



ANALYSIS OF FACTORS AFFECTING FARMER REVENUES IN INDONESIA

Ni Kadek Herni Wijayanti 

Master of Economics Science in the Postgraduate Program of the Faculty of Economics and
Business, Udayana University, Bali, Indonesia
kdherni@gmail.com

I Komang Gde Bendesa

Master of Economics Science in the Postgraduate Program of the Faculty of Economics and
Business, Udayana University, Bali, Indonesia

Abstract

This study aims to find out and analyze the factors that influence farmers' incomes in Indonesia and understand the conditions or categories of farmers' income positions in Indonesia. This research is a quantitative study that uses secondary data, namely data from the Indonesian Family Life Survey fifth wave with 1,548 selected samples based on the variable boundaries used. The variables used in this study consisted of arable land area, working capital, education level, age and working hours. The analysis in this study used multiple linear regression analysis with the help of STATA 13.0 analysis tool. The results of the analysis in this study indicate that the arable land area, working capital, education, age and working hours have a positive effect on the income of farmers in Indonesia.

Keywords: Farmers, Revenue, Area of arable land, Working capital, Education, Age, Working hours

INTRODUCTION

Economic development is one of the benchmarks for seeing the development of a country. Indonesia as a developing country has a large population and always experiences an increase in quantity every year. Facing these conditions, Indonesia as a developing country cannot be



avoided from various problems related to poverty, security, and employment to how to create prosperity for all the people of Indonesia. One of the problems that arise in the face of a surge in population is labor issues and how to prepare human resources to be able to contribute to the country. Economic development efforts in the provision of sufficient employment must be encouraged amid the growth in the number of the workforce. Indonesia as a developing country faces conditions where the growth of the workforce is faster than the growth in employment opportunities.

In 2014, the Central Statistics Agency (BPS) recorded employment in various sectors in Indonesia, where the three largest sectors as labor absorbers in Indonesia were agriculture, trade and industry. The agricultural sector is the number one sector with the largest employment in Indonesia in a row over a period of 5 years from 2005 to 2014. As an agricultural country, Indonesia places one of its economic development priorities focused on the agricultural sector. According to Soekartawi (2003), economic development in the agricultural sector is one of the main priorities in Indonesia because the development of the agricultural sector provides several benefits for the country and its people such as increasing farmers' production which will increase farmers' income, increase exports, meet food and industrial needs. Country, as well as expanding employment opportunities.

If seen from its contribution to economic growth in Indonesia through the GDP (Gross Domestic Product) number, the agricultural sector is one of the sectors that has a large contribution. The agricultural sector ranks the third largest after the manufacturing and trade, hotel and restaurant (PHR) sectors in driving economic growth. If seen from the development of its contribution, the industrial and trade sectors showed an increase in contribution, while the agricultural sector experienced a decline. Even though the agricultural sector is the sector with the largest employment compared to the industrial and trade sectors. Data from the Central Statistics Agency (2014) shows that employment in the agricultural sector reached 34 percent, but the contribution of the agricultural sector to GDP was only 12.05 percent. Unlike the case with the industrial sector which is capable of contributing to 32.05 percent with employment absorption of 13.31 percent. The industrial sector with a smaller amount of labor absorption compared to agriculture is able to contribute more than the agricultural sector which absorbs the largest workforce in Indonesia. This imbalance reflects that labor productivity is low in the agricultural sector.

Productivity as McConnell et al. (2003: 524), measures how much output can be produced from one input unit, and indicates the ability of economic resources to produce goods and services (Haryani, 2002: 97). In the process of increasing economic growth or Gross Domestic Product one of the things to consider is human resources or labor. One way to

determine the quality of human resources can be seen through education. Education can reflect the quality of the workforce. The higher the level of education that signifies quality workforce, then the workforce can compete in an effort to increase income. Facing the challenges ahead, the agricultural sector through its human resources must prepare itself to achieve the expected goals. Improving the quality of human resources must always be encouraged in the midst of the progress of the era, especially the development of technology that is developing very rapidly. Whereas, if we look at the data based on the Central Bureau of Statistics (2014) and from the various existing studies it does not indicate a change in the level of education of farmers. The average education of Indonesian farmers is still at the elementary school level.

