Determinants of Employment Level in Java Island Primary Sector

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Abstract

This study aims to analyze the factors that affect the level of employment in the primary sector in Java in 2015-2019. The variables used are the level of employment opportunities, the level of the provincial minimum wage, foreign investment, domestic investment, and the average length of schooling. The method used in this study is panel data regression analysis using Eviews 9 software. This study uses a combination of cross section data from six provinces in Java and time series data for 2015-2019. The results show that the appropriate panel data regression estimation model is the Fixed Effect Model (FEM) with an R_2 value of 0.932927. The WAGE Level (X1) and Average Length of School (X4) variables have a negative and significant effect on Employment Opportunity Rate. While the FI (X2) and DI (X3) variables have a positive and significant effect on Employment Opportunity Rate.

Keywords: *Primary Sector, WAGE Level, Investment, Average Length of School*

Abstrak

Penelitian ini bertujuan untuk menganalisis faktor- faktor yang mempengaruhi Tingkat Kesempatan Kerja pada sektor primer di Pulau Jawa pada tahun 2015-2019. Variabel yang digunakan yaitu Tingkat Kesempatan Kerja, tingkat Upah Minimum Provinsi, Penanaman Modal Asing, Penanaman Modal Dalam Negeri, dan rata-rata lama sekolah. Metode yang digunakan dalam penelitian adalah analisis regresi data panel menggunakan software Eviews 9. Penelitian ini menggunakan gabungan data cross section enam provinsi yang ada di Pulau Jawa dan data time series tahun 2015-2019. Hasil penelitian menunjukkan bahwa model estimasi regresi data panel yang sesuai adalah Fixed Effect Model (FEM) dengan nilai R_2 sebesar 0,932927. Variabel Tingkat WAGE (X1) dan Rata-rata Lama sekolah (X4) berpengaruh negatif dan signifikan terhadap Tingkat Kesempatan Kerja. Sedangkan variabel FI (X2) dan DI (X3) berpengaruh positif dan signifikan terhadap Tingkat Kesempatan Kerja.

Kata Kunci: Sektor Primer, Tingkat WAGE, Investasi, Rata-Rata Lama Sekolah

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INTRODUCTION

The progress and prosperity of an economy are determined by the magnitude of the development indicated by the change in its national output. Based on data from the Central Statistics Agency (BPS) Indonesia's economic growth rate has increased every year and this growth rate cannot be separated from the contribution of each region in Indonesia.

The growth of production of goods and services in an area within a certain time interval is projected by the growth of Gross Regional Domestic Product (GRDP) indicating the rate of economic growth. Java Island is an island that has a very large contribution to economic growth every year with a proportion of 58.33% which increased to 0.67% in 2019.

Arsyad (2010) argues that population growth is a factor that can affect economic growth where the more the number workforce means the more supply of labor. Decreased population growth in an area will result in changes in the age structure of the population which is marked by a decrease in the proportion of children under 15 years of age, which is then followed by an increase in the proportion of the working-age population and the elderly.

Based on the projection of Indonesia's population in 2015-2045, in 2019 Indonesia's population has reached 266.91 million people. Of these, more than 56% or 150 million people live on the island of java. Meanwhile, of the 6 provinces with the largest population, 5 of them are in java. This makes java island face new challenges which will have an impact on the demands for expanding job opportunities.

The Employment Opportunity Rate (EOR) shows the percentage of the workforce that is working. The higher the EOR, the higher the job opportunities. The employment opportunity rate is the percentage of the population aged more than 15 years who work in the total workforce. This variable is used to measure how much percentage of the workforce is working (central bureau of statistics, 2020).

The number of residents on the island of Java has increased is also followed by the number of the workforce from 2015-2019 which continues to increase. The development of number of unemployed in 2016 decreased by 249,344 people, while from 2017 to 2019 it increased to 685,443 people. While the overall Employment Opportunity Rate (EOR) in Java from 2015 to 2019 tends to be high, which is almost 95%.

