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TIM EDITORIAL

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ANALYSIS OF EFFECT OF SOCIAL AND ECONOMIC INFRASTRUCTURE DEVELOPMENT TO THE ECONOMY OF COASTAL AREAS IN EAST JAVA PROVINCE

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ABSTRACT

Developing countries are always faced with various economic development challenges (Todaro, 2000). Development of social economic Infrastructures has an important factor to influence the level of Gross Domestic Product. In coastal areas, infrastructure development is low and not optimal utilization. This study aims to determine the effects of development of social economic Infrastructures to the economy of coastal area in East Java Province during the perion 2008-2015. This study uses secondary data and samples taken by purposive random sampling technique that is the district/city of Banyuwangi, Jember, Probolinggo, Trenggalek, Sumenep, Sampang, Bangkalan, Lamongan, Gresik, Malang, dan kota Surabaya. This study uses panel data Fixed Effects Model (FEM) method with Generalized Least Square (GLS) cross section weight.The results of this study indicate that the variable of number school building, roads, and electricities significantly and positively effect to the economy of coastal area in East Java Province.

Keywords :   Infrastructure, social, economic, coastal area, economic development.

INTRODUCTION

Developing countries are always faced with various economic development challenges (Todaro, 2000). The development challenges arise because of improvements in the quality of community life to increase incomes, improve the quality of education, improve health and nutrition standards, eradicate poverty, improve the environment, allocate opportunities, equal distribution of individual freedoms, and refresh the cultural life. Challenges and demands are inseparable from the existence of physical infrastructure and non-physical infrastructure. Infrastructure is an important element in the production process in the economic sectors such as trade, industry, and agriculture that can improve efficiency in production activities, consumption and in support of distribution activities. Availability of infrastructure will be able to reduce production costs, expand market access, and can increase the number of people's income.

Infrastructure development is a form of sustainable development that includes a balance of ecological, social, cultural and economic aspects (Mulyadi, 2015). The concept of sustainable development contains the assumption that the nature of a development to realize the welfare of society must be based or in accordance with its infrastructure planning. Sustainable development encompasses environmental, economic and social

dimensions, whose concept is a long-term sustainable development, over a period of intergeneration and seeks to provide sufficient resources and a healthy environment to support life. Sustainable development is related to socio-economic order in social life in developing countries which is implemented with society's role in building a strong economy and dynamics.

Infrastructure development will encourage economic growth and an increase in Gross Domestic Gross (GDP) in Indonesia. Economic growth is the development of economic activities that cause the production of goods and services increased so that society will increase the prosperity of society (Sukirno, 2015). The infrastructure development is realized by the government through the Infrastructure Priority Program in 2010-2014, the MP3EI Program (Master Plan for the Acceleration of Expansion of Indonesian Economic Development), which also includes the fulfillment of the Millennium Development Goals (MDGs). The MDGs program aims to accelerate infrastructure development to meet basic community needs, improve community welfare and expand and increase employment opportunities that will impact poverty reduction. Adequate infrastructure will be able to support the economic activities of the community. Logically, infrastructure development such as roads and bridges will facilitate the flow of transportation and trade traffic in a region. Listrk infrastructure development will support the production and consumption process. The development of social infrastructure such as hospitals, schools, places of worship, markets will provide convenience and efficiency in economic transactions conducted by the community. The development of educational infrastructure will provide a framework for the development of qualified human resources as human capital in the labor market.

Non-physical infrastructure in the form of education and health is an indicator in determining the level of community welfare. The quality of non-physical infrastructure development in human resources aspects is reflected through Human Development Index (HDI). HDI is composed of three basic dimensions of health, education, and quality of life standards (BPS, 2016). Increasing HDI by improving the quality of community education, it is hoped that with a good education a person has a desire to escape from the poverty cycle he suffered, by finding innovations in the management of resources owned, the ability to use science and technology in everyday life as an effort to develop his ability, of the importance of health, both for themselves and their families. Therefore, the development of nonphysical infrastructure in the form of school construction is important in achieving economic growth objectives as expected.

Infrastructure development to increase economic growth through the increase of Gross Domestic Product (GDP) both nationally and regionally, is expected to produce output that can be felt by all levels of society with the increase of people's welfare.

However, the phenomenon that occurs indicates an imbalance in certain community groups. According to Todaro (2000), differences in natural, social and economic conditions of a region affect the economic behavior of people in the region. Economic growth of each region and economic structure will be different, thus causing an imbalance in the welfare of society due to uneven income received. Inequality between regions that occur due to differences in natural conditions and natural resources owned, and can be reviewed on the socio-economic conditions of communities in coastal areas.

