

THE EFFECT OF CAPITAL-INTENSIVE INVESTMENT ON EMPLOYMENT: A CASE STUDY IN EAST BORNEO

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ABSTRACT

East Borneo is one of the provinces contributing to Indonesia's GDP mainly from the mining sector. This opinion is strengthened by the large amount of investment activities and economic growth in tendency of the mining sector. However, this growth is not supported by balancing the job opportunities. As it happens in this region in which has high unemployment rate that is to exceed the national unemployment rate. This study aims to analyze the effect of investment and other control variables towards employment allocation. This research used regression and panel model fix effect, and Panel Least Squares (PLS) was used as research approach. The empirical result showed that the variables significantly affected are investment, economic growth, and level of education. Meanwhile, wages are not significantly affected. Although investment has a significant effect, the increase of investment has an impact on reducing employment. This is in accordance with the phenomena occurred, but in case of different theory used in this study.

Keywords: Investment, Employment, Economic Growth, Education Level, Wages.

INTRODUCTION

Workers or human resources are inseparable from the employment. this is caused by the fact that human resources are the absolute needs in terms of production. Human resources can also have negative effects, one of them is unemployment. The biggest cost of unemployment is being able to reduce production. People who do not have a job means not being able to produce (Dornbusch, 2008).

East Borneo is one of the provinces that has an Open Unemployment Rate (TPT) above the national scope and was once as the province with the largest unemployment in Indonesia in 2017 (SAKERNAS, 2018). But, the most interesting about East Borneo is the unemployment as the major problem when investment in mining sector has a value above the national average. (Indonesia Investment, 2018). This condition is theoretically different from the area which is supported by investment and considered to increase productivity as well as contribute to employment so as to reduce unemployment (Kuncoro, 2002). The same thing happened in Uruguay, where an increase in investment was not in line with increased employment opportunities. This phenomenon shows the relationship between investment, economic growth and labor based on economic theory. However, the results of research by Mordecki and Ramirez (2014) explain that there is a negative impact between investment and employment which indicates savings in labor investment or in other words the addition of investment in less labor-intensive sectors.



Source: BPS of East Borneo, (2018)

Figure 1: Indonesia's Unemployment Rate and East Borneo (Percent).

Based on data from the Central Statistics Agency (BPS), in East Borneo investment and employment have a value which do not indicate conditions that are in line with the theory. Investment in East Borneo has a quite high investment realization in which in 2017 domestic investment (PMDN) and foreign investment (PMA) in East Borneo have contributed Rp. 10.98 trillion and Rp. 17.22 trillion. This investment is dominated by the mining sector with a contribution of 76.96 percent of the total investment realization based on the entire sector in East Borneo (BPS, 2018).

It is contrasted to the realization of increased investment, the number of employments has decreased quite significant in which in 2016 a number of employment were 1,640,708 people to 1,541,965 people in 2017. Focusing on employment distribution in each sector, the mining sector has a low employment rate if it is compared to other sectors with a contribution value of 8 percent (BPS, 2018).

There have been several factors which are assumed to have an impact on employment, such as economic growth (Manh, et al, 2013, Mordecki and Ramirez, 2014), education level (Ardiansyah, et al, 2017, Ali and Jalal, 2018), and wages (Avsar and Onaran, 2010, Eriksson, and Stadin, 2017). Along with the phenomenon that occurred, in which the high value of investment accompanied by low employment in East Borneo makes this research important to do. Because this phenomenon continues to occur it will have an impact on people's welfare, even in the long run it can affect changes in economic growth. Therefore, this research can contribute to investors and local governments in overcoming the phenomena that occurred.

LITERATURE REVIEW

Investment

Basically, Investment is the beginning of economic development activities. Investment can be made by private companies, the government, or cooperation between the private sector and the government. Harrod Domar in Arsad (2010) said that the increase in the level of output and employment can be done with the accumulation of capital (investment) and savings (Mankiw, 2007). Thus, investment will encourage economic growth and increase job creation.

Sukirno (2000) stated that investment has three roles: (1) is one of the aggregate expenditures, in which an increase point of investment will increase aggregate needs and national income. (2) increasing of capital goods as a result of investment activities will increase production capacity in the future and it will stimulate an increase in national production and employment opportunities. (3) Investment is always accompanied by technological developments, so as to provide an increase in productivity and income per capita of the community.

