ANALYSIS OF FACTORS AFFECTING GRDP IN THE AGRICULTURAL SECTOR IN EAST JAVA PROVINCE

Dhea Amelia Putri Kamila[1], Sishadiyati[2]
[1, 2] Faculty of Economics and Business, Universitas Pembangunan Nasional "Veteran", Jawa Timur
Email Correspondence:putrikamila200@gmail.com

Abstract

East Java Province is a province that is one of the largest agricultural commodity producing areas in Indonesia. The agriculture, forestry and fisheries sectors are sectors that drive economic growth in East Java because they have contributed greatly and provided supporting capacity for other sectors. The number of agricultural sector workers in East Java Province is the highest in Indonesia, however, with this high workforce, the GDP of the agricultural sector in East Java experiences a slow increase every year. The decline in the area of rice fields and the rise and fall of domestic investment (PMDN) in the agricultural sector can also affect the value of GRDP growth in the agricultural sector in East Java. This research aims to determine the influence of agricultural sector labor, rice field area, domestic investment (PMDN) in the agricultural sector on GRDP in the agricultural sector in East Java Province. This research uses a quantitative method using secondary data from 2002 to 2022. The method used is multiple linear regression analysis using the SPSS 23 application. The results of this research show that agricultural sector labor has a significant negative influence on the agricultural sector's GRDP while the area paddy fields and domestic investment have no influence on the GDP of the agricultural sector. However, simultaneously the workforce in the agricultural sector, the area of rice fields, domestic investment influence the GRDP in the agricultural sector of East Java Province.

Keywords: ***GRDP; Agricultural Sector; Labor; Rice Field Area; Domestic Investment***

1. INTRODUCTION

Economic growth is an indicator that can be used as a parameter in determining the success of economic development. The existence of high economic growth will facilitate the process of economic development, likewise, an economic development process will also cause increased economic growth. Economic growth in regional settings usually refers to the development of goods and services production activities by the community which is measured through Gross Regional Domestic Product (GRDP) which is based on constant price increases.(Gita Srihidayati and Suhaeni, 2022). GRDP has a value that interprets the extent of a region's ability to manage its sector resources. One of the provinces in Indonesia that has the largest agricultural sector potential in Indonesia is East Java Province. The agricultural sector owned by East Java Province is a source of food security for the Indonesian population as well as a supporting sector for other sectors, namely as a provider of input which can later influence economic growth.(Ines Paramithasari, Sri Widayanti, Nuriah Yuliati, 2021). Currently, the GRDP in the agricultural sector of East Java Province tends to grow slowly but continues to increase every year. The slow growth of the agricultural sector is caused by changes in economic patterns in East Java Province, which started from the primary sector to the secondary and tertiary sectors, therefore currently the agricultural sector is the focus of attention in national and regional development because it concerns the availability of food commodities for citizens. Indonesia. Labor, area of rice fields and capital stock are of course very necessary to support improved development in the agricultural sector which is expected to increase the GDP in the agricultural sector.

Graphics1. Percentage of Labor in the Agricultural Sector, Area of Rice Fields, and PMDN in the Agricultural Sector on GRDP of East Java Province 2017 - 2022

In the graph of the development of GDP values for the agricultural, forestry and fisheries sectors above, it can be seen that in the last six years, the agricultural, forestry and fisheries sectors have tended to grow at a slower pace. The slowdown in the agricultural sector's GRDP contribution that has occurred is a result of economic structural changes that have shifted from a traditional agricultural economy centered in rural areas to a modern industrial economy centered in urban areas.(Mustahuinningsih, Walid and Subagarta, 2020).This is in accordance with the development theory presented by WW Rostow regarding agriculture, where agriculture has an important role in the first level of WW Rostow's economic growth, namely traditional society.(Suryono, 2023). The reduced role of agriculture could be caused by new societal thinking, one of which is the transformation from agriculture to a more advanced sector.