Infrastructure development is closely related to regional and global dynamics. Developing countries should consider global dynamics that focus on the potential and resource advantages in creating a sustainable development. The regional structures of fisheries and marine will contribute to the economy from fishery and marine resources. Potential resources in East Java Province surrounded by coastal and marine areas are fishery and marine resources. East Java Province has an area of sea and coastal area that reaches twice of land area (BPS, 2015). The vast coastal areas of East Java show the availability of abundant natural resource potentials, but it is not an indicator of the high public welfare. East Java Province is one of the provinces in Indonesia which has a wide coastal area of 22 districts / municipalities of a total of 38 districts / municipalities is a district / city with marine and coastal areas within it.

The Communities in the coastal areas are classified into the poorest groups of society, in addition to farm laborers, and salt farmers. However, the group is considered difficult to achieve because of the low quality of its resources so that less able to utilize existing facilities and production factors. In addition, coastal areas are outside the growth centers of districts, as they are far from the center of economic activity in a particular district / city. Infrastructure development in coastal areas is also considered less when compared to the central growth areas in districts. This can be seen from the lack of adequate road facilities, limited electricity distribution, and low public awareness in the field of education. This study aims to determine the influence of social and economic infrastructure development in the form of school buildings, roads, and electrical power installed to the economy of the district / city coastal areas in the province of East Java.

MATERIALS AND METHODS

This study uses a quantitative approach that emphasizes the testing of theories through the measurement of research variables with numbers and perform data analysis with statistical procedures. Quantitative research methods will be able to provide solutions to research problems objectively through econometric analysis. The focus of this research is the development of socio-economic infrastructure and its effect on the economy in East Java Province. This study uses a period of time ie 8 years of 2008-2015.

This study uses secondary data because secondary data is primary data that has been further processed and presented by data collectors, which are generally presented in the form of tables or diagrams (Sugiharto, 2015). The data needed in this study is the gross domestic product (GDP) data, the number of school buildings, the length of the district / city road, and the amount of electrical power installed.

This study uses a population of 38 districts / cities in the province of East Java, Indonesia. The sampling technique used in this research is purposive random sampling technique, which is sample selection based on some criteria that can help to understand certain information or research objectives to be achieved then selected at random (Wijaya, 2013). The criteria determined to determine the sample in this study are districts that have coastal or marine areas. East Java Province is one of the provinces in Indonesia which has a wide coastal area of 22 districts / city with sea and coastal areas of the total of 38 districts / cities. Based on these criteria, the samples are Banyuwangi, Jember, Probolinggo, Trenggalek, Sumenep, Sampang, Bangkalan, Lamongan, Gresik, Malang and Surabaya.

The method of analysis used in this research is multiple linear regression of data panel. Multiple linear regression is indicated by the number of variables studied over two variables, as well as panel data structures covering the cross section area consisting of 11 districts / city and a period of 8 years ie in 2008-2015. Panel data is a sequence of time and cross section data (Ariefianto, 2012). This research use multiple linear regression panel data analysis with equation as follows:

$$LOGGDP_{it} = \alpha_0 + \alpha_1 LOGSKLH_{it} + \alpha_2 LOGJLN_{it} + \alpha_3 LOGDYT_{it} + \mathcal{E}_{it}$$

Where $LOGGDP_{it}$ is a logarithm of gross regional domestic product in the regency / city in year. $LOGSKLH_{it}$ is the logarithm of the number of school buildings in the regency / city in year. $LOGSKLH_{it}$ is the logarithm length of roads in the regency / city in year; $LOGDYT_{it}$ is the Number of Electrical Power Installed in the regency / city in year. α_0 is a constant. α_1 … α_3 is the research parameter and $\mathcal{E}_{it}$ is standard error.

RESULTS AND DISCUSSION
RESULTS

In processing data that is panel data, there are three methods that are CEM, FEM, and REM. To determine the use of methods from the three methods, the Chow and Hausman tests were performed. Chow test is done by comparing the value of F statistic and Chi Square value to obtain decision of selected method between CEM and FEM. Based on Chow test results, F statistic or 135.512416 greater than the value of F table

with numerator 3 and denumerator 84 on α of 5% (0.05) of 2.71. Similarly, the probability value F of 0.0000 is smaller than the value of α of 5% (0.05), or can be written 0.0000 <0.05. From these results can be concluded that the exact model used is fixed effects model (FEM).