Economic growth

Harrod-Domar in Arsyad (2010) argued that growth in term of this theory is to analyze the conditions needed for an economy in a country to develop in the long run. In this theory requires that in an economy must require saving a portion of national income as an effort to add or replace capital which is not feasible. However, in case of supporting economic growth, new investment is needed as a net addition or capital stock.

Economic growth which does not encourage employment opportunities will lead to problems of unemployment and poverty that can eventually lead to social problems. While the employment which does not encourage economic growth will cause disruption problems to achieve sustainable economic growth. At a macro level, the growth rate of employment can be related to the rate of economic growth. In other words, economic growth will influence the rate of growth in terms of employment opportunities (Basri, 2002).

Todaro (2011) said that economic growth of each country has the main components, namely: 1) Capital accumulation, which includes all various forms of new types of investment such as property, physical equipment, and also human resources itself. 2) population growth will increase the number of workers in the following years. 3) Technology development which considered as the most basic source of economic growth, it can be classified into three parts, namely: (a) neutral technological development. (b) technological development to save laborer productivity. (c) Technology development to save capital. An economic growth can be assumed based on its activity from its previous achievements.

Level of education

Higher education which produces high ability and skill can create high incomes as well. Applying logical economy to examine individual investment decisions in knowledge and skills such as education, training, investment in company-specific knowledge, career choices (work decisions, switching jobs or switching professions, labor mobility) and other characteristics related to employment (wages, salaries and working hours) can be assumed that each individual will choose a job that maximizes the present value of economic and psychological benefits throughout his life (Becker, 1975).

The level of education reflects the level of intelligence (quality) or formal educational attainment of the population in a country. Simanjuntak (2011) stated investing in human capital is a comprehensive activity which aims to improve the quality or productivity of the labor within a certain period of time. Spending education or training for a person or labor as a form of anticipation of knowledge as well as skills, this aims to increase income in the future.

According to Iverson and Bendesa (2005), educated people can more easily reach information and implement a new development so that they are more productive. Education is also expected to be a forum which creates one of the inputs in the production process, namely labors, who work productively based on their quality.

Wages

Wages are rewards from the company or employer to an employee for their work or services to the company to produce goods and services. The need for labor itself is closely related to wages, because their needs are used as a function of the wage level. With the level of wages will result an increase in production costs, and it will impact in increasing the price of product (Gianie, 2009).

David Ricardo said that when the general standard of life increases, the wages will also increase. Meanwhile, Adam Smith said that if there was an increase in the average wage level, it would also be followed by a decrease in the number of workers that would be needed and finally unemployment would occur. Conversely, with the decline in average wages will have an impact on increasing employment opportunities.

LITERATURE REVIEW

There have been several studies that have been conducted regarding the factors that have an influence on employment. According to Mordecki, and Ramirez (2014) in a journal entitled "Investment, growth and employment: VECM for Uruguay" the results showed that investment and economic growth partially have a positive and significant relationship to employment in Uruguay. Manh, et al (2013) in a journal entitled "Relationship between Economic Growth and Employment in Vietnam" from this study showed that the variable of economic growth had significant effect on influencing employment in Vietnam. Avsar and Onaran (2010) in a journal entitled "The determinants of employment: a sectoral Analysis for Turkey" in which the wage variable has a positive and significant impact on employment in Turkey. Furthermore Ali and Jalal (2018) entitled "Higher Education as a Predictor of Employment: The World of Work Perspectives in Pakistan", this study shows that the relationship between higher education and employment was found to be significantly positive and it is proven that higher education strongly influences and is applied to predict the employment.

RESEARCH METHODOLOGY

This study used a quantitative method since it discussed the theories through the assessment of research variables, conducts data analysis statistically and tests hypotheses which have been built. The location of this study was selected, East Borneo which consisted of 9 districts / cities. This location is selected because East Borneo is one of the provinces that has a high percentage of unemployment and becomes is above the national average.

