Journal of Economics, Finance and Management Studies

ISSN (print): 2644-0490, ISSN (online): 2644-0504

Volume 06 Issue 09 September 2023

Article DOI: 10.47191/jefms/v6-i9-30, Impact Factor: 7.144

Page No: 4414-4422

Analysis of Agricultural Land Conversion in Taman Sub-District, Sidoarjo Regency

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ABSTRACT: As a decisive step in the research process, an overview of the development of rice field conversion in Taman District, Sidoarjo Regency and an analysis of factors affecting agricultural land conversion on the income of rice farmers in Taman District, Sidorjo Regency is needed. Thus, this research can later be used as a reference in issuing and determining policy directions, especially in the agricultural sector to prevent the conversion of agricultural land into non-agricultural land. Based on the above background, the objectives of this study are as follows: analyze the factors that affect the conversion of agricultural land in Taman Sidoarjo District. The site selection was carried out purposively with the consideration that the location is one of the fast-growing areas in East Java with significant economic growth and infrastructure development. The data collection method is carried out using secondary data consisting of institutional surveys to obtain secondary data that has relevance to discussions in research and literature surveys. The analytical tools used are multiple regression analysis and descriptive analysis. Based on the results of regression analysis, it is indicated that the variables of population, number of industries and GRDP are positively and significantly related to agricultural land conversion in Taman Sidoarjo District, which means that the influence of increasing population, number of industries and GRDP can increase agricultural land conversion. Meanwhile, land productivity and farmer exchange rates have a significant negative relationship, which means that the effect of increasing land productivity and farmer exchange rates can reduce agricultural land conversion.

KEYWORDS: Land Use Conversion, Rice, Multiple Regression

INTRODUCTION

One of the assessments or indicators of food security is food availability. Food availability is the result of the amount of agricultural production. Indonesia has the potential to become a country that can produce large amounts of agri-food production. Agriculture is one of the most important sectors in Indonesia and is the main contributor to the sustainability of the nation because this sector is related to basic human needs, namely food. The agricultural sector is even a driver of economic recovery at the regional, national, and international levels.

According to Bambang Irawan and Supena Friyanto (2002) there are two key success factors in achieving rice self-sufficiency, namely increasing agricultural productivity due to improvements in agricultural technology, as well as the availability of sufficient government budget due to the oil boom to finance various agricultural technology development projects and programs as well as the socialization process at the farmer level and the development of agricultural infrastructure such as irrigation, extension institutions, and so on.

Agricultural land is a supporting factor for the needs of the community. However, agricultural land or rice fields have been converted into industrial, residential, and residential land which causes national rice production to continue to decline. According to Iqbal and Sumaryanto (2007), empirically the most vulnerable agricultural land to conversion is rice fields. This is due to: Population density in rural areas that have dominant agroecosystems of rice fields is generally much higher than dryland agroecosystems, many rice fields are located close to urban areas, the infrastructure of rice fields is generally better than dryland areas, and the development of infrastructure and residential facilities, industrial estates, and so on tends to take place quickly in areas with flat topography, where in areas with such topography (especially on the island of Java) the agricultural ecosystem is dominant in rice fields.

In 2018, the national harvest area of rice commodities was 11,377,934.44 ha, while in 2022, the national harvest area was reduced to 10,452,672.00 ha. The national productivity of rice commodities in 2018 was 52.03 ku/ha and increased in 2022 by 52.38 ku/ha. National production of rice commodities in 2018 amounted to 59,200,533.72 tons and decreased by 54,748,977.00 ha. Fluctuations in the data above allow land use change to be one of the contributing factors.

The impacts of land use change can be biophysical, socio-economic and cultural. Impact can also be both negative and positive, but is often connoted as a negative implication. Negative impacts are given more attention, so in many studies, more analysis of impact mitigation is found than analysis of increasing positive impacts. One of the determinants of the size of the impact can be said to be negative or positive is whether a development project is detrimental or benefits a community affected by development. The assessment of an impact is a value judgment and therefore subjective, even if the assessment is made by an expert. Given that, conflicts always occur (Mega Etikasari, 2022).