Table 1 Test Results Panel Data Modell

Test	Result	Modell
Chow	F statistic > F tabel	FEM
	Prob. F < α 5%	FEM
Hausmann	Chi Square Statistic > Chi Square tabel	FEM
	Prob. Chi-square < α 5%	FEM
α 5% = 0.05		

Source: data processed, 2017

According to the selected model results in the Chow test, the FEM model, the Hausman test is then performed to determine a more precise model between FEM or REM. The Hausman test statistic follows the statistical distribution of Chi Square with the degree of freedom (df) as much as k (the number of independent variables). In Hausmann test, the choice of FEM or REM model is determined based on Chi square statistic or chi square test compared with Chi square table value, and Chi square probability value compared to α value used in this research is 5%. The result, Chi-square statistic value is 66.003007. The value is greater than the value of Chi-square table is 7.815 or can be written 66.003007> 7.815, and the probability value of Chi-square is 0.0000. The value is smaller than the value of α 0.05 (0.0000 <0.05), then the exact model used in this study is the Fixed Effects Model (FEM).

After conducting Chow and Hausmann Test, it can be concluded that this research uses Fixed Effect Model (FEM) model data regression, with 11 units of cross section of district and city having 8 years time series data. In this research, independent and bounded variables are transformed in LOG form with Fixed Effect Model and Generalized Least Square (GLS) Weighted method. The results show the model equation as follows:

LOGGDP =   -8.852983* + 0.767060LOGSKLH* + 0.187125LOGJLN* + 0.231318LOGDYT*

Based on the analysis results show that the constant, the number of school buildings, the length of regency / city roads, and installed electrical power, affect the level of GRDP in the period 2008-2015. The results of regression research model can be observed from table 3 below:

Table 2 The Findings Panel Data Modell**

Variable	coefficient	T- statistic	Probability
constants	-8.852983	-9.259469	0.0000*
LOGSKLH	0.767060	5.665009	0.0000*
LOGJLN	0.187125	3.241026	0.0018*
LOGDYT	0.231318	7.559178	0.0000*
R-squared		0.991176	
Adjusted R-squared		0.989626	
F-statistic		639.4288*	
Prob(F-statistic)		0.000000*	
Sum squared resid		1.188985	
Durbin-Watson stat		1.237039	

Information:
* significant at α of 5%
** passed the classical assumption test of linearity, multicolinearity, heteroscedasticity, autocorrelation, and normality
Source: data processed, 2017

From the analysis results can be seen that the number of school buildings significantly and positively affect the GDP in 11 districts / cities in East Java. This is shown from the model estimation results that the t-count value of 5.665009 is greater than the value of t-table 1.988961 (5.665009> 1.988961), and the probability value of 0.0000 is smaller than the α of 5 percent (0.0000 <0.05). With the parameter coefficient value of 0.767060, shows the relationship between the number of school buildings and GDP, where if the number of school buildings increased 1 percent, then the value of GDP will rise by 0.767060 percent. But if the number of school buildings decreased by 1 percent, then the GDP also decreased by 0.767060 percent.

District / cities road infrastructure variables significantly and positively affect the GRDP in 11 districts / cities in East Java. This is shown from the model estimation results that the t-count value of 3.241026 is greater than the value of t-table 1.988961 (3.241026> 1.988961), and the probability value of 0.0018 is smaller than the α of 5 percent (0.0018 <0.05). With the parameter coefficient value of 0.187125, shows the relationship between the variable length of road and GDP, where if the length of the district road / cities increased 1 percent, then the value of GDP will rise by 0.187125 percent. However, if the length of district / city roads decreased by 1 percent, then the GDP also decreased by 0.187125 percent.

Furthermore, the third variable is the installed electric power variables also significantly and positively affect the GDP in 11 districts / cities in East Java. This is shown from the model estimation results that the t-count value of 7.559178 is greater than the value of t-table 1.988961 (7.559178> 1.988961), and the probability value of 0.0000 is smaller than the α of 5 percent (0.0000 <0.05). With the value of parameter coefficient of 0.231318, shows the relationship between the variable installed power and PDRB, where if the amount of installed power increased 1 percent, then the value of GDP

will rise by 0.231318 percent. However, if the installed power decreased by 1 percent, then the GDP also decreased by 0.231318 percent.