Sukirno (2005) explains that in the Indonesian economy, the economic sector is grouped into three main groups, namely the primary, secondary, and tertiary sectors. The primary sector is a sector that includes livestock, agriculture, forestry, mining and quarrying, and fisheries. The secondary sector is a sector consisting of manufacturing, gas, electricity and water, and building industries.

While the tertiary sector is a sector that includes the hotel business, trade, restaurants, communications, transportation, finance, corporate services, rental, and other services (including government). Although the EOR in Java is relatively high, in reality, if it is broken down again based on the business sector, the level of employment in the primary sector has decreased.

Table 1. shows that although the EOR in Java is high, in reality, if it is broken down again based on the business sector, the level of employment in the primary sector in 2015-2019 has decreased and has the lowest level of the job

opportunity. In 2015, the level of employment in the primary sector in Java was 25% and continued to decline to 17% in 2019. This is different when compared to the secondary and tertiary sectors, which have increased employment opportunities. In 2015, the secondary sector had an employment rate of 24% which increased to 26% in 2019. Meanwhile, the tertiary sector had an employment rate of 46% in 2015 and increased to 57% in 2019.

Table 1. Development of Primary, Secondary, and Tertiary EOR in Java Island in 2015-2019 (percent)

	2015	2016	2017	2018	2019
Workforce	71,3	66,8	69,6	75,9	77,7
Primary Sector Labor	18,5	16,8	15,6	15,2	13,5
Secondary Sector Labor	17,8	16,8	18,1	19,1	20,9
Tertiary Sector Workforce	33,3	32,5	35,3	42,9	44,3
Primary Sector EOR	25,9467	25,1497	22,4138	20,0264	17,3745
Secondary Sector EOR	24,9649	25,1497	26,0057	25,1647	26,8982
Tertiary Sector EOR	46,7041	48,6527	50,7184	56,5217	57,0142

Source : BPS, 2020

The increase in the unemployment rate is caused by an imbalance in the growth of the labor force and the creation of job opportunities which is related to the demand for labor. The demand for labor is determined by factors such as wage levels, productivity, technology, capital facilities, and the quality of labor (Haryani, 2002).

The level of WAGE in Java has increased every year which occurs in all provinces in Java. DKI Jakarta became the province with the highest wage rate of 3.9 million in 2019, followed by Banten, East Java, DI Yogyakarta, and Central Java. An increase in the wage rate will be followed by a decrease in the number of workers causing unemployment.

On the other hand, a declining wage rate will be followed by an increase in job opportunities. This can be seen in figure 1. Sukirno (2007) explains that investment activities will encourage people to continue to increase job opportunities and economic activities, and increase community prosperity and national income to help reduce job opportunities in the form of investment capital.
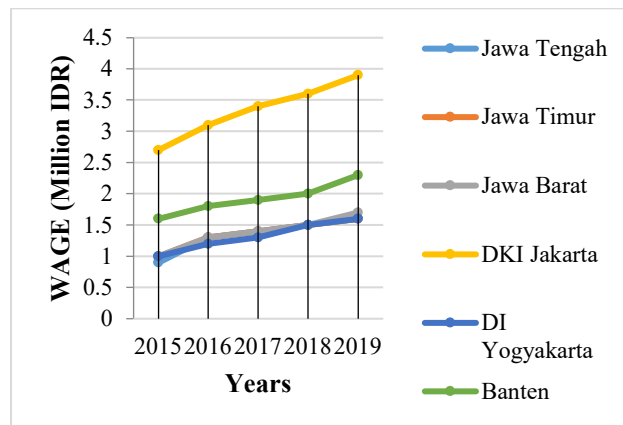

Figure 1. Development of Provincial Minimum Wage (WAGE) in Java in 2015-2019 (Million IDR)
Source: BPS, 2020

The investment makes production activities in development so as to create job opportunities and people's income will increase. The investment can be a starting point for the

success and sustainability of future development because it can absorb labor in the region (Danawati et al. 2015). Investments made by both foreign and domestic investments varied. Domestic investment has increased every year. This happens in all provinces on the island of Java.