Mustopa, Zaenil (2011) in his research that studied the effect of land use change explained that the land conversion was used for residential areas and factory construction for the industrial sector. This study aims to determine what factors affect the conversion of agricultural land in Demak Regency. This study was conducted by analyzing by regression. From the results of the research conducted, it shows that overall, both the number of population, the number of industries, and the amount of GDP have a positive effect on the amount of land use change. However, only the variables of population and number of industries proved significant. The variable amount of GDP proved to be insignificant. From the analysis with the graph method, it can be seen that the amount of land use change in Demak Regency tends to increase from year to year.

With these backgrounds, research was conducted on the analysis of agricultural land conversion in Taman District, Sidoarjo Regency. As a decisive step in the research process, an overview of the development of rice field conversion in Taman District, Sidoarjo Regency and an analysis of factors affecting agricultural land conversion on the income of rice farmers in Taman District, Sidorjo Regency is needed. Thus, this research can later be used as a reference in issuing and determining policy directions, especially in the agricultural sector to prevent the conversion of agricultural land into non-agricultural land. Based on the above background, the objectives of this study are as follows: analyze the factors that affect the conversion of agricultural land in Taman Sidoarjo District.

RESEARCH METHODS

This research was carried out in Taman District, Sidoarjo Regency in June - July 2023, determining this location because Sidoarjo Regency is one of the fast-growing areas in East Java with significant economic growth and infrastructure development. This growth can have an impact on the conversion of agricultural land to non-agricultural uses such as residential, industrial, commercial, and public infrastructure.

The data collection method is carried out using secondary data consisting of institutional surveys to obtain secondary data that has relevance to discussions in research and literature surveys. Secondary data are obtained from various institutions or agencies such as BPS Sidoarjo Regency, Food and Agriculture Office of Sidoarjo Regency, Industrial Office of Sidoarjo Regency, reports, publications, and other libraries.

Data analysis used to analyze the development of land use change of rice crop commodities is a qualitative descriptive analysis. According to Sugiyono (2019), the qualitative descriptive analysis method is to analyze, describe, and summarize various conditions, and situations from various data collected in the form of interviews or observations about the problems studied that occur in the field. The data to be analyzed include Data on population development, number of industries, GDP, land productivity, and farmer exchange rates. The data analysis method used to answer the second problem formulation was carried out with multiple linear regression analysis. Multiple linear regression is an equation model that describes the relationship of one non-free variable/response (Y) with two or more independent variables/predictors (X1, X2,... Xn). The purpose of multiple linear regression tests is to predict the value of the non-free variable/response (Y) if the values of the free variable/predictor (X1, X2,..., Xn) are known. In addition, it is also to be able to find out the direction of the relationship between non-free variables and independent variables. Multiple linear regression equations are mathematically expressed by:

$Y = \alpha + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \varepsilon$ .....

where:

Y = Area of Agricultural Land Conversion (Ha)
α = intercept/constant
X1 = Total Population (inhabitants)
X2 = Number of Industries (units)
X3 = non-agricultural GDP (Rp million)
X4 = Land Productivity (rice) (ton/ha)
X5 = Farmer Exchange Rate (%)
βi = Regression coefficient
ε = Error Term

To find out how far the influence of the factors that have been determined in the equation will affect land use change, accuracy

testing and testing of the ability of regression models are carried out. In this study, regression model testing consisted of three tests, namely:

1. Test the coefficient of determination (R2),
2. Test partial regression coefficient (t),
3. Test the overall regression coefficient (F).

RESULTS AND DISCUSSION

Analysis of Factors Affecting Land Use Change

Multiple linear regression analysis is a development of simple regression analysis where there is more than one independent variable X, this analysis is used to see a number of independent variables X1, X2, .. Xn to the dependent variable Y based on the value of the variables X1, X2, .. Xn. Multiple linear regression analysis is used to determine the direction of the relationship between the independent variable and the dependent variable. The regression equation can be seen from the table of coefficient test results on five variables, namely the population, number of industries, GDP, land productivity, and the exchange rate of farmers on agricultural land conversion. The results of data processing that became the basis for the formation of this research model are shown in the following table. Based on the following table, what is meant in the following multiple linear regression equation:

$Y=-\beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5$

$Y= 1{,}813 + 0{,}420X1 + 0{,}653X2 + 0{,}797X3 - 0{,}297X4 - 0{,}197X5$

The result of the above regression equation can be interpreted as follows:

a. The value of the β0 coefficient is 1.81 The number shows that if the Number of Population (X1), Number of Industries (X2), GRDP (X3), Land Productivity (X4), and Farmer Exchange Rate (X5) do not change or is constant, it is possible to increase land use change by 1.81 Ha.
b. The value of the coefficient (ß1) is the total population of 0.421, This means that if X1 (number of inhabitants) increases by 100 people per year, then there is an increase in agricultural land conversion by 0.412 Ha assuming other variables are constant.
c. The value of the coefficient (ß2) is the number of industries which is 0.654, This means that if X2 (number of industries) increases by 1 unit each year, then there is an increase in agricultural land conversion by 0.654 Ha assuming other variables are consta,nt.
d. The value of the coefficient (ß3) is GDP which is 0.797, This means that if X3 (GRDP) increases by 1 million rupiah per year, then there is an increase in agricultural land conversion by 0.797 Ha assuming other variables are constant.
e. The value of the coefficient (ß4) is land productivity which is -0.297, This means that if X5 (land productivity) decreases by 1ton per year, then there is an increase in agricultural land conversion by 0.297 Ha assuming other variables are constant.
f. The value of the coefficient (ß5) is the farmer's exchange rate of -0.197, This means that if X5 (farmer's exchange rate) decreases by 1% per year, then there is an increase in agricultural land conversion by 0.197 Ha assuming other variables are constant.

Table 1. Multiple Linear Regression Test

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		β	Std. Error	Beta		
1.	(Constant)	1.813	3.401		.533	
	POPULATION	.421	.198	.411	2.605	.007
	NUMBER OF INDUSTRIES	.653	.203	.164	1.190	.007
	GRDP	.797	.124	.306	2.080	.020
	LAND PRODUCTIVITY	-.297	.221	212	2.233	.042
	NTP	-.197	.123	.322	1.453	.002
Dependent Variable : Land use change						

Source: primary data is processed, 2023

Test the hypothesis

Hypothesis testing is a temporary answer to the problem formulation in research. The hypothesis test is divided into three, namely:

a. Coefficient of Determination (R^2)

This coefficient of determination test is used to measure how far the independent variable is in explaining the dependent variable. The value of the coefficient of determination for the five independent variables is determined by the R-square. The results of the coefficient of determination can be seen in the following table.

Table 2. Test Coefficient of Determination (R^2)

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.765[a]	.885	.750	7.65386
Predictors : (Constant), POPULATION, NUMBER OF INDUSTRIES, GDP, LAND PRODUCTIVITY, NTP				
Dependent Variable : LAND USE CHANGE				

Source: primary data is processed, 2023

The R-square value in the table above is 0.885 shows that the proportion of variable influences on population, number of industries, GDP, land productivity, and farmer exchange rate is 88.5%. This means that the number of population, number of industries, GDP, land productivity, and exchange rate of farmers have an influence on agricultural land conversion by 88.5% while the remaining 11.5% is influenced by other variables that are not in the regression model, such as farmers' own decisions, proportion of income in the agricultural sector, government policies.

b. Simultaneous Test (Uji F)

Test F is a simultaneous test to determine whether the variables of population, number of industries, GDP, land productivity, and exchange rate of farmers simultaneously have a significant influence on agricultural land conversion.

Table 3. Simultaneous Test (Uji F)

ANOVA[a]						
Model	R	R Square	Df	Mean Square	F	Sig.
1	Regression	135.035	3	45.012	16.456	.000[b]
	Residual	95.734	35	2.735		
	Total	230.769	38			
Dependent Variable : LAND USE CHANGE						
Predictors : (Constant), POPULATION, NUMBER OF INDUSTRIES, GDP, LAND PRODUCTIVITY, NTP						

Source: primary data is processed, 2023

Based on the table above, it can be seen that the value of f calculated variables of population, number of industries, GDP, land productivity, and exchange rate of farmers is 16,456 > f table 2.87. Furthermore, based on the significance value, it is known that the variable significance value of the number of population, number of industries, GRDP, land productivity, and farmer exchange rate is 0.000 < 0.05. Thus, it can be concluded that the independent variables of population, number of industries, GDP, land productivity, and exchange rate of farmers simultaneously affect the dependent variable, namely land use change.

c. Partial Test (Uji T)

The t test was conducted to determine the partial effect of the independent variable (population, number of industries, GDP, land productivity, and farmer exchange rate) on the dependent variable (conversion of agricultural land functions).