DISCUSSION

Efforts to promote economic growth and development in Indonesia today represent the embodiment of the Government of Indonesia's commitment to the Millennium Development Goals (MDGs) which is a collective agreement with the heads of state and representatives from 189 other United Nations (UN) countries. The MDGs are the Millennium Development Goals that contain eight points of objectives to achieve people's welfare and community development. The MDGs have become an important reference for development in Indonesia, from planning to implementation (Lako, 2014). The MDGs outline the government's initial efforts to inventory human development situations related to achieving the MDGs objectives, measuring and analyzing progress as they make these achievements a reality, as well as identifying and reviewing government policies and programs needed to meet these goals. With the main objective of reducing the number of people with incomes below the regional minimum wage.

Acceleration of growth and economic development is carried out in all economic sectors and reaches all levels of society. This government effort can be seen from the formation of new programs and policies in order to realize the goals of community welfare. These programs and policies include the establishment of a National Program for Independent Community Empowerment (PNPM Mandiri), the Master Plan for the Acceleration and Expansion of Indonesian Economic Development (MP3EI). They are not only a program that aims to increase the value of economic growth as high as possible, but also state the development and national income so that it can reach all levels of society, improve welfare, reduce inequality of income and unequal population who can enjoy the results of development. The classification of programs, policies and institutions is tailored to the desired objectives, such as PNPM Mandiri Rural to reach people in rural areas away from the economic center of the city, PNPM Mandiri Disadvantaged Areas, Papua Development, and PNPM Mandiri Marine and Fisheries whose target is coastal communities . While MP3EI is a government program to accelerate the economic growth of Indonesian territory. The development of economic corridors in Indonesia is based on the potentials and advantages of each region spread throughout Indonesia.

Government efforts to increase economic growth in Indonesia can not be separated from infrastructure development. Availability Infrastructure as a means and infrastructure in a region determines the smooth implementation of economic activities. Public Works Infrastructure plays an important role in supporting national economic growth, especially as a liaison between production processes, markets and end

consumers whose existence can reflect the ability of society to produce and the level of community welfare as well as social capital for the community in conducting its activities. The availability of Public Works infrastructure which is a physical building for public interest and public safety, such as roads, irrigation, clean water, electricity, sanitation and other supplementary buildings of other settlement activities, is a prerequisite for good economic rotation.

Infrastructure is the driving wheel of economic growth (Atmaja, 2015). Infrastructure will be a driving force for the development of the country and region due to a public and private development. This phenomenon is meant by the existence of sustainable infrastructure development will increase the consumption value of society to various needs of goods and services in an economy. Increased consumption values reflected in the ability of purchasing power have an impact on increasing the productivity of labor to continue to increase its income. The community will tend to improve the quality of its human resources to compete in the labor market to obtain decent employment. Decent and adequate employment opportunities will have an impact on improving people's prosperity.

Development of socio-economic infrastructure related to human resources can be reflected from the aspect of education. Educational aspect is an important infrastructure as an approach in increasing the quantity and quality of human resources which in the economy will become human capital. The process of developing educational infrastructure in human resource development must be followed by the development of technology and information (Atmaja and Mahalli, 2015). Infrastructure required in the process of human resource development include school buildings, road infrastructure, electrical installations, telecommunications and internet networks to keep pace with global developments.

One of the physical infrastructure in the development of human resources is the quantity and quality of school buildings. This study shows that the number of school buildings will improve the quality of the economy in coastal areas because people will have higher education and feasibility of learning materials. Adequate school buildings will provide a condition where adequate educational support facilities and infrastructure for coastal communities in improving the quality of human resources and reducing illiteracy rates. The development of school building infrastructure is closely related to human resource development through improving the quality of education is also needed to improve the Human Development Index. In the variable of the number of school buildings this study is a school building from elementary school (SD), junior high school (SMP), high school (SMA), and equivalent level. School building infrastructure has a significant and positive influence on the rate of economic growth. Thus, the social aspect of

improving the quality of education proxied in the school building infrastructure can be an indicator of the economic growth rate of districts / municipalities, especially in the province of East Java.