Meanwhile, FDI occurred in several provinces that experienced a decline as investment destinations, namely Banten Province and East Java Province. However, data from BPS shows that the realization of existing investments is dominated by those in Java, which is 54% of the total investment. This shows that Java Island is still a special attraction for investors and has great potential for employment.
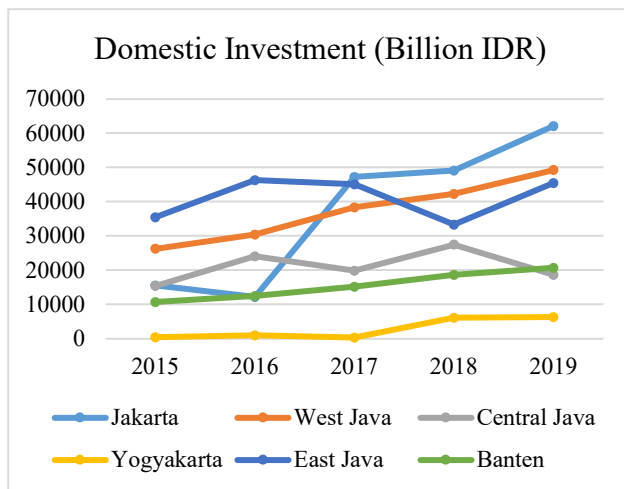

Figure 2. Development of DI (Domestic Investment) in Java Island in 2015-2019
Source: BPS, 2021

In addition to the level of wages and investment, educational factors also affect the level of employment opportunities. Todaro (2000) explains that human capital can be measured through health and education. The measurement of education indicators is carried

out by combining two components, namely the average length of the school and the literacy rate. The literacy component is too simplistic to measure the level of education because education is becoming more accessible to everyone.
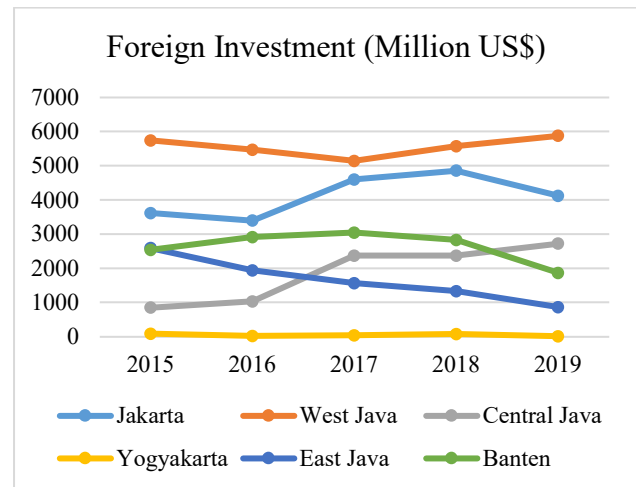

Figure 3. Development of Foreign Investment in Java Island in 2015-2019
Source: BPS, 2021

Figure 4 shows that the average length of schooling of residents in Java Island has increased every year, which is the case in all provinces in Java. So it can be explained that if a person's education is high, the skills and abilities they have are getting better. Higher education will provide more opportunities to get job opportunities in the economic sector. Fitriani, et al (2019) said that through education, a person would be able to carry out his role to maintain the work he has for development in the community.

Several previous studies have provided results regarding the employment opportunities that exist in Indonesia. Sihotang (2017) uses the variables of GDP, real wages, interest rates, inflation, and investment. The results show that

these variables affect employment opportunities in the agricultural sector simultaneously. Meanwhile, based on the partial test, the GRDP of the agricultural sector has a significant and positive effect on employment opportunities, real wages have a significant and negative effect on employment opportunities and investment interest rates have a significant and negative effect on employment opportunities in the agricultural sector in Jambi Province.
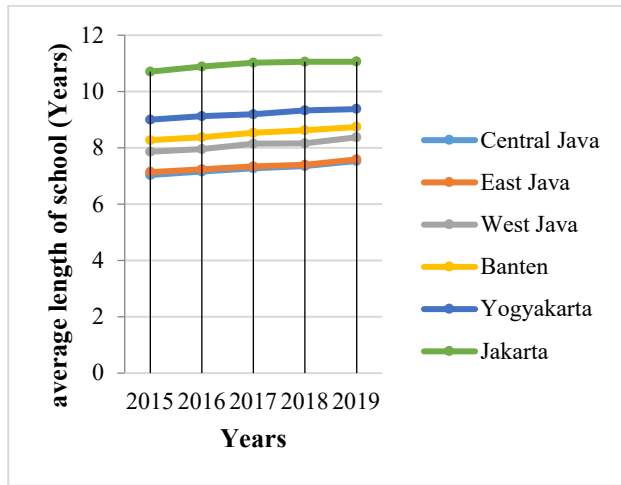