The method used in this study is panel data regression analysis where it is a combination of time series and cross section. Panel data is a secondary data obtained from various institutions, such as BPS East Borneo. BPS is one of valid data-sources that is needed specifically in the use of macroeconomic data published periodically. The data used in this study is data from 2010 to 2017 in all Regencies / Cities in East Kalimantan Province. This study used panel data analysis because the results obtained are better and able to show results from each region not only as a whole.

$$Y_i = \beta_0 + \beta_1 X_i + \epsilon_i; i = 1, 2, \dots, n$$

where i is *cross section*. While *time series comparison* can be written as:

$$Y_t = \beta_0 + \beta_1 X_t + \epsilon_t; t = 1, 2, \dots, n$$

T shows *time series*. The panel data is a mixed data between *time series* and *cross section* so that the mixed comparison model is written as:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \epsilon_{it}$$

Dependent Variable: Y is employment, many companies fulfill their seats with workers.

Independent Variable:

- X_1 = Investment level, the realization of the amount of value through investment, consisting of PMA and PMDN.
- X_2 = Economic Growth, the economy got from national income or the growth of Gross Regional Domestic Product based on constant prices.
- X_3 = Education level, achievement level of formal education.
- X_4 = The rate of wages, the fee paid to workers in return.

Some of the tests that will be used in this panel regression analysis are testing classic assumptions such as; normality test, autocorrelation test, multi-co linearity test, and heteroscedasticity test. Furthermore, by testing the estimation model using chow test, hausman test, and lagrange multiplier (LM) test is able to get the right model for research whether fixed effect model, common effect, or random effect. F-test is used to access the effect simultaneously between the independent variable and the dependent variable, while to access the partial effect between the independent variable and the dependent variable is using t-test, and to determine how much the influence of the explanatory factor has on the factor explained is using the adjusted R² which is also called the coefficient of determination. According to Ghozali (2006) t-test is a test used to see the significance of the variables and to test individually the influence of independent variable on the dependent variable.

RESULT AND DISCUSSION

From the results of the study and sample data used, there were 9 districts / cities and 8-year periods = 72 observations. The detail results will be discussed as below.

The researcher firstly conducted a classic assumption test as the validity of the data used. The classical assumption test consists of a normality test, an autocorrelation test, a multicollinearity test, and a heteroscedasticity test. The result explains that the distribution data are normal and free from autocorrelation, heteroscedasticity and multicollinearity in accordance with the procedure of each test.

The assessment on the model using three estimation techniques, the Chow test, shows a fixed effects with a probability value 0,000 smaller than alpha 5%, while the Hausman test refers to a fixed effect model with a probability value 0.002 smaller than alpha 5%, and a Lagrange multiplier test (LM) shows a Random Effect model with a probability 0.003 smaller than alpha 5%. These results indicate that the right model is the fixed effect model on this study.

The statistical testing R Square shows a result that in the same time, the independent variable in the study explains 84.81% of employment while 15.19% comes on other variables outside this research model. Then, F test results obtained a significance value 0.000 smaller than alpha 5% which means that all the independent variables on the dependent variable affect simultaneously.

Next step is assessing the significance of partial testing or t-test. Testing is completed to determine the relationship between variables discussed in this study. The results of the study using panel regression conducted by t-test of variables employ the employments in East Borneo. It is known from the results of the analysis that investment, economic growth, and education level give effect on employment while wages do not give effect. The following is a table of panel regression test results.

Table 1. The result of panel data regression through Fixed Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	61027.65	20753.18	2.940641	0.0047
Investment	-6.74E-06	3.04E-06	-2.218330	0.0304
Economic growth	1374.943	400.9662	3.429074	0.0011
Education level	3215.987	1602.440	2.006932	0.0493
Wages	0.002932	0.004337	0.676054	0.5016

Based the data above, it can be described as below:

$$Y_{it} = 61027.65 - 6.74E06X_1 + 1374.943X_2 + 3215.987X_3 + 0.002932X_4 + \varepsilon_{it}$$

Based on the results above, it shows that the investment growth will decrease employment. This is different from Harrod Domard's theory which explains that any increase in investment levels can increase employment opportunities. Based on the investment contribution data through economic sector in East Borneo (BPS, 2018), the negative effect of investment on employment is due to the fact that employers are more dominant in allocating their investment on the mining sector which goes on capital intensive. While entrepreneurs prefer to buy goods such as machines to support the company's production process to improve the production quality and increase productivity. As a result of focusing on the use of machines, the employment is getting less. So that investment contributions should be able to reduce unemployment but instead are not able to be involved in increasing employment opportunities in East Kalimantan Province. The results of this study are similar to the research conducted by Dimas & Woyanti (2009) which concluded that investment has a negative and significant effect on employment in DKI Jakarta. However, this study is different from the findings of Mordecki and Ramírez (2014) where from the results of the study conducted that partial investment has a positive and significant relationship.