Table 4. Partial Test (T Test)

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		β	Std. Error	Beta		
1.	(Constant)	1.813	3.401		.533	
	POPULATION	.421	.198	.411	2.605	.007
	NUMBER OF INDUSTRIES	.653	.203	.164	1.190	.007
	GRDP	.797	.124	.306	2.080	.020
	LAND PRODUCTIVITY	-.297	.221	212	2.233	.042

	NTP	-.197	.123	.322	1.453	.002
Dependent Variable : ALIH FUNGSI LAHAN						

Source: primary data is processed, 2023

The results of the t-test can be seen in the Table above. If the calculated prob.t value is shown on Prob. <0.05, it can be said that the independent variable has a significant effect on the dependent variable. The five variables above have a significance level of <0.05. The results of testing the hypothesis of the independent variable partially against its dependent variable can be analyzed as follows:

1. The Effect of Population on Agricultural Land Conversion

The Population Variable (X1) shows a significant value<α (0.007 < 0.05) with a β1 value of 0.420653, meaning that the population variable has a significant effect and is positively related to the level of agricultural land conversion at a confidence level of 95%, thus the hypothesis is accepted.

2. The Effect of Number of Industries on Switching Functions of Agricultural Land

The variable Number of Industries (X2) shows a significant value<α (0.0073 < 0.05) with a value of β2 of 0.653749, meaning that the variable number of industries has a significant effect and is positively related to the level of agricultural land conversion at a confidence level of 95%, thus the hypothesis is accepted.

3. The Effect of Number of Industries on Switching

The GRDP variable (X3) shows a significant value of <α (0.0209 < 0.05) with a β3 value of 0.797236, meaning that the GRDP variable has a significant effect and is positively related to the level of agricultural land conversion at a confidence level of 95%, thus the hypothesis is accepted.

4. The Effect of Land Productivity on Agricultural Land Conversion

The variable land productivity (X4) shows a significant value of <α (0.0421 < 0.05) with a β4 value of -0.297029, meaning that the variable land productivity has a significant effect and is negatively related to the level of agricultural land conversion at a confidence level of 95%, thus the hypothesis is accepted.

5. The Effect of Farmer Exchange Rate on Agricultural Land Conversion

The farmer exchange rate variable (X5) shows a significant value of <α (0.0022 < 0.05) with a β5 value of -0.197672, meaning that the farmer exchange rate variable has a significant effect and is negatively related to the level of agricultural land conversion at a confidence level of 95%, thus the hypothesis is accepted.

Discussion of Regression Analysis Results

Based on the analysis of the data above in the study on factors affecting land use change in Taman Sidoarjo District, there are several independent variables used to support the study. These independent variables include population, number of industries, GDP, land productivity, and farmer exchange rate. The analysis of each variable is as follows.

1. The Effect of Population on Agricultural Land Conversion in Taman District, Sidoarjo Regency

The relationship between population (X1) and the rate of conversion of agricultural land, the results of regression analysis show interesting findings. Based on statistical tests, a p-value of 0.007 was obtained, which is smaller than the significance level of α (0.05). This suggests that differences in population numbers did not occur by chance and that the results have sufficient significance to suggest that the relationship between population and agricultural land conversion rates is not the result of chance. Furthermore, the value of the regression coefficient β1 obtained is 0.42. The value of this positive coefficient indicates that there is a unidirectional or positive relationship between the population and the rate of conversion of agricultural land. That is, when the population increases, the rate of conversion of agricultural land also tends to increase.

