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Productivity and income of rubber farmers in Belitang II District, East Ogan Komering Ulu Regency, South Sumatra Province

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ABSTRACT

The productivity of rubber in Belitang II Sub-district has decreased quite deeply from 2016 – 2020. The decline in the productivity of rubber farmers will affect the income earned by farmers. Belitang II sub-district is a sub-district that has a larger area of land and rubber production compared to other sub-districts in Ogan Komering Ulu Timur Regency, South Sumatra Province. This research is an associative quantitative research. The method of determining the sample using simple random sampling with a sample size of 97 respondents. The data analysis technique used descriptive statistical analysis and inferential statistical analysis, namely path analysis. The results of the study show that 1) land ownership, education level, and work culture have a positive effect on productivity, 2) land ownership area, education level, work culture, and productivity have a positive effect on income, and 3) land ownership area, indirectly does not directly affect income through productivity, while the level of education, and work culture indirectly affect income through productivity. Local governments are expected to strive to produce agricultural innovations to support land productivity and become a driving force in the agricultural sector, especially rubber.

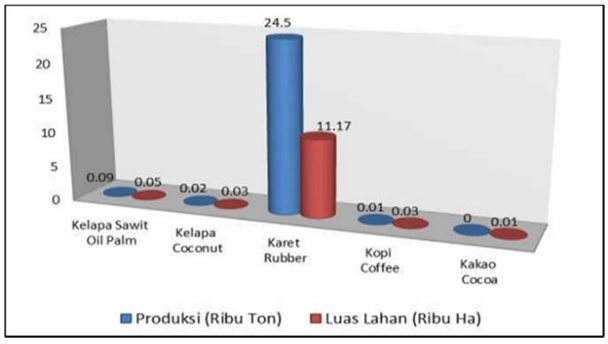
Keywords: Land ownership, education level, work culture, productivity, income
JEL Classification: I15, O35, A13, O49, I31

INTRODUCTION

The basic aspect that is thought to affect the level of income is the productivity of rubber farmers. Productivity is a measure that states how well resources are managed and utilized to achieve optimal results Arsyad (2010 : 38). The productivity of rubber farmers is positively related to income, the higher the work productivity, the more rubber latex is produced, and vice versa (Sutrisno et al., 2021). The measurement of work productivity can be known or measured from the quality of the product produced, the quantity or number of products produced and the timeliness of completing a job Sinungan (2008 : 24). Productivity is the ratio between the input and output of a production process in a certain period. Agricultural productivity is strongly

influenced by inputs and outputs from agriculture. Inputs from agriculture include the area of agricultural land, while output from agriculture includes rubber production, besides that productivity in agriculture cannot be separated from the social factors that surround it (Dewi et al. 2017).

In general, the agronomic conditions of the plantation area to be studied are dominated by natural rubber, so that genetically the production potential should not differ much. The total land ownership of rubber farmers in Belitang II District is privately owned.



Source: East OKU Central Statistics Agency 2021

Figure 1.
Area of Plantation Plants by Plant Type in Belitang II District

Based on figure 1 it is known that the rubber plant in Belitang II District is the plant that has the largest planting area when compared to the planted area of oil palm, coconut, coffee, and cocoa. Pamungkas et al., (2021) the area or planting area is the entire area where plants are planted, the area or land guarantees the amount or yield that will be obtained by farmers, if the area or land used is small, the amount of income earned received by farmers will also decrease because the plants planted by farmers are reduced.

The low level of education is allegedly one of the causes of the low productivity of rubber farmers (Wardarita et al., 2017). Human resources are a very important element to increase productivity. Education aims to prepare oneself to think more actively in a developing society both now and in the future. In addition, education also functions to improve the skills, intelligence and intelligence of farmers so that they can manage their farming so that they can achieve the desired goals. Population education is very important for the progress of an area, with the high level of education of an area, the level of population productivity is also higher

(Viswanathan, et al., 2012) . The level of education possessed by a farmer will greatly affect the mindset, attitude and behavior of a farmer in accepting and implementing new technology which will ultimately affect the productivity and income of an area (Gumbira, 2001 : 47).

Another factor that is no less important in rubber farming is work culture. Work culture in farming will influence decision making to determine agricultural care, for example the process of tapping, fertilizing, and also the use of farming tools (Miranda et al., 2015). Work culture is a philosophy based on a view of life as values that become the nature, habits and driving force, entrenched in the life of a community group or organization (Darodjat, 2013: 16). Work culture is a pattern of habits based on a person's perspective or way of giving meaning to work that colors the mood and strong belief in the values he believes in (Lestari et al., 2020).