Economic growth has a positive and significant influence in influencing an increase in employment. The results of this study are in line with the theory put forward by Keynes in Boediono (1999) that the created labor market follows what happens in the goods market. Economic activity, especially in the mining sector in East Kalimantan, has proven to grow and develop in accordance with the size of the mining sector's contribution to the GRDP throughout 2010 to 2017 (BPS, 2018). Thus, it can provide a positive influence on economic activities in other sectors and also be able to attract a more efficient and effective workforce. The results of this study are supported by research by Mordecki, Ramírez (2014) where partial economic growth has a positive and significant relationship to employment opportunities in Uruguay. Likewise, Manh, et al, 2013 from this study stated that the growth of Gross Regional Domestic Product (GRDP) had a positive and significant effect on employment in Vietnam.

The results show that the level of education gives a positive and significant effect on employment. In endogenous growth theory states that the quality of human resources can be a selling point for someone in the labor market. The better the quality of human resources, the greater will the demand for these workers because the quality of competent human resources has high productivity.

Most of the contributions in this region come from industries, especially mining, and processing industries, so that most of the labor is employed in these sectors. It thus affects the ability or potential that must be possessed by the labor specifically in the sector that has high productivity. So, in this case the education level of the sector must have a minimum qualification standard equal to Senior High School (SMA) and be considered to have minimal competence and sufficient support. The results of this study indicated that the relationship between education levels was found to have a significant positive effect and it was proven that education greatly affected a person's tastes in the labor market (Ardiansyah, et al, 2017; Ali and Jalal, 2018).

Estimation results show that wages have a positive but not significant effect in influencing changes in employment. This is because in this region most industries use capital-intensive rather than labor-intensive use. This is also a consideration for companies that do not want to give too much wages to workers because it can be detrimental and burdensome for companies so they prefer to use capital-intensive. The ineffectiveness of wages is actually not so significant for some people who have expertise in certain fields in the industry, but can be detrimental for people with minimal expertise/ability (Bhorat, et al, 2012). This study is in line with research conducted by Jusman (2018) and Bhorat, et al, (2012) where the results of the study found that wages have a positive but not significant effect on employment opportunities. The results of this study differ from studies conducted by Avsar and Onaran (2010) that wages have a positive and significant impact on labor demand in Turkey.

RESEARCH IMPLICATIONS

The implication of the findings of this study shows that East Borneo, one of the provinces with a rich natural resources (SDA), is able to attract investors to invest in that province, the investment goes on the mining sector. So, this research provides the information for local governments to make improvements in the distribution of investment in order to be able to maximize the potential of each sector to employment.

Based on the findings of this study, it practically will provide benefits in terms of the application and improvement of production technology, where labor intensive is still the main choice in employment compared to capital intensive. In improving the quality of human resources, this must be a priority concern for the government in order to create a qualified and professional labor deal with what demands in the market. In addition, it can be an information for the importance of education to support one's ability to be able to be employee in a competitive market.

CONCLUSION AND SUGGESTION

Based on the results of this study, a conclusion and suggestion can be drawn as below:

1. Factors that have a significant influence on employment in East Borneo are investment, economic growth, and education level. Whereas, wages could not have an effect on employment in East Borneo.
2. The ability of investing to increase employment in East Borneo is still relatively low. This is because investments tend to be capital intensive investments and investment activities performed are more motivated to make purchases to add or replace capital goods to support the production process, especially in the mining sector.
3. The relationship between economic growth is in line with employment in the Province of East Borneo. In this case it is seen that if there is an increase in economic growth it will result in increased economic activity, and will lead to additional employment opportunities.
4. The level of education has a direct relationship with employment in the Province of East Kalimantan. This is due to the region having industries with high productivity so that the fulfillment of the need for workforce is oriented towards workers with a completed education level.
5. With investment alignments focused only on capital-intensive industries, the government needs to review policies in investment management. Management carried out by the government should be distributed equally, both capital-intensive and labor-intensive investment so as to be able to expand employment opportunities in East Kalimantan. In addition, the government also needs to develop other leading sectors, outside the mining sector, so that investment can attract investors in these sectors.

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