Besides education, according to Soekartawi (1991), efforts to increase income are reflected by the size of production. The size of production is divided into 2 groups, which are influenced by: First, biological factors such as agricultural land, production inputs, and so forth. Second, socio-economic factors such as capital, wages, education level, age, risk and uncertainty, availability of credit, and so forth. Of the several factors that exist, the land area factor is one of the important factors for farmers in obtaining income. Land has become the foundation of the life of the peasant community because agricultural households in Indonesia are dominated by households that use agricultural land. In addition to land area, other biological factors, namely capital, are relevant things to be investigated given the condition of Indonesian farmers who are still constrained by basic problems, namely related to capital. Farmers expect government support related to access to capital for farmers. In addition, the difficulty of farmers in accessing financing makes the availability of capital to continue the production process very limited. As the results of the study by Apriadi (2015), which shows that the lack of capital will affect income, where without the availability of capital production facilities will be hampered.

At present, farmer regeneration is also a goal the government wants to achieve for the development of the agricultural sector. Other socio-economic factors that affect income according to Soekartawi are age. Productive age workers will get higher income from workers in non-productive age. Agricultural labor in Indonesia is still dominated by farmers aged 41 years and over. Even though it is still classified as a productive age, in Indonesia young farmers tend to thin out in number, so that the impact in the future of Indonesian agriculture is only decorated by older farmers. According to Wicaksono (2011), working hour's factor has a relationship to income, where increased working hours indicate an increase in operational time of production activities so that production results can increase and have an impact on income to be obtained. The length or absence of a person in work will affect their productivity in obtaining greater income.

The agricultural sector is very interesting to discuss because the agricultural sector has a large role in the economy. However, behind the role of the agricultural sector in the economy, there is the role of farmers as actors of the production process who are very attached to a weak economic image. Data from the Central Statistics Agency (2017) shows that the agricultural sector dominates the main source of income of poor households in Indonesia from 2013 to 2016. In that year, approximately 50 percent or half of households classified as poor earn income from the agricultural sector. In fact, if the weak condition of the farmers' economy is allowed to drag on, then there will be some negative impacts. First, declining farmer productivity will have an impact on the availability of staple food. Second, the decline in interest of the younger generation to farm because the agricultural sector is seen as not able to sustain life needs. Third, the contribution of the poverty rate from the agricultural sector will increase.

Although there have been many studies that discuss farmers' income, but reflecting on the data described earlier, it does not show a significant change in Indonesia's agricultural conditions, especially related to HR readiness as an agricultural subject. Indonesia with its natural wealth and abundant amount of human resources is expected to be able to advance its agricultural sector especially Indonesia, which is known as an agricultural country. Indonesian agriculture has lost far compared to other countries such as Japan, India, the United States, China and even India which has a vast country and does not even reach one percent of the total country of Indonesia. Indonesia with a variety of advantages related to the number of human resources, natural resources, fertile land, and sunshine throughout the year which should be very suitable to promote the agricultural sector is not expected to lag far behind countries that do not even have these advantages. The many impacts that result from the weak economy of farmers make the authors interested in examining the factors that influence the income of farmers in Indonesia. Although previously, there were many who conducted research related to farmers' income, but this problem is still interesting to review, especially using the latest data through different data sources. The purpose of this study to find out and analyze the factors that influence farmers' incomes in Indonesia and understand the conditions or categories of farmers' income positions in Indonesia.

THEORETICAL BASIS

Agriculture

Mulyadi (2014), stated that it was only natural that Indonesia, known as an agricultural country, had the main livelihood in the agricultural sector, so that the agricultural sector played an important role in the Indonesian economy. In line with the statement, Murbyanto (1989) stated that Indonesia is an agricultural country, which illustrates that Indonesia's national economy is

inseparable from the important role of the agricultural sector. Agriculture has an important role for the Indonesian economy, which can be seen from the quantity of the population which also plays a role as laborers who live or work in the agricultural sector and national products originating from agriculture.

Income

Winardi (1998: 245) states that one concept that is often used to measure the economic condition of a person or household is through income levels. Revenue shows all money or other material proceeds obtained by someone or household services or for the use of wealth for a certain period of time in an economic activity. In line with Winardi (1998), Jhingan (2003) also mentions income as all revenues in the form of money received by workers during a certain period, in other words income as all income that causes an increase in the ability of a person or household, both for consumption and savings.