The slowdown in the contribution of the agricultural sector is of course influenced by labor factors, where in the graph the labor force fluctuates.Fluctuations in the condition of the workforce could be caused by a shift in the production sector from the primary sector (agriculture) to the secondary sector (industry) and the service sector which resulted in changes in the composition of the workforce which initially made their living in the agricultural sector, gradually shifting to the industrial, trade, and industrial sectors. and services.Apart from that, the level of PMDN investment for the agricultural sector also fluctuates. In fact, investment can enable residents to carry out economic activities and increase employment opportunities.Increasing domestic capital has an important role in increasing the GRDP of the agricultural sector so that it is hoped that it can contribute more to increasing economic growth in East Java Province.This low level of investment cannot be separated from the reduction in the area of rice fields that is occurring in East Java Province. Rice fields here have an important meaning for farmers because rice fields are a medium for growing food. As time goes by and the development of the times, development changes and increasingly high population growth have caused the existence of rice fields in East Java Province to be threatened.(Firmansyah, Yusuf and Argarini, 2021). Therefore, if the contribution of labor factors, area of rice fields, PMDN investment is stable then it can help increase the GRDP of the agricultural sector. This research was conducted to determine the influence of agricultural sector labor, the area of rice fields, and domestic investment (PMDN) in the agricultural sector on the GRDP in the agricultural sector of East Java Province.

2. IMPLEMENTATION METHOD

2.1 Research sites

East Java Province was used as a research area on the basis of the province having the largest GDP in the agricultural sector in Indonesia

2.2 Data and data sources

The data used in this research includes GRDP data based on constant prices in the agricultural sector, agricultural sector labor, rice field area and domestic investment (PMDN) in the agricultural sector of East Java Province during the 2002-2022 period. The data used in this research comes from secondary data obtained from the Central Statistics Agency (BPS) and National Single Window Investment (NSWI)

2.3 Data analysis

Data analysis in this research was carried out using quantitative analysis methods. Quantitative analysis is used forknow the influence of each variable used

2.4 Multiple Linear Regression Analysis

This research uses a multiple linear regression analysis method, meaning a regression model that links several independent variables in a study. The variables used in this research are agricultural sector labor (X1), rice field area (X2), and domestic investment (PMDN) (X3) to Gross Regional Domestic Product (Y) which have the following equation:

$$\text{PDRB SP} = \alpha + \beta_1 \text{TKP} + \beta_2 \text{LLS} + \beta_3 \text{PMDN SP} + e$$

Information:

GRDP SP = Gross Regional Domestic Product of the Agricultural Sector
α = Constant
Kindergarten = Agricultural labor
HDI = Area of Rice Fields
PMDN SP = Domestic Investment in the Agricultural Sector
β1-β3 = Regression Coefficient Value
e =*Term Error*

3. RESULTS AND DISCUSSION

3. RESULT

Multiple Linear Regression Analysis Test Results

3.1 Autocorrelation Test

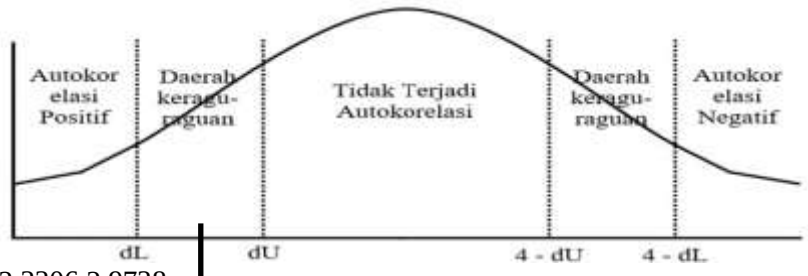
Table1. Autocorrelation Test Results

DW	dL	dU	4-dL	4-dU	Criteria	Decision
1,487	1.0262	1.6694	2.9738	2.3306	dL ≤ DW ≤ dU	Does not produce definite conclusions

Source: Author, data processed 2024

The following is the identification of autocorrelation which can be seen through the curve below:

Graphics2. Durbin Watson Statistical Curve



1.0262 1.6694 2.3306 2.9738

DW Test 1,487

Source: Author, data processed 2024

So to ensure its correctness, a runs test will be carried out. The basis for making decisions on test runs is to obtain the Asymp value. Sig. (2-tailed) > 0.05.

Table2. Test results*Test Runs*

Asymp. Sig. (2-tailed)	0.661

Source: Author, data processed 2024

Based on the table above, the Asmp value is obtained. Sig. (2-tailed) of 0.661. The results of the runs test of the regression model can be said to have no symptoms of autocorrelation if the value of Asymp. Sig. (2-tailed) > 0.05. while the run test value is more than 0.05, then there is no autocorrelation and the model can be continued.

