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Human Development and Gross Regional Domestic Product

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Abstract

The aims of this study were to determine the effect of labor, human development index, minimum wages, and investment on Gross Regional Domestic Product in 5 districts there are Banjarnegara, Purbalingga, Banyumas, Cilacap, Kebumen (Barlingmascaeb) in the period 2013 – 2019. The method used in this study was panel data regression analysis. While the data used is panel data consisting of cross-sectional data from five districts throughout Barlingmascakeb and time series data from 2013 to 2019. The results of this study were labor, human development index, and minimum wage variable has a positive and significant effect on the GRDP of 5 regencies in Barlingmascakeb, while the Investment variable has a negative but insignificant effect on GRDP in the regency of Barlingmascakeb in the period 2013 - 2019

Keywords: *GDRP, Labor, Human Development Index, Minimum Wage, Investment*

Abstrak

Tujuan penelitian ini adalah untuk mengetahui pengaruh tenaga kerja, indeks pembangunan manusia, upah minimum kabupaten, dan investasi terhadap Produk Domestik Regional Bruto di 5 kabupaten se – Barlingmascakeb pada periode 2013 – 2019. Metode yang digunakan dalam penelitian ini adalah analisis regresi data panel. Sedangkan data yang digunakan adalah data panel yang terdiri dari data cross-section dari lima kabupaten se - Barlingmascakeb dan data time series dari tahun 2013 sampai dengan 2019. Hasil dari Penelitian ini adalah variabel tenaga kerja, upah minimum kabupaten, dan indeks pembangunan manusia, memiliki pengaruh secara positif dan signifikan terhadap PDRB 5 kabupaten se – Barlingmascakeb, sedangkan variabel Investasi berpengaruh secara negatif dan tidak signifikan terhadap PDRB kabupaten se – Barlingmascakeb pada periode tahun 2013 – 2019

Kata Kunci: PDRB, Tenaga Kerja, Upah Minimum Kabupaten, Investasi

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INTRODUCTION

Economic growth is still the main indicator in determining or measuring the economic success of a country. Economic growth is the process of a country increasing the production capacity of goods and services in its country from time to time with the aim of generating a greater level of national income. (Todaro, 2004). In other words, economic growth seen from the increase in production illustrates the improved economic welfare of the national income indicator which is getting bigger than the consumption spending.

Economic growth is also driven by economic growth generated in each region. Similar to the country's economic growth, regional economic growth can be seen from the value of GRDP (Gross Regional Domestic Product). The value of goods and services produced in an area in a certain period using the production factors owned is the benchmark of GRDP. One way to increase growth that has been carried out is regional autonomy, which basically aims to streamline the policies of each region.

Table 1. Central Java GRDP Growth Rate by Regionalization 2013 – 2019

Year	2013	2014	2015	2016	2017	2018	2019	Average
Central Java	5.11	5.27	5.47	5.25	5.26	5.31	5.41	5.30
Barlingmascakeb	4.78	4.91	5.86	5.29	5.02	5.22	5.10	5.17
Subosukawonosraten	5.86	5.43	5.56	5.43	5.67	5.70	5.74	5.63
Kedungsepur	5.76	5.21	5.60	5.27	5.90	5.47	5.40	5.52
wanakurti	5.24	4.63	5.00	4.36	4.76	4.94	4.99	4.84
Bregasmalang	5.97	5.22	5.62	5.48	5.44	5.72	5.41	5.55
Petanglong	5.92	5.25	5.07	5.19	5.65	5.58	5.75	5.49
Purwomanggung	5.22	4.93	5.11	5.23	5.07	5.21	5.35	5.16
Banglor	5.39	4.77	5.43	14.41	6.48	5.15	4.62	6.61

Source: BPS Central Java GRDP Growth Rate, 2020

Central Java Province consists of 35 regencies/cities that have different backgrounds between regions. This difference is in the form of natural, social, economic, and natural resource characteristics that differ from one another. Therefore, what is needed is a policy that encourages the development of regional economic growth centres. Through Regional Regulation of Central Java Province No. 6 of 2010 concerning the Regional Spatial Plan of Central Java Province for 2009 – 2029 (Local Government of Central Java Province, 2010).