The income earned by someone in return for doing work or business solely aims to fulfill his life needs or his family, so that everyone will always strive to get the maximum possible income.

Land area

Mubyarto (1989), states the factors of production in agriculture include land, capital, and labor, in addition to entrepreneurs (entrepreneurs). Land as one of the factors of production, namely the place where the production process is carried out. Land is a production factor that has the most important role. According to the Indonesian Dictionary (KBBI), what is meant by land is open land and arable land. The arable land is open land used for agricultural land. Land as one of the factors of production is a factory of agricultural products, which greatly contributes to the way of farming. The extent or extent of land will directly affect the size of farming. Farming is not efficient when done on a narrow land unless the cultivation is done in an orderly manner. Mastery of agricultural land or land ownership is very closely related to farming efficiency. The extent of control of farmland will affect the efficiency of the use of inputs (Mubyarto, 2003).

Working capital

Working capital is the amount of wealth that must be there continuously sustaining business needs so that it can be used to carry out the production process of the next result. In essence, working capital serves to cover every expenditure that is directly related to production and sales. Ahmad (2005) states that working capital is the main requirement for the success of businesses, especially small businesses. Sufficient capital will determine the timeliness and dose of input

use. If producers lack capital, it will affect the lack of input, which will then be easily exposed to the risk of failure and low income.

Education

Education is one form of investment in human resources. Through education, income growth can be achieved due to an increase in work skills and productivity. The existence of education is expected to be able to overcome the conditions of economic backwardness. Education is one of the capital to prepare quality human resources which is one of the inputs in the production process in order to work productively. Thus, it will further encourage an increase in output which is expected to lead to the welfare of the population. Improving the quality of workers, reflected in the average level of education that is getting better, has a positive impact on labor productivity. Not many doubt that the income of someone who is educated is better than the one who is low or not at all (Hill, 2001). Someone who has a higher level of education will influence the way of thinking, behavior and attitudes he has. Economist, Mr. Schultz in Mubyarto (1989) states that increasing the skills and skills of farmers can increase agricultural productivity. Therefore, improving ways of producing farmers through education is an important investment and the results cannot be underestimated because it can support the lives of farmers.

Theory of Human Capital (Human Capital Investment)

Theodore Schultz (1963) in Marzuki Shahril (2005), states that humans become the main capital if they have knowledge / knowledge and skills obtained through education. Backer (1975), argues that the concept of human capital applies one's logic to analyze investment decisions in oneself in knowledge and work skills which include formal education and training. In addition to work knowledge and skills, all things related to work such as career choices are also included in the concept of human capital.

The basic assumption of human capital theory is that a person can increase his income because of an increase in education. Every additional year of education, it will delay receiving income while taking the education. Improving the quality of human capital certainly requires a long time, thus the costs and benefits need to be taken into account. Costs that are taken into account are the costs that must be incurred for taking education as well as opportunity costs which are income that he can receive when he is not educated. While the benefits are income that will be obtained in the future, when it has finished taking education. This investment is expected to provide benefits that are far greater than the costs incurred for investing

Age

The Central of Statistics defining age is information about the date, month and year from the time a person was born based on a Christian calendar. A person of productive age can work longer than workers who are non-productive. Workers who are in a young age range generally have a strong, dynamic and creative physique. Conversely, workers who are in the older age range have low physical conditions. Age can be used as a benchmark in looking at a person's activities in work, where with the condition of the age that is still productive, then most likely someone can work well and maximally, so that it can increase the acquisition of income. Prayitno (2002), states that someone who has entered the elderly category is powerless in earning a living for basic needs for his daily life. Saporinah (1983), states that the age group of the elderly and above will enter the pre-clinical stage by experiencing various decreases in health / endurance and various psychological stresses.