Figure 1. The Value of Human Development Index of Coastal Area In East Java Province
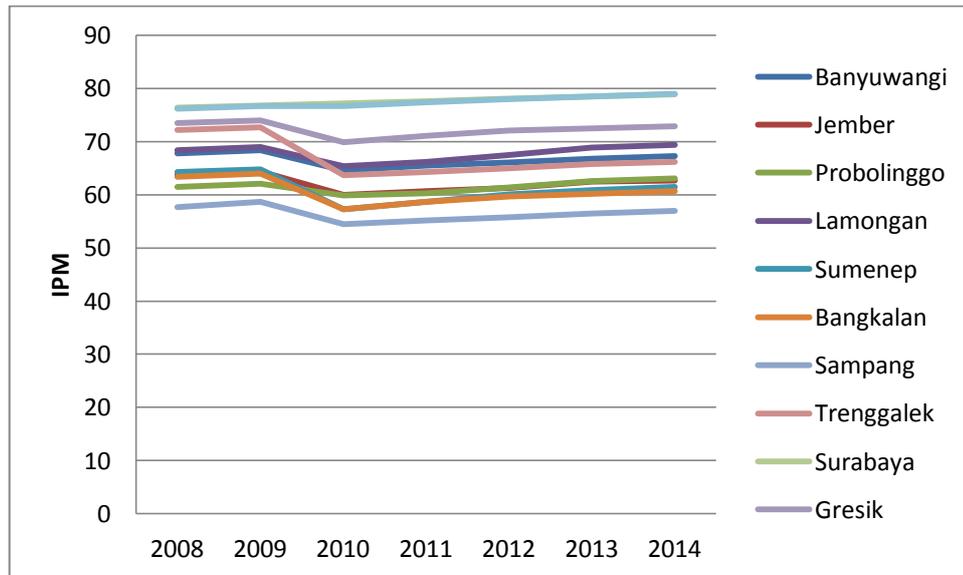
Source: data processed, 2017

The educational dimension carries two components of the Human Development Index, the School Expectancy Figures and Literacy Figures. Improving the quality of education will determine the value of the Human Development Index With the existence of adequate school buildings is expected to create a good education to cut the circle of poverty in coastal areas. Education will create creative ideas and innovations in the development of technology and information that will be useful for people's lives and the economy. The value of Human Development Index of all coastal areas in East Java Province continued to increase from 2008-2014, although in some districts / cities had decreased in 2010. Human Development Index as one of the indicators of community welfare needs to be improved through the improvement of three dimensions of Human Development Index, namely the dimensions of Education, health, and a decent life.

Number of roads is a much needed infrastructure for people especially for land transportation and trade traffic. Road is an intercultural liaison in East Java Province that provides facilities in trade and other economic transactions. In the coastal areas the quality and quantity of roads is the main means of distribution of fishery products to be distributed to consumers and the processing industry. The highway will increase the intensity of economic behavior to create a stable economy. The highway also provides a

freedom and acceleration of population mobility to increase income. High mobility will have an effective impact on trade processes and industrial activities. Therefore, road infrastructure is an important factor in the development of coastal areas and improving economic conditions.

An important issue in infrastructure development programs in East Java Province is the more dominant development program conducted in urban centers than coastal areas. This is contrary to the urgency of infrastructure development in deciding the chain of poverty circles that occur in coastal areas. Road infrastructure in coastal areas of East Java is inadequate and less qualified in supporting economic activity. Inadequate road infrastructure impacts income inequality between communities in urban and rural areas. The number of roads in coastal areas should be increased in quality and quantity to reach coastal areas. Roads built should be able to connect between fishermen or the general public to the market or the processing industry.

Another infrastructure that is an important indicator of the success of economic development is the electricity infrastructure. Electricity infrastructure can be reviewed with power capacity installed in a region. The installed power capacity will show the magnitude of the region's ability to absorb electricity for production, distribution and consumption in an area's economy. Electricity is the core requirement of all business entities and sectors in the economy because it provides an energy in the economy. An area that does not have adequate electricity infrastructure then the economy will tend to be sluggish. This is because all economic sectors require electricity supply for their economic activities. The government through the MP3EI program has a primary focus on energy availability. This is due to the need for energy especially from electricity will support the long-term development program.

CONCLUSION

The number of school buildings, road infrastructure, and installed electrical power infrastructure has a positive effect on GDP. Improving the quality of school buildings, roads and electricity infrastructure will contribute positively to the increase of GDP in East Java Province. Infrastructure school will provide improvements in the quality of human resources as development capital. The road infrastructure will lead to the flow of transport and trade traffic in the fishery and marine sector in East Java Province. Electricity infrastructure will support community activities in the production, distribution and consumption process. The government should pay particular attention to the quality of coastal area infrastructure that includes school buildings, roads and electricity.

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