Central Java Province is divided into eight regional cooperation systems (regionalization), based on aspects of similarity in nature, geography, potential, economic and administrative structure to be grouped into National Activity Centers (PKN), Regional Activity Centers (PKW), and Activity Centers Local (PKL).

Banjarnegara, Purbalingga, Banyumas, Cilacap, Kebumen (Barlingmascakeb), Kendal, Demak, Semarang City, Semarang Regency, Salatiga, Gobogan (Kedungsepur), and

Surakarta, Boyolali, Sukoharjo, Karanganyar, Wonogiri, Sragen, Klaten (Subosukowonosraten) fall into the category PKN, Jepara, Kudus, Pati (Wanakurti), Brebes, Tegal City, Tegal Regency, Pemalang (Bregasmalang), and Pekalongan Regency, Pekalongan City, Batang (Petanglong) are included in the PKW category, as well as Purworejo, Wonosobo, Magelang City, Magelang Regency, (Sani et al., 2018)

Table 2. District GRDP in Barlingmascakeb 2013 – 2019

	Cilacap	Banyumas	Purbalingga	Banjarnegara	Kebumen
2013	81.022.670,26	27.793.138,47	12.778.311,23	11.043.083,01	14.333.333,50
2014	83.391.500,18	29.367.687,40	13.397.712,78	11.629.845,85	15.163.091,84
2015	88.357.606,68	31.164.876,40	14.130.612,26	12.266.046,35	16.115.554,01
2016	92.858.649,84	33.051.046,65	14.816.429,63	12.932.884,85	16.923.719,54
2017	95.254.586,70	35.147.313,30	15.612.285,90	13.663.266,65	17.794.789,30
2018	98.159.047,56	37.414.500,58	16.458.708,49	14.438.149,74	18.777.048,50
2019	100.445.727,17	39.779.320,86	17.387.941,84	15.246.865,66	19.825.062,62

Source: BPS, 2020

The average value of the GRDP growth rate during 2013 - 2019 three regions have an average GRDP growth rate that is not so good because it is below the average GRDP growth rate of Central Java, which is 5.30%. Of the three regions, one of them is included in the PKN (National Activity Center) group, namely Barlingmascakeb, which only has an average growth rate of 5.17%. It is expected to become a centre of national-scale economic activity but has a GRDP growth rate below the average—Central Java average (Central Java Statistics Agency, 2020).

On average, the GRDP of districts throughout Barlingmascakeb has increased continuously from 2013 - 2019, with the largest being Cilacap Regency and the lowest being Banjarnegara Regency. This condition indicates that there is still a large GRDP gap between the district with the highest GRDP and the district with the lowest GRDP in Barlingmascakeb.

Todaro and Smith (2006) said that three main factors influence economic growth in an area: capital accumulation, population growth, and technological progress. Fitriani (2018) said that although many factors influence economic growth, classical economists emphasize more on the effect of population growth on economic growth.

The theory that links labour with economic growth is Adam Smith's theory that human resources are the main production factor in determining the prosperity of a country. In addition to the factor of the number of people working, of course, the quality of human resources itself is one of the most important capital in the plan to increase the expected economic growth of an area called the Human Development Index.

High productivity can encourage output growth, which is seen by the higher GRDP value. Human capital is the quality of human

resources capable of being an individual selling point in the labour market (Sitepu et al., 2009). Kuncoro (2019) said that GRDP growth in an area is also influenced by the determination of the district minimum wage to encourage increased income and productivity of workers or labourers and increase production growth.

Because the low minimum wage will affect the low productivity of labour to produce goods or services. Suppose the district/city has a high minimum wage level. In that case, it will have an impact on the increase in the Gross Regional Domestic Product (GDP) of the area with the assumption that an increase in the community's minimum wage will increase the level of public consumption..

On the other hand, an increase in the minimum wage can increase the production output. An increase in the level of productivity will impact increasing the Gross Regional Domestic Product (GDP) of a region and then have an impact on economic growth. The accumulation of capital also encourages and accelerates the rate of GRDP growth of a region.