Working hours

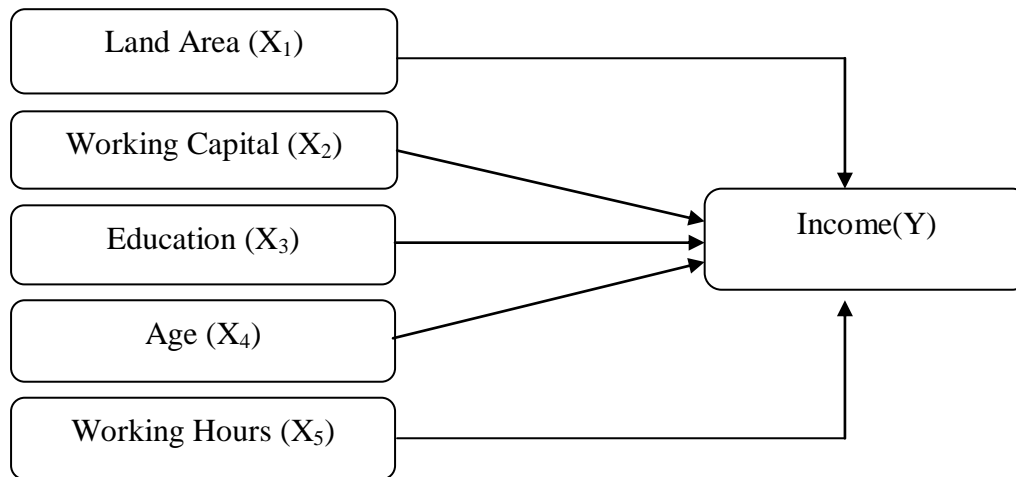
Working hours are important indicators for analyzing labor market dynamics, where these indicators have implications for measuring between underemployment and labor productivity. The standard working hours in Indonesia are 40 hours per week (Puguh et al, 2000). Other developing countries have a relatively high total working hours per person, up to 2000 working hours per year, especially for male workers. According to Mubyarto in Sumarsono (2009), the level of outpouring of working hours is the number of working hours devoted to the number of working hours available. A person earns income from a job through the outpouring of working hours in producing goods and services.

Framework of Concepts and Hypotheses

In this study the factors that influence farmers' income in Indonesia include cultivated land area, education level, working capital, age and working hours. In accordance with the formulation of the problem and the literature review that has been discussed, the hypotheses that can be formulated include:

1. The area of arable land, education level, working capital, age and working hours has a positive influence on the income of farmers in Indonesia
2. The level of income obtained by farmers in Indonesia is still in the low income category.

Figure 1 Research Conceptual Framework



METHOD

In this study, location selection was in Indonesia based on the consideration that agricultural productivity in Indonesia was still low which would have an impact on the low income received by farmers. This is also supported by the statement of the Ministry of Agriculture (2013), that the economic conditions of farmers in Indonesia are still weak compared to those who work in addition to the agricultural sector. In line with this statement, the Central Statistics Agency (BPS) also noted that there were approximately 50 percent or half of poor households who depend on the agricultural sector for their livelihoods. This indicates that the income conditions of farmers in Indonesia have not been able to support the welfare of farmers, even though farmers can be said to be the main asset or subject in carrying out agricultural production processes aimed at meeting the food needs or primary needs of the Indonesian people. According to the type, in this study using quantitative data. While based on the source using secondary data IFLS 5 (Indonesian Family Life Survey) fifth wave.

Data collection related to this research is carried out by the method of non-participant observation which means collecting data by observation / observation where the researcher is not directly involved and only as an independent observer (Sugiyono, 2013). Data collection in this study was carried out by observing questionnaire material obtained from the Indonesian Family Life Survey (IFLS) of the 5th Wave of 2014. This study tried to provide an overview of the conditions of welfare of farmers in Indonesia based on income earned, by looking at the effect of variable land area, working capital, education of age and working hours of farmers to farmers' income. Data analysis techniques used in answering problems or problems in this study are quantitative analysis techniques with multiple linear regression analysis methods.