Based on observations, it was found that the use of non-organic materials by rubber farmers in Belitang II District is still relatively large. Therefore the Agricultural Extension Agency (BPP) Belitang II District often conducts socialization or counseling. However, some farmers did not do what was informed by the BPP. From this, researchers suspect that it is closely related to the work culture of different rubber farmers, so it needs to be studied further in order to maximize productivity and increase the income of rubber farmers in Belitang II District.

RESEARCH METHOD

This study uses two types of data, namely primary data and secondary data. Primary data were obtained from area of land ownership, education level, work culture, productivity and income of rubber farmers in Belitang II District. Primary data is the main data used for analysis. Primary data in this study is supported by secondary data. Samples were obtained by simple random sampling method combined with

lottery. The total sample is 97 rubber farmers in Belitang II District. The research location is in Belitang II District and the object of research is rubber farmers.

Variabel	Minimum	Maximum	Mean	Std. Deviation
The land ownership	0,06	0,56	0,4113	0,15242
The level of education	1,00	14,00	9,9897	3,72630
Work culture	28,00	70,00	56,2165	15,61732
Productivity	3,42	30,77	22,3821	8,54779
Income	0,50	4,50	3,2732	1,25004

Testing the effect of the land ownership, education level, and work culture, on the productivity and income of rubber farmers in Belitang II District using income as the dependent variable and productivity as a intervening variable. The independent variables in this study were the land ownership, the level of education, and work culture. The characteristics of the research sample used the age of the rubber farmer, and the length of experience in farming.

The analytical technique used to analyze the effect of the land ownership, the level of education, work culture on the productivity and income of rubber farmers in Belitang II District is Path Analysis.

RESULT AND DISCUSSION

The results of the statistic descriptive is some important information such as the amount of data, minimum value, maximum value, average, and standard deviation. Descriptive statistics can also use illustrations such as graphs and charts. In contrast to inferential statistics, descriptive statistics do not provide conclusions on a population with sample data (Wikarno et al., 2020). Descriptive analysis in this study are shown in Table 1.

Table 1
Descriptive analysis in this study
Source: Primary data, processed (2022)

The agricultural land is a place or part of the earth's surface where agriculture is carried out by a particular farmer, whether he is an owner, owner, or salaried manager (Mosher, 1968). Based on Table 1, it is known that the land tenure of rubber farmers is getting narrower, the area of land ownership of rubber farmers is getting smaller which

results in the limited number of rubber plants that can be planted in an area of land. The majority of the last education of rubber farmers in Belitang II District who became research respondents were at the High School (SMA) level. This shows that the rubber farmers who have been farming have received 12 years of education. The tendency of farmers is to work every day with the use of herbicide ingredients which is quite high. the majority of the productivity of rubber farmers in Belitang II District per one harvest reached Rp 27,350.00. This shows that 51.4 percent of farmer productivity is still below the productivity of the majority of farmers It can be seen that 25.8 percent of the income of rubber farmers in Belitang II District per month in 4 harvests reaches 4 million rupiah. The increase in the income of rubber farmers was achieved because at the time of this research, the price of rubber was in the range of Rp. 10,500 – Rp. 11,700 per kg. The income of rubber farmers starts from the last stage of production activities (Tongkaemkaew et al., 2018), when the rubber has been harvested and weighed to the collectors in each village in Belitang II District..

Based on Table 2, it shows that all statement indicators in the variables of work culture. The validity test was carried out using the Pearson correlation method through IBM SPSS Statistics 26 software. The correlation value between item scores and total items was compared with the Pearson Correlation, if the correlation between the scores of each item on the total item scores was greater than the Pearson Correlation (0.3) then the instrument the research was declared valid (Ghozali, 2011:45).

Table 2. Recapitulation of Research Instrument Validity Test Results

Variable	Indicators	*Pearson Correlation*	Description	The Value of *Cronbach's alpha*
	X3.1	0,900	Valid	
	X3.2	0,922	Valid	
	X3.3	0,892	Valid	
	X3.4	0,877	Valid	

	X3.5	0,840	Valid	
	X3.6	0,839	Valid	
Work Culture (X3)	X3.7	0,831	Valid	0,978
	X3.8	0,950	Valid	
	X3.9	0,903	Valid	
	X3.10	0,842	Valid	
	X3.11	0,900	Valid	
	X3.12	0,818	Valid	
	X3.13	0,915	Valid	
	X3.14	0,944	Valid	

Source: Primary data, processed (2022)

The instrument can be said to be reliable if the Cronbach's alpha coefficient from the test results is greater than 0.60.