Figure 4. Average Years of Schooling (Years) in Java in 2015-2019
Source: BPS, 2021

Dona et al (2018) uses inflation, wages, and economic growth variables which explain that the three variables have a significant influence on employment opportunities. Ali (2017) uses the variables of wages, technology, and investment which shows that the level of wages, technology, and investment has a positive influence on employment opportunities. Utomo (2022) found that Human Development Index and economic growth have positive effect. Meanwhile, the minimum wage and unemployment rate have a negative and significant on labor absorption in Java Island.

The study was conducted to analyze and determine the effect of the minimum wage, foreign investment, domestic investment, and average length of school variables on the Job Opportunity Level in Java Island in 2015-2019.

RESEARCH METHODS

The type of data used is panel data which is a combination of cross section data and time series data. The number of observations in this study consisted of 6 provinces on the island of Java with a time series of 2015-2019. The analysis used in this study is panel data regression analysis to determine the effect of the WAGE, FI, DI level variables, and the average length of schooling on the level of job opportunities in the primary sector in Java in 2015-2019. The equation model in this study is:

$$EOR_{it} = \beta_0 + \beta_1 WAGE_{it} + \beta_2 FI_{it} + \beta_3 DI_{it} + \beta_4 LS_{it} + \mu_{it}$$
....(1)

Information :
Y　　:　Primary Sector Employment Opportunity Rate (EOR)
X1　:　Provincial Minimum Wage Level (WAGE)
X2　:　Foreign Investment (FI)
X3　:　Domestic Investment (DI)
X4　:　Average Length of School (LS)
i　　:　Six Provinces On The Island Of Java
t　　:　nth year (2015-2019)
μ　　:　error

This study uses a quantitative approach in the form of secondary data obtained from BPS, namely www.bps.co.id and related websites in the provincial governments of DKI Jakarta, West Java, Central Java, Banten, East Java, and DI

Yogyakarta. The data obtained include data on the workforce working in each sector and the number of the workforce as a proxy for the level of employment opportunities, WAGE, FI, DI, and the average length of schooling.

In analyzing panel data, this study uses several stages including first, the best model estimation using three approaches, namely the common effect model, fixed effect model, and random effect model through the Chow test and Hausman test. Second, test the classical assumption by conducting a normality test, and a multicollinearity test. Third, the goodness of fit testing, partial significance test, and interpretation.

RESULTS AND DISCUSSION

To find out the best model, the Chow test, Hausman test, and Lagrange multiplier test were carried out. After performing the Chow test and Hausman test, the best model was obtained, namely the Fixed Effect Model (FEM) approach. So the Lagrange multiplier test was not carried out. The panel data regression equation with the FEM model used is as follows:

$$EOR_{it} = 1,949376 - 0,00000146*WAGE_{it} + 0,000446*FDI_{it} + 0,000118*DI_{it} - 20,55124*LS_{it} + \mu_{it} \dots\dots(2)$$

Determination of R-Square serves to determine how much the ability of the independent variable in explaining or explaining the dependent variable. The value is between zero and one. If the value of R^2 that appears is close to one or one hundred percent, it can be interpreted that the variables provide almost all the information or can fully explain what is needed in predicting the variation of the dependent variable.

The results of R2 in this research model are 0.932927 which indicates that the WAGE, FDI, DI, and LS variables can explain the dependent variable, namely EOR by 93.29% while the remaining 6.71% is explained by other factors outside the model in this study. T test is used to determine how much influence one independent variable or independent variable in a model partially has on the dependent variable by assuming that the other variables are considered constant.