This result is interesting because it shows that population growth has a positive impact on agricultural land conversion. This may be due to increased demand for food in response to population growth, which encourages more intensive use of land for agricultural activities to meet growing food needs. With a confidence level of 95%, the results of this analysis provide a solid basis for accepting the hypothesis proposed in this study. That is, it can be concluded that in the context of this study, population plays an important role in influencing the rate of conversion of agricultural land. These results can be an important foundation in agricultural land management planning and sustainability strategies to meet growing food needs as the population grows. However, it is still important to consider other factors that may affect land use change and respond wisely to the results of this analysis in a broader context.

This is in line with research conducted by Annisa Zahra et al. (2022), the increasing population causes physical development activities to move very rapidly. However, the rapid physical development is not accompanied by adequate land carrying capacity, so there is often improper land use. For example, agricultural land that is actually still potential for agricultural activities is forced

to be used to build housing complexes. This is also in line with research conducted by Mega Etikasari (2022), the decrease in agricultural land area is caused by an increase in population due to an increase in population so that most people according to tradition inherit their agricultural land continuously. So because of the rapid increase in population, it will automatically affect the reduction in agricultural land area.

2. The Effect of the Number of Industries on the Conversion of Agricultural Land in Taman District, Sidoarjo Regency

Industry is one of the pillars of the economy in every country, including in Indonesia. The size of the industrial sector is increasing, this is also what happened in Taman Sidoarjo District. In Taman Sidoarjo District, the number of industries is increasing, be it large, medium, medium, or household industries. The increasing number of industrial sectors also has an impact on the increasing number of land use conversions. The land that has been converted is agricultural land so that with the many changes in function due to the industrial sector, the amount of land for the agricultural sector is decreasing.

In this study, regression analysis was conducted to evaluate the relationship between the number of industries (X2) and the rate of conversion of agricultural land. The results of the analysis showed interesting findings. Based on statistical tests, a p-value of 0.007 was obtained, which is smaller than the significance level of α (0.05). This indicates that the difference in the number of industries did not occur by chance and that the results have sufficient significance to suggest that the relationship between the number of industries and the rate of agricultural land conversion is not the result of chance. Furthermore, the value of the regression coefficient β2 obtained is 0.65. This positive coefficient indicates that there is a unidirectional or positive relationship between the number of industries and the rate of conversion of agricultural land. That is, when the number of industries increases, the rate of conversion of agricultural land also tends to increase. This result is interesting because it shows that the growth of the industrial sector has a positive impact on agricultural land conversion. It is possible that an increase in the number of industries causes agricultural land to be converted or "converted" for use in industrial activities or infrastructure development. This impact can be triggered by urbanization or the need for land to support industrial growth.

With a confidence level of 95%, the results of this analysis provide a solid basis for accepting the hypothesis proposed in this study. That is, it can be concluded that in the context of this study, the number of industries plays an important role in influencing the rate of conversion of agricultural land. These results can be an important foundation in sustainable development planning and land management that considers the impact of industrial growth on agricultural land. However, it is still important to consider other factors affecting land use change and respond wisely to the results of this analysis in a broader context.

This is very much in line with the reality that occurs in Taman District, that every year the number of industries in Taman District continues to increase. The establishment of a new industry must require land as well as long-established industries, when the industry increases, the owners will expand their industries and this also definitely requires land. The agricultural land will be used to meet these needs. This is in line with research conducted by Kohsaka (2022) according to the increasing industry in Japan requires large areas of land to improve the energy manufacturing industry. Likewise, research conducted by Agus Mubarokah and Ernawati Hendrakusumah (2022), according to him, the number of industries has a positive and significant effect on agricultural land conversion. Each region will try to develop the economy with the development of the industrial sector for the sake of regional economic development.

3. The Effect of GRDP on Agricultural Land Conversion in Taman District, Sidoarjo Regency

Gross regional domestic product or often abbreviated as GDP is regional income derived from various existing sectors. One of the important indicators to determine the economic condition of a region/province in a certain period is addressed by Gross Regional Domestic Product data. The increase in GRDP will be directly felt by the community to improve their quality of life. Therefore, from the results of the regression model, it turns out that the influence of GRDP in Taman District has a positive effect on land use change, and is significant.

