinghan, M.L., 2000. Economic Development and Planning. Publisher PajarInterpratama, Jakarta

Kuncoro, 2003, Research Methods for Business and Economics, FE-UGM, the publisher, Jakarta.

Kuncoro, Mudrajad 2004, Autonomy and Regional Development, Reform, Planning, Strategy and Opportunities, FE-UGM, the publisher, Jakarta.

-----, 2006. Development Economics, Second Edition 4. UPP STIM YKPN, Yogyakarta.

-----, 2013. Economic Indicators, First Edition, UPP STIM YKPN, Yogyakarta.

Kuznets, S, 1967, Population and Economic Growth, Proceedings of the American Philosophical Society, Vol. 111, No.3, Population Problem, pp 170-193.

Mankiw, G, 2003, Macroeconomic Theory, Fifth Edition, publisher, Jakarta.

Malthus, T, 1778, An Essay on the Principle of Population, London. Printed for J. Johnson, in St. Paul's Church-Yard. Scholarly Electronic Publishing Project, 1998, <http://www.esp.org>. Accessed on February 13, 2014.

Richardson, W, 1973, the Regional Growth Theory, Micmillan Press Ltd. London.

Sjafrizal, 2002, the Regional Economic Growth Theory and Methods of Analysis, (Lecture Material), Palembang.

_____, 2008, the Regional Economic Theory and Applications, Baduouse Media, West Sumatra.

_____, 2002, the Regional Economic Development Policy in the Era of Autonomy, (Lecture Material), Medan in 2002.

Susanti, H., Moh.Iksan and Widyanti, 2000, the Macro Economic Indicators, Second Edition, Publisher Institution Faculty of Economics, University of Indonesia, Jakarta.

Tambunan, Tulus, 2003, the Indonesian Economy, Some Important Issues, First Edition, Publisher Ghalia Indonesia, Jakarta.

Todaro, Michael, in 2000, Economic Development In the Third World, Ghalia Indonesia, Jakarta.

----- 2004, Economic Development In the Third World, Ghalia Indonesia, Jakarta.

Widarjono, A, 2013, Econometric: Introduction and Application Accompanied Free Eviews, UPP STIM YKPN, Yogyakarta.

Widodo, Tri 2006, Computer Applications Development Planning, UPP STIM YKPN, Yogyakarta.