3.2 Multicollinearity Test

Table3. Multicollinearity Test Results

Model	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
SP crime scene	0.656	1,524
LLS	0.587	1,705
PMDN SP	0.815	1,227

Source: Author, data processed 2024

Based on the table above, it showsif all the variables used in this research have a tolerance value > 0.10 and have a VIF value < 10. Therefore, it can be concluded that the model used in this research is free from symptoms of multicollinearity.

3.3 Heteroscedasticity Test

Table4. Heteroscedasticity Test Results Using the Glejser Test

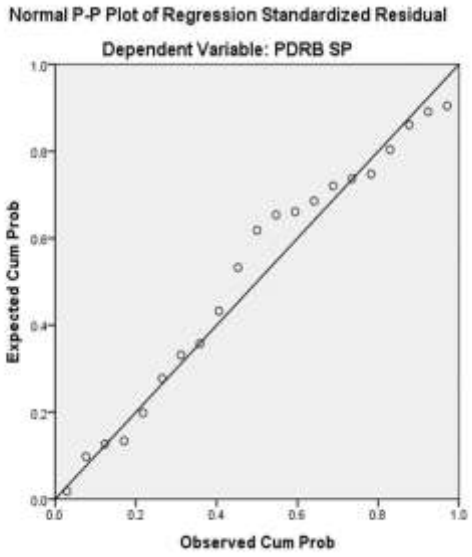
Model	Sig.
(Constant)	0.129
SP crime scene	0.056
LLS	0.215
PMDN SP	0.418

Source: Author, data processed 2024

Based on the results of the Glajser test above, it can be seen that the significance value of the three variables used in this research has a significance value of <0.05. This means that the model used in this research does not contain symptoms of heteroscedasticity.

3.4 Normality test

Graphics3. Normality Test Results



Source: Author, data processed 2024

Based on the image aboveIt can be seen if the distribution of data or points does not move away from the regression line. So it can be concluded that the model used in this research is normally distributed, so it meets the normality requirements in multiple linear regression analysis.

Estimation Results of Multiple Linear Regression Models

3.5 Coefficient of Determination (R2)

Table5. R2 Test Results

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.944a	0.891	0.872	6242.26953

Source: Author, data processed 2024

The resulting R square value of 0.891 or 89.1 percent means that the independent variable in this research is able to influence the dependent variable by 89.1 percent.

3.6 F test

Table6. F Test Results

Fcount	Ftable	Condition	Sig.	Condition	Information
46,260	3.16	Fcount > Ftable	0,000	< 0.05	Influential

Source: Author, data processed 2024

The table above shows if valuesFcount is 46.260 and Ftable valueamounting to 3.16 which is obtained from Ftable at a significance level of 0.05 with the known value of df (3; 18) thus obtaining the Ftable value. The significance value in the F test is 0.000 which has influential information.

2.7 t test

Table7. t Test Results

Variable	tcount	ttable	Sig.	Condition	Information
X1= SP crime scene	-9,823	2,110	0,000	<0.05	Accepted
X2= LLS	-1,372	2,110	0.109	>0.05	Rejected
X3= PMDN SP	1,689	2,110	0.188	>0.05	Rejected

Source: Author, data processed 2024

Based on the results of the multiple linear regression test above, the multiple linear regression equation is obtained as follows:

PDRB SP = 401268,123 – 27,799 TKP SP – 48,671 LLS + 0.009 PMDN SP + e

From the equations and test results above, the following interpretation is obtained:

1. Constant (β0) = 401268.123
   Shows that if the total value of labor in the agricultural sector (X1), the value of the area of rice fields (X2) and the value of domestic investment in the agricultural sector (X3) are constant, it will increase or increase the level of GRDP in the agricultural sector of East Java Province by 401268.123 billion rupiah.
2. Agricultural Sector Labor Regression Coefficient (β1) = - 27.799
   Shows that agricultural sector labor has a negative sign, which means there is an inverse relationship between agricultural sector labor and agricultural sector GDP in East Java Province. So if the workforce in the agricultural sector increases by 1 million people, the GRDP in the agricultural sector of East Java Province will decrease by 27,799 billion rupiah assuming X2 and X3 are constant.
3. Regression Coefficient for Paddy Field Area (β2) = -48.671 LLS
   Shows that the area of rice fields has a negative sign, which means there is a relationship in the opposite direction between the area of rice fields and the GDP of the agricultural sector in East Java Province. So if the area of rice fields increases by 1 thousand hectares, the GRDP in the agricultural sector of East Java Province will decrease by 48,671 billion rupiah assuming that X1 and X3 are constant.
4. Domestic Investment Regression Coefficient (β3) = 0.009
   Shows that domestic investment has a positive sign, which means there is a unidirectional relationship between domestic investment and GRDP in the agricultural sector in East Java Province. So if domestic investment increases by 1 million rupiah, the GRDP in the agricultural sector of East Java Province will increase by 0.009 billion rupiah assuming X1 and X2 are constant.