Investment and economic growth are inseparable and interrelated. The greater the investment, the greater the economic growth achieved (Prasetyo, 2009). Investment activities enable the community to continue increasing economic activities and employment opportunities, increasing national income, and increasing community prosperity (Sukirno, 2008). The aim of this study is to analyze determine the effect of labor, human development index, minimum wages, and investment on Gross Regional Domestic Product in Barlingmascaeb in 2013 – 2019.

RESEARCH METHODS

This research is a quantitative study using secondary data. The data is obtained from statistical data and other documents related to research from several sources. The type of data used is panel data, which is a combination of time series data and cross section data. (Gujarati, 2012). The number of observations in this study consisted of time series data from 2013 to 2019 as well as cross data from five districts throughout Barlingmascakeb, namely Banjarnegara, Purbalingga, Banyumas, Cilacap, and Kebumen.

The data used in this study came from several sources, namely: labor data, human development index, and district minimum wages obtained from the Central Statistics Agency (BPS) of Central Java. The investment data was obtained from the Central Java DPMPTSP publication. The formulation of the model used to determine the effect of labor (LABOR), human development index (HDI), district minimum wage (WAGES), and investment (INV) on GRDP of 5 districts throughout Barlingmascakeb in 2013-2019 is written as follows:

$$LogGRDP_{it} = \beta_{0it} + \beta_1 LogLABOR_{it} + \beta_2 LogHDI_{it} + \beta_3 WAGES_{it} + \beta_4 LogINV_{it} + e_{it} \dots\dots\dots(1)$$

The model is estimated using a linear logarithm because it has several advantages. It produces a coefficient which is also the elasticity of each independent variable to the dependent variable. Non-linear effects by a log-linear function and the normal distribution of random error values in the equation. Most studies' use of models in log-linear estimation aims to ensure that the data is normally distributed.

In this study, there are three approaches: Common Effect, Fixed Effect or Least Square Dependent Variable (LSDV), and Random Effects. We use Chow test and Hausman test to determine the best approach model. The next step is to test classical assumption to ensure that the resulting regression estimation model is Best Linear Unbiased Estimator (BLUE).

RESULTS AND DISCUSSION

This study has three-panel data estimation models: the common effect model, the fixed-effect model, and the random effect model. This study analyzes the effect of beef prices, chicken meat prices, chicken egg prices, per capita GRDP, and population on beef demand in Java. The results of the three-panel data estimation models can be seen in table 3.

There are two stages of testing in this study to select the model. The first stage is a Chow test to find the best model between the common effect model and the fixed effect model. The second stage is the Hausman test to find the best model between the fixed effect model and the random effect model. The results of the two tests can be seen in table 4.

Table 4 shows the cross-section F value of 2189.953639 with a probability of 0.0000 and significant to = 5%. With this value, Ho is rejected, and H1 is accepted. We use a fixed-effect model because the probability value of cross-section F is <0.05. Table 5 shows that the random cross-section value is 8111.238545 with a probability of 0.0000 and significant against = 5%. With this value, Ho is rejected, and H1 is accepted, so it can be decided that the chosen model is a fixed effect model because the probability value of random cross-section is <0.05.

Based on the model selection test that has been carried out, the best model decision making in estimating the influence of labour, human development index, district minimum wage, and investment in GRDP of 5 districts throughout Barlingmascakeb in 2013 - 2019 using the fixed effect model. The equation for the fixed effect model is as follows:

$LOGGRDP_{it}$ = -6,306217 $_{it}$ + 0.377791$LOGX1LABOR_{it}$ + 4.016098$LOGX2HDI_{it}$ + 0.099989$LOGX3WAGES_{it}$ -0.926215$LOGINV_{it}$ ++ e_{it}...(2)

The results of the regression output in table 3 show the R2 value of 0.999267 in the fixed effect model, this means that the variation of the dependent variable (GRDP) can be explained by the variation of the independent variable, namely labor, human development index, district minimum wage, and investment together are 99.9%. While the remaining 0.1% is explained by other variables outside the model.