In this study, regression analysis was conducted to evaluate the relationship between Gross Regional Domestic Product (GDP) and the rate of agricultural land conversion. The results of the analysis showed interesting findings. Based on statistical tests, a p-value of 0.02 was obtained, which is smaller than the significance level of α (0.05). This indicates that the difference in GDP did not occur by chance and that the results have sufficient significance to suggest that the relationship between GDP and the rate of agricultural land conversion is not the result of chance. Furthermore, the value of the regression coefficient β3 obtained is 0.797. This positive coefficient indicates that there is a unidirectional or positive relationship between GDP and the rate of conversion of agricultural land. That is, when GDP increases, the rate of conversion of agricultural land also tends to increase. This result is interesting because it shows that regional economic growth, reflected in GDP, has a positive impact on agricultural land conversion. It is possible that with rapid economic growth, there is an increase in demand for land for infrastructure development, housing, or industrial activities, which then results in a reduction in the area of land used for agriculture.

With a confidence level of 95%, the results of this analysis provide a solid basis for accepting the hypothesis proposed in

this study. That is, it can be concluded that in the context of this study, GRDP plays an important role in influencing the level of agricultural land conversion. These results can be an important foundation in planning for economic development and sustainable land management, so as to consider the impact of economic growth on agricultural land. However, it is still important to consider other factors affecting land use change and respond wisely to the results of this analysis in a broader context. Economic growth that continues to increase will facilitate the process of economic development, where this economic development requires natural resource factors as economic factors that affect its success (Pila Agustina, 2022).

4. The Effect of Land Productivity on Agricultural Land Conversion in Taman District, Sidoarjo Regency

Based on statistical tests, a p-value of 0.0209 was obtained, which is smaller than the significance level of α (0.05). This suggests that differences in land productivity do not occur by chance and have sufficient significance to suggest that the relationship is not the result of chance. Furthermore, the regression coefficient β4 obtained is -0.28. This negative coefficient value indicates a counter-directional relationship between land productivity and the rate of agricultural land conversion. In other words, when land productivity increases, the rate of conversion of agricultural land tends to decrease, and vice versa. These results are interesting because they show that increased land productivity tends to encourage more intensive land use in the agricultural sector. As land productivity increases, farmers or landowners tend to further optimize their land for agricultural activities in hopes of producing better and more valuable yields.

With a confidence level of 95%, the results of this analysis provide a solid basis for accepting the hypothesis proposed in this study. That is, it can be concluded that in the context of this study, land productivity plays an important role in influencing the rate of conversion of agricultural land. These results can be an important cornerstone in more effective and sustainable agricultural decision-making and planning in the future. But, of course, it is important to always consider other factors that may affect land use change and interpret the results wisely in a broader context.

However, keep in mind that agricultural land conversion can also have negative impacts, such as a decrease in local food resources, environmental damage, and loss of cultural identity and agricultural traditions. Therefore, it is important for local governments and communities to carefully consider the impacts and consequences of agricultural land conversion before making any relevant decisions.

5. The Effect of Farmer Exchange Rate on Agricultural Land Conversion in Taman District, Sidoarjo Regency

The effect of farmers' exchange rates on agricultural land conversion in Taman District, Sidoarjo can be one of the factors that influence land use change decisions. The farmer's exchange rate refers to the selling price of agricultural products obtained by farmers in exchange for their crops. If the farmer's exchange rate is low, farmers may have difficulty in obtaining adequate income from their agricultural business. This can encourage farmers to look for alternative land uses that are considered more economically profitable, such as selling land for housing, industrial, or infrastructure development.

In this study, regression analysis was conducted to examine the relationship between the Farmer Exchange Rate (NTP) and the rate of conversion of agricultural land. The results of the analysis showed interesting findings. Based on statistical tests, a p-value of 0.002 was obtained, which is smaller than the significance level of α (0.05). This suggests that the difference in Farmer Exchange Rate did not occur by chance and the results have sufficient significance to suggest that the relationship between NTP and agricultural land conversion rates is not the result of chance. Furthermore, the value of the regression coefficient β5 obtained is -0.197. This negative coefficient indicates that there is an opposite relationship between NTP and the rate of conversion of agricultural land. That is, when NTP increases, the rate of conversion of agricultural land actually tends to decrease. This result is interesting because it shows that the Farmer Exchange Rate, which reflects the price of agricultural produce obtained by farmers, has a negative impact on agricultural land conversion. An increase in agricultural prices may cause farmers to be more oriented towards agricultural production and make optimal use of existing agricultural land, rather than converting land for non-agricultural activities.