Table 3. *R-square* Test Result

Variable	*R Square*	*Adjusted R Square*
Productivity	0,850	0,845
Income	0,936	0,933

Source: Primary data, processed (2022)

Based on the R^2 in Table 3, the Q-Square value is 0.989, this shows that the variation in the income variable can be explained by variations in the level of the land ownership, the level of education, work culture and productivity, while the remaining 1,1 percent is explained by other variables outside the mode

Tabel 4. *Path Coefficients (Mean, STDEV, T-Statistics, P-Values)*

Variable	*Original Sample*	*Sample Mean*	*Standard Deviation*	*T Statistics*	*P Values*
X_1 - Y_1	0.319	0.309	0.153	3.064	0.046
X_2 - Y_1	0.315	0.384	0.660	3.579	0.000
X_3 - Y_1	0.221	0.290	0.167	2.152	0.011
X_1 - Y_2	0.231	0.245	0.316	3.322	0.000
X_2 - Y_2	0.183	0.184	0.296	2.085	0.000
X_3 - Y_2	0.210	0.237	0.165	2.382	0.000
Y_1 - Y_2	0.343	0.354	0.267	2.910	0.000

Source: Primary data, processed (2022)

Table 4 shows that the land ownership, the level of education, and work culture has a positive and significant effect on the productivity of rubber farmers in Belitang II District. The land ownership, the level of education, and work culture has a positive and significant have a positive and significant impact on the income rubber farmers in Belitang II District.

Table 5. *Indirect Effects*

Variable	*Intervening*	*Sab*	*Z*	*Description*

Variable				
$X_1 \rightarrow Y_2$	Y_1	0,33585	1,75379	Negative
$X_2 \rightarrow Y_2$	Y_1	0,05916	3,58786	Positive
$X_3 \rightarrow Y_2$	Y_1	0,00358	2,12029	Positive

Source: Primary data, processed (2022)

Based on Table 5 the results of the Sobel test calculation, the Z value is 1.75 for land ownership area, 3.58 for education level, and 2.12 for work culture. Testing the data shows that the Z count of the variable area of land ownership through the productivity of rubber farmers in Belitang II District, East Ogan Komering Ulu Regency, South Sumatra Province, is worth less than 1.96 with a significance level of 5%, it proves that productivity is not able to intervene in the influence relationship. land ownership area to income. While the data test shows that the Z count of the variables, education level, and work culture on income through the productivity of rubber farmers in Belitang II District, East Ogan Komering Ulu Regency, South Sumatra Province, the total value is more than 1.96 with a significance level of 5%. proves that productivity is able to intervene in the relationship between the influence of land ownership area, education level, and work culture on income.

CONCLUSION

Based on the results of research that has been done, it can be concluded that:

1) The area of land ownership, education level, and work culture have a positive effect on the productivity of rubber farmers in Belitang II District, East Ogan Komering Ulu Regency, South Sumatra Province.

2) The area of land ownership, education level, and work culture have a positive effect on the income of rubber farmers in Belitang II District, East Ogan Komering Ulu Regency, South Sumatra Province.

3) The area of land ownership, indirectly does not affect income through the productivity of rubber farmers in Belitang II District, East Ogan Komering Ulu Regency, South Sumatra Province. While the level of education, and work culture indirectly affect income through

the productivity of rubber farmers in Belitang II District, East Ogan Komering Ulu Regency, South Sumatra Province.

Based on the research that has been done, the suggestions that can be given from the results of this study are as follows:

1) Local governments are expected to try to produce agricultural innovations to support land productivity and become a driving force in the agricultural sector, especially rubber, which currently needs assistance because there are still many farmers who do not understand the superior rubber seeds that have been created, such as clones IRR 112, IRR 118 , IRR 230, IRR 425, and IRR 429. In addition, no less important is the maintenance and control of major rubber plant diseases, such as white root fungus. Considering that there are many rubber plants that die of sap due to improper maintenance of rubber.

2) Agricultural Extension Centers in Belitang II District are expected to be more intensive in providing counseling and training related to procedures for doing rubber farming. The training provided should also not just be training, but rather practice, because in the field there are still many farmers who apply farming methods based on experience, in the field it is found that the use of herbicides is very high, so that it has the potential to damage rubber plants and reduce agricultural yields.

3) Rubber farmers are expected to cooperate with BPP Belitang II District to participate in supporting the rubber research center program in South Sumatra.

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