The output results in table 3 on the fixed-effect model show the F-statistic value of 4428,710 and obtained F table of 2.69. Based on this value Fcount > Ftable (4428,710>2.69) and the prob value of F-statistic < (0.000000 < 0.05), then Ho is rejected, and H1 is accepted. labour, human development index, district minimum wage, and investment significantly affect GRDP in 2013-2019.

T-test was conducted to determine whether the independent variables partially affect the dependent variable. The test compares the probability value or p-value with the significance level used. If the p-value obtained is

smaller than H1, then reject Ho, which means with a confidence level, it can be concluded that the independent variable partially affects the dependent variable, and vice versa.

Table 3. Estimation Results of Panel Data Model with Common Effect Model, Fixed Effect Model, and Random Effects Model Approach

No.	Variable	Model		
		Common	Fixed	Random
1	Constant	4.720546	-6,306217	7.008297
	(Probability)	(0.4079)	(0.0024)*	(0.0000)*
2	Labor	2.383107	0.377791	2.751723
	(Probability)	(0.0000)*	(0.0000)*	(0.00000)*
3	Human Development Index	-6.932226	4.016098	-9.142346
	(Probability)	(0.0033)*	(0.0000)*	(0.0000)*
4	District Minimum Wage	0.658192	0.099989	0.804902
	(Probability)	(0.0002)*	(0.0010)*	(0.0000)*
5	Investation	0.053198	-0.000898	0.062386
	(Probability)	(0.00000)*	(0.3629)*	(0.00000)*
6	R2	0.793048	0.999267	0.813869
7	Adj R2	0.765454	0.999041	0.789051
8	Std.Error	0.328923	0.020130	0.339984
9	F-Stats	28,74027	4428,710	32.79418
10	Prob (F-Stats)	0.000000*	0.000000*	0.000000*

Information: * Significant to $\alpha = 5\%$

Source: E-Views 9.0 output result, 2021

The test results on the labour variable show that the value of t – statistic > t – table is 5.034875 > 1.69726, and the value o is positive. The labour variable has results according to the hypothesis, which has a significant positive effect on GRDP in 5 districts throughout Barlingmascakeb. The test results on the human development index show that t value – statistic > t value – table that is 11.35871 > 1.69726 and the t-statistical value of the human development index variable is positive so that the human development index variable has results according to the hypothesis, which has a significant positive effect on GRDP in 5 districts throughout Barlingmascakeb.

Table 4. Test results Redundant Fixed Effect-Likelihood Ratio (Test Chow)

Effect Test	Statistics	Prob.	Results
Cross-section F	2189.953639	0.0000	Chow Test Selecting Fixed Effect Model (FEM)

Signification $\alpha = 5\%$

Source: E-Views 9.0 output result, 2021

The test results on the investment variable show that the value of t – statistic < t – table, i.e. 0.926215 < 1.69726 and has a negative sign, so the investment realization variable is not under the hypothesis, which means that the investment variable has an insignificant negative effect on GRDP in 5 districts throughout Barlingmascakeb. Based on the empirical results above, it can be seen that the labour variable has a significant positive impact on the GRDP of 5 districts in Barlingmascakeb at a 5% significance level. The regression coefficient value of the labour variable is 0.377791. One percent increase in the number of workers, the average GDP will increase by 0.377791% with the assumption of ceteris paribus.

Table 5. Test Results Correlated Random Effects – Hausman (Test Hausman)

Test Summary	Chi-Sq. Statistics	Prob.	Results
Cross-section random	8111.238545	0.0000	Hausman Test Selecting Fixed Effect Model (FEM)

Significance: α = 5%

Source: E-Views 9.0 output result, 2021

The creation of new job opportunities can absorb labor so as to increase production capacity which has an impact on high output results in gross regional domestic product and will ultimately increase the income of a region as well. Todaro (2004) in Windayana and Darsana (2020) said that population growth and labor force growth are considered as one of the positive factors that spur economic growth.

For variable human development index in the district of barlingmascakeb has a significant positive effect on the value of the gross regional domestic product of the district of Barlingmascakeb. This result indicates by the regression coefficient value of the human development index of 4.016098. Thus, if the human development index increases by 1%, gross regional domestic product value will also increase by 4.016098%.