This test is done by comparing the results of the t-count with the t-table or the probability value with the alpha value. The criteria for testing the t-test at the level of = 5% or 0.05. The way to get the t-table value is to know the degree of freedom (df). The value of df is obtained from n – k, which is 30 – 5 = 25. Then the t-table is 1.70814 or -1.70814.

The t-count value is obtained from the output of EViews 9 while the t-table value is obtained from the t-table. H_1: If t-count > t-table, H_1 is accepted, this indicates that the independent variable has a significant effect on the dependent variable partially.

Table 2. Fixed Effect Model Panel Data Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
WAGE	-1.46E-06	8.82E-06	-0.865587	0.0001
FDI	0.000446	0.001597	6.279259	0.0129
DI	0.000118	0.000141	3.835985	0.0030
LS	-20.55124	11.75342	-0.748533	0.0007
C	194.9376	88.41474	2.204809	0.0393

Source: Data Processed, 2021

The research hypothesis states that the WAGE level variable has a negative effect on the

Employment Opportunity Rate (EOR) in the primary sector in the six provinces in Java, which the results of this study are in line with the hypothesis. This shows that the development of the WAGE level in the Provinces of DKI Jakarta, DI Yogyakarta, Central Java, East Java, West Java, and Banten has a negative and significant effect on the level of employment opportunities.

This is because the influence of wages on EOR is not unidirectional, where an increase in wages will reduce EOR in the primary sector, especially workers whose productivity is low or vice versa, besides that, wages in the primary sector are below the applicable minimum wage standard.

So that it has an impact on decreasing output growth and at the end job opportunities are not created. Furthermore, this result in Dona and Muliati (2018) also found that wages have a significant effect on employment rates in Samarinda City. In other research, Habanabakize et al., (2019) found that wages have a significant and negative effect on employment rates in South Africa.

Table 3. Partial Significance Test Results or t-Test

Variable	T-Calculate	T-Table	T-Test Results (significant/insignificant)
WAGE	-0.865587	-1,70814	Significant
FDI	6.279259	1,70814	Significant
DI	3.835985	1,70814	Significant
LS	-0.748533	-1,70814	Significant

Source: Output using E-Views 9

In wage theory, the minimum wage can prevent workers in monopsony markets from exploiting labor, especially those who are low-skilled. Minimum wages can increase labor productivity and reduce the consequences of unemployment as predicted by conventional economic theory. Employment theory explains that the lower the wage, the higher the demand for labor. If the demand for wages is high, employers will look for other workers with lower wages.

This condition is caused by many factors, including the large number of workers entering the labor market, wages, and skills possessed by these workers. According to Prisono (2006) wages are seen as a reward to workers as remuneration for the output produced, while the minimum wage is the lowest wage that is calculated as the basis for providing wages that can be used for the survival costs of workers according to the level of their needs.

An increased wage level will affect the increase in production costs, as a result, to make efficient, companies are forced to reduce labor, which results in low levels of job opportunities. So that the wage level has a negative effect on employment opportunities (Simanjuntak, 2002). In economic theory, there is no distinction between payments for the services of professional workers and payments for the services of unskilled and precarious workers. The two types of workers' income are called

wages. So that the wage level has a negative effect on job opportunities (Sukirno, 2010).

Based on the second hypothesis proposed in this study, explains that the FDI variable has a positive influence on EOR in the primary sector. The results of the study are in line with this hypothesis where FDI has a positive and significant effect on EOR. This means that FDI affects the Employment Opportunity Rate due to the unidirectional influence of FDI on EOR, where an increase in FDI will increase EOR in the primary sector.

This is because foreign investment carried out on the island of Java has begun to shift to areas outside Java, especially in 2019. This research is supported by research by Danawati et al (2016) which results in FDI having a positive and significant effect on job opportunities. The existence of investment will be able to create new jobs and expand job opportunities that will absorb labor so as to reduce the unemployment rate in an area and increase job opportunities.