4. DISCUSSION

4.1 The Influence of Agricultural Sector Labor on Agricultural Sector GRDP

The agricultural sector workforce partially has a negative effect on the GDP of the agricultural sector in East Java Province,where if labor increases, the agricultural sector's GDP will decrease and vice versa. Basically, an increase in the population or workforce is an important production factor in increasing the economic growth of a region as measured using GRDP. East Java Province has the highest number of agricultural sector workers among other sectors. The large number of workers in the agricultural sector must be beneficial for the process of GDP growth in the agricultural sector. However, the phenomenon that occurred in East Java Province was actually the opposite of the normal situation as explained above, where the increase in agricultural sector labor had a negative influence on the GDP growth in the agricultural sector of East Java Province. The phenomenon that occurs is not in accordance with the production function theory by Cobb-Douglas, the factors that are considered capable of increasing production output or economic

output are labor and capital which cannot actually increase economic output. The difference between research results and theory can be caused by the effect of the law of diminishing returns, which means that if one production factor is continuously added but is not followed by the addition of other production factors, it will also cause a decrease in output.

4.2 The Influence of Rice Field Area on GRDP in the Agricultural Sector

Rice field areahas a regression coefficient of-43,671and the significance value is 0,188< 0.05. This can be concluded if the variable of paddy field area does not have a partially significant influence on the GDP of the agricultural sector of East Java Province. This is due to the current large population and various types of activities that require land, resulting in a reduction in rice fields which are one of the planting areas for various types of agricultural sector products. Competition for land use is currently occurring, especially in developing areas where land supply is relatively limited. Agricultural land which should have more potential to guarantee the livelihood of farmers, is being converted into industrial land which is used for settlements, factories and so on, so that the conversion of agricultural land, especially rice fields, cannot be overcome and prevented. This transition in the use of rice fields also occurred in East Java Province. This land use change resulted in rice fields being used as land for the development of industrial areas, residential areas and infrastructure. East Java has rice fields which should have the potential to be used as planting areas for agricultural products. One of the areas experiencing a lot of shrinkage of rice fields is the city of Surabaya, which has been converted to use for the construction of housing, apartments and hotels.

4.3 The Influence of Domestic Investment (PMDN) on GRDP in the Agricultural Sector

Partial domestic investment has no effect on the GRDP of the Agricultural Sector in East Java Province. This was caused byinvestment in the agricultural sector tends to be very small. There are various reasons for the small amount of investment invested in the agricultural sector in East Java, such as the low agricultural productivity in East Java province, so the quality is often doubtful. For investors, the agricultural sector is not a "sexy" sector so they are less interested in investing their capital in the agricultural sector. The low productivity of the agricultural sector in East Java Province is caused by various factors such as the area of agricultural land, one of which is paddy fields which is currently being converted to use, the low quality of agricultural sector workers who still use traditional methods. Therefore, it is necessary to maximize improvements in the development of the agricultural sector by stakeholders and also the community. However, it cannot be denied that lack of capital is indeed a problem for the development of a sector. The availability of natural resources and a large workforce, as well as predictions that demand for food will continue to increase along with the increase in population, should encourage investors to invest in agriculture so that the agricultural sector can increase.

5. CONCLUSION

Based on the findings and results of the analysis that has been carried out, it can be concluded that labor in the agricultural sector, area of rice fields, and domestic investment (PMDN) together have a positive influence on the GDP of the Agricultural Sector in East Java Province. Partially, only the agricultural sector labor variable has a negative effect on the GDP of the Agricultural Sector in East Java Province. Meanwhile, the area of rice fields and domestic investment have no effect on the GRDP of the Agricultural Sector in East Java Province.

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