Table 6. T-Statistics Test Results

Variable	Regression Coefficient	Std. Error	t-statistics	t-table	Conclusion
Labor LOG	0.377791	0.075035	5.034875	1.69726	Significant
HDI LOGS	4.016098	0.353570	11,35871	1.69726	Significant
MSE LOG	0.099989	0.026932	3.712720	1.69726	Significant
Investment LOG	-0.000898	0.000969	-0.926215	1.69726	Not significant

Source: E-Views 9.0 Output Results, 2021

The results of this study follow the theory Sollow-Swan Prasetyo (2009:251), which states that human capital is one of the most essential factors in a country's economic development because the more qualified a country's human resources are, the better the productivity and output will be. Todaro and Smith (2006) state that the way to accelerate economic growth is to

save and invest in human capital. Due to the high and sustainable economic growth for years to come, this is due to the role of quality human resources.

It is necessary to develop human resources that have high competitiveness to have good productivity later. It affects the increase in the value of GRDP, which then encourages economic growth to increase as well. Kusumastuti (2017), states that the human development index has a positive and significant influence on gross regional domestic product value. The higher the value of the human development index, the economic growth in the area will increase significantly.

Based on the estimation results in table 6, the district minimum wage variable in 5 districts throughout Barlingmascakeb has a significant positive effect on the value of gross regional domestic product 5 districts in Barlingmascakeb. This number indicates that the regression coefficient of the minimum wage are 0.099989. Thus, if the minimum wage increases by 1%, the gross regional domestic product value will also increase by 0.099989 %, assuming ceteris paribus.

Like the theory put forward by Keynes regarding the consumption theory, namely when there is an increase in income, it will affect the increase in public consumption, so that in the end it will have an impact on increasing consumption in regional aggregates and also on the value of gross regional domestic product and economic growth. In addition, Adam Smith put forward the theory of minimum wages, namely in determining the wages of workers, the thing that needs to be considered is the cost of a decent living for workers so that their needs are met properly, therefore they can loyally carry out consumption activities.

This research is in line with Rozi (2018) which states that the district minimum wage has a significant positive effect on gross regional domestic product. Investment variables in 5 districts throughout Barlingmascakeb have a negative influence not significant to the value of the gross regional domestic product of 5 districts in Barlingmascakeb. This result indicates by the value of the investment realization regression coefficient of -0.004697.

Thus, if the investment realization increases by 1%, the gross regional domestic product value will decrease by 0.004697%, assuming ceteris paribus, in contrast to the research conducted by Norlita (2018) state that investment returns have a positive effect on GRDP growth. In general, investment realization has a positive effect on gross regional domestic product because the increase in investment is in line with the increase in the value of GRDP, which will impact economic growth.

As the theory put forward by Solow-Swan regarding the most important factors influencing economic growth, one of which is the stock of capital, namely investment. However, the results of this study show different results that investment does not have a significant and negative impact on Gross Regional Domestic Product. Bado (2016) states there is still a disparity in investment value between districts. In 5 districts throughout Barlingmascakeb, the realization value of the investment in Cilacap Regency and Banyumas Regency was higher than the investment realization value of other districts.

Then the next factor is that the extractive sector dominates the investment value, such as mining product processing and manufacturing, which uses more technological tools. To accelerate the increase in production

capabilities to reduce employment because human labour is replaced by technology for heavy production equipment. As data shows that the sector that contributes the highest to GRDP in the Barlingmascakeb area is the manufacturing/processing industry sector with a value IDR 87,623,695,400,000.00 from the total value GRDP Barlingmascakeb area there are IDR 192,557,629,880,000.000.

CONCLUSION

Based on the results of the research and discussion, it can be concluded that the labor variable, the human development index, the district minimum wage, have a positive and significant effect on the GRDP of 5 districts in Barlingmascakeb. While the investment variable has a negative and insignificant effect on the GRDP of 5 districts in Barlingmascakeb in the period 2013 - 2019.

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