With a confidence level of 95%, the results of this analysis provide a solid basis for accepting the hypothesis proposed in this study. That is, it can be concluded that in the context of this study, the Farmer Exchange Rate plays an important role in influencing the rate of conversion of agricultural land. These results can be an important foundation in sustainable agricultural policy decision-making, so as to consider the possible economic impacts on agricultural land. However, it is still important to consider other factors affecting land use change and respond wisely to the results of this analysis in a broader context.

Agricultural land conversion can also be influenced by external factors such as market demand and government policies related to agriculture. If market demand for agricultural products is low or if the government enforces policies that do not support agriculture, the exchange rate of farmers can be negatively affected. This can encourage farmers to look for other, more profitable land use opportunities. However, the exchange rate of farmers is not the only factor influencing agricultural land conversion decisions. Other factors such as government policies related to agricultural land protection, awareness of the importance of food

sustainability, and linkages with cultural identity and agricultural traditions can also influence land use change decisions. It is important for local governments and communities to carefully consider the long-term impacts of agricultural land conversion. In some cases, reducing agricultural land area can threaten local food sustainability, environmental sustainability, and community food security. Therefore, the protection and development of a sustainable agricultural sector can be an important strategy to encourage farmers to continue operating and maintaining agricultural land in Taman District, Sidoarjo Regency.

There is a widespread belief that agricultural productivity declines as a farmer ages. But it is not proven, because many people are old but still energetic. It is recognized that at a young age, a person is more productive than in old age. Farmers with a relatively young age will be able to have better physical abilities than older farmers. However, an older farmer will have an experience that a younger farmer does not have. Therefore, it would be better if you combine or combine experienced old farmers with young people who have strong physiques. According to Harahap (2019), his research shows that working age has a significant influence on farmer performance. According to Nasaruddin (2020), the average individual under 25 years old still does not have sufficient skill maturity besides that they are also still in the process of education. The age group over 25 years has passed the transition period so that they can carry out their duties well and calmly. While at the age of over 40 years, there begins to be a decline in physical ability for individuals who have sufficient experience in work. The age group over 50 years and over has exceeded the transition period so that they can carry out tasks well and calmly but in work productivity or experience a decrease in physical strength.

This is because older workers have strong specifications, experience, considerations, work ethics, and commitment. Sabirin (2020) The level of education greatly affects the ability and level of confidence of a farmer in doing his job. Farmers with higher education will be better able to complete work with a higher level of difficulty than farmers with a lower level of education. According to Sabirin (2020), farmers with high formal education will affect a person's readiness to receive innovations from outside so in the end it will affect work productivity. The longer a person stays in one job, the less likely they are to resign. Evidence shows that tenure and job satisfaction have a positive correlation. This provides valuable insight into the reasons that drive farmers to sell their farmland. These reasons reflect the economic, social, and environmental dynamics that influence farmers' decisions. Further understanding of the motivations behind farmland sales can help better policy planning and better support for farmers in navigating existing challenges and opportunities.

CONCLUSION

Based on the results of the analysis in this discussion, the following conclusions can be drawn, the results of regression analysis indicate that the variables of population, number of industries and GRDP are positively and significantly related to agricultural land conversion in Taman Sidoarjo District, which means that the influence of increasing population, number of industries and GRDP can increase agricultural land conversion. Meanwhile, land productivity and farmer exchange rates have a significant negative relationship, which means that the effect of increasing land productivity and farmer exchange rates can reduce agricultural land conversion. From the descriptive analysis, it can be illustrated that the reasons that motivate or encourage respondents to sell their land include to meet the educational needs of family members, high production costs, lack of available labor in the field, and low selling prices of grain at harvest.

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