In addition, it is also supported by research by Awandari and Indrajaya (2016) which shows that FDI has a positive and significant effect on job opportunities. This is due to an increase in the realization of FDI but also a decrease in employment. Based on the investment theory by Harrod-Domar which is a combination of the opinions of the classics and Keynes, investment activities carried out in an area can increase employment so that job opportunities can be created.

Capital formation is considered as an expenditure that will increase the ability of an economy to produce goods and or services, as well as an expenditure that will increase the effective demand of the whole society. The existence of investment in the community will first provide and increase job opportunities so

that people's income will also increase. Creating job opportunities through increasing capital in each development activity, will have a positive impact on the development of total employment.

Changes or increases in investment will of course be followed or offset by an increase in labor, thus any additional investment will certainly change the quantity of labor. so this research is in line with the existing theory. The increase in FDI causes a decrease in employment. This can happen if you look at the nature of investments that make new contributions, that the increase in FDI has a positive effect on job opportunities.

The capital-intensive-oriented investment will have an impact on decreasing employment. However, if the investment is labor-intensive, employment opportunities will fluctuate (Budiarto and Dewi, 2015). The initial hypothesis states that DI has a positive influence on employment opportunities. This is in accordance with the output of this study which shows that the DI variable has a significant positive effect on the level of employment opportunities.

The increase in DI in the 2015-2019 period in Java has also increased the Employment Opportunity Rate in the primary sector. The results of this study are in line with Eliza's (2016) research which conducted partial and simultaneous DI testing and had a good and significant effect on job opportunities in Indonesia. This means an increase in employment opportunities related to investment as an indicator of development. This case is connected with income and job opportunities and development will be much better.

Domestic investment has a negative effect on job opportunities because the investment

value given is more to the capital-intensive sector than the labor-intensive sector in Central Java. Domestic investment originating from the government is more oriented towards the development of sectors that absorb labor. So it is not able to increase job opportunities for the community such as spending on public facilities, spending on education, and teaching.

According to Harodd-Domar in investment theory, investment not only creates demand but also increases production capacity. The use of labor, which is one of the factors of automatic production, will be increased. Furthermore, the development of investment reflects the rampant sluggish development. Thus, every country tries to create an investment climate, especially private investment that can help create jobs so that it can increase job opportunities (Dumairy, 2007). So that this research is in line with the existing theory.

The initial hypothesis states that the average length of schooling has a positive effect on the Employment Opportunity Rate. This shows that the output of the research is not in line with the hypothesis that the variable average length of schooling has a significant negative effect on EOR in the primary sector because it has a non-unidirectional relationship. This is because the average length of schooling for residents on the island of Java in the period 2015 to 2019 is still below the minimum standard set by the government, which is 12 years of compulsory education, although it tends to increase every year.

The results of this study are not in line with research by Rahmawati (2014) which states that a person's education has a significant influence on job opportunities. The higher the education, the more job opportunities will open. In addition, Hong and Zimmer (2016) confirms that the importance of a person's level of education so that it will also increase job opportunities. The concept of Human Capital Theory requires competent Human Resources (HR).

Human capital is a very important element of intellectual because it can create competitiveness. Human capital has a strong driving force in improving individual productivity, as well as improving performance through the ability of Human Resources (HR) in distributing knowledge (soft skills), being skilled and professional at work, and able to build relational values so that this research is in line with the existing theory.

CONCLUSION

From the research that has been done, it can be concluded that factors that affect the level of employment in the primary sector on the island of Java, there are few conclusions that can be drawn.

The Provincial Minimum Wage Level (WAGE) has a negative and significant influence on the Employment Opportunity Rate (EOR) in the primary sector in Java. Investment Foreign Direct Investment (FI) has a positive and significant influence on the Employment Opportunity Rate (EOR) in the primary sector on the island of Java.

Domestic investment (DI) has a positive and significant impact on the Employment Opportunity Rate (EOR) in the primary sector on the island of Java. Average Years of Schooling has a negative and significant effect on the Employment Opportunity Rate (EOR) in the primary sector on Island Jawa.

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