The regression equation model in multiple linear regression analysis is as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e_1 \dots \dots \dots (1.1)$$

Based on the data presented in this study, the model formed looks not linear in parameters, but can be made linear with the logistic model transformation method, as follows:

$$\ln Y = \ln \alpha + \ln \beta_1 x_1 + \ln \beta_2 x_2 + \ln \beta_3 x_3 + \ln \beta_4 x_4 + \ln \beta_5 x_5 + \varepsilon_1 \dots \dots \dots (1.2)$$

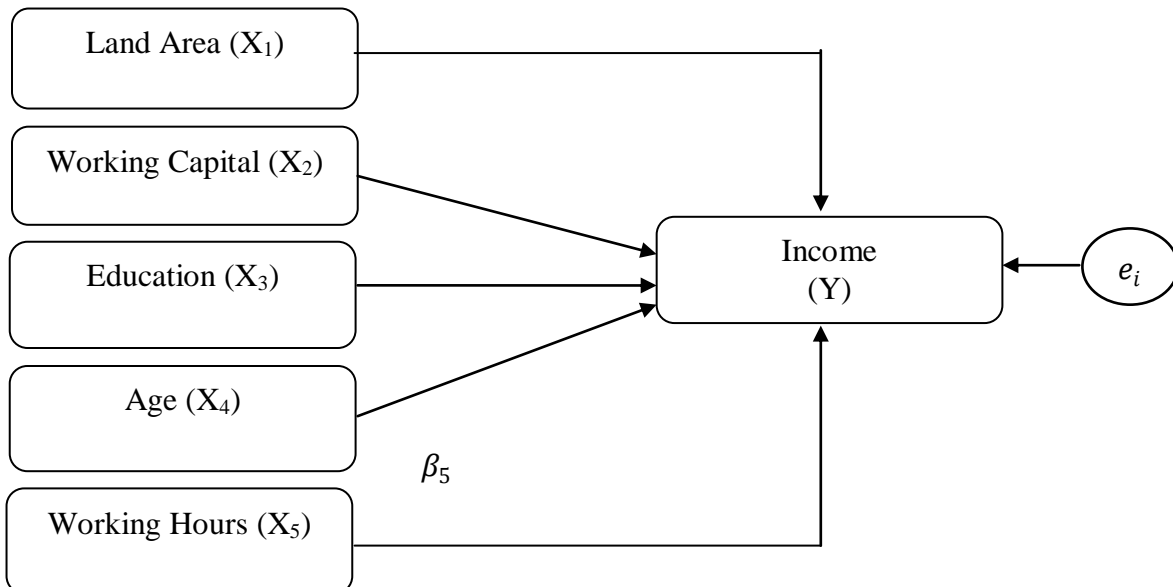
The model is a double-log model. The model shows the coefficient can be interpreted as an elasticity that describes the percentage change in Y variable as a result of the percentage change in variable X.

According to Gujarati (2003), there are several reasons for using regression analysis in log transformations including:

1. Parameter (β) can directly show the elasticity coefficient, namely the percentage change in the dependent variable to the percentage of certain changes in the independent variable
2. Symptoms of heteroscedasticity can be minimized because through logarithmic transformation can reduce the scale of the measured variable.

The following is an analysis model of the factors that influence Farmer Income in Indonesia based on the variables used in this study shown in Figure 2.

Figure 2. Model Analysis of Factors Affecting Farmer Revenues in Indonesia



Notes:

Y = Income

α = Constant

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = The coefficient of each regression

- X_1 = Land Area
 X_2 = Working Capital
 X_3 = Education
 X_4 = Age
 X_5 = Working Hours
 e_i = error

Figure 3, describes the model in this study using one model equation with the dependent variable of farmer income (Y), while the independent variables used are land area (X1), working capital (X2), education (X3), age (X4), and working hours (X5).

RESULTS AND DISCUSSION

Multiple linear regression

Based on the hypothesis formulated in this study and to determine the effect of the variables observed, structural equations can be elaborated through the following table:

Table 1. Results of Multiple Linear Regression Analysis

Variable	Regression Coff.	Beta	Stand. Error	t-statistic	Sig
Constanta	11,50	-	0,45	24,93	0,000
Land Area	0,10	0,15	0,02	5,90	0,000
Working Capital	0,20	0,25	0,02	10,04	0,000
Education	-	-	-	-	-
Elementary	0,14	0,05	0,06	1,95	0,050
Junior HS	0,31	0,10	0,09	3,55	0,000
Senior HS	0,45	0,15	0,09	5,26	0,000
Diploma	0,71	0,09	0,18	3,95	0,000
University	1,01	0,26	0,10	9,97	0,000
Age	0,26	0,07	0,08	3,01	0,003
Working Hours	0,12	0,08	0,03	3,50	0,000
N	1.548				
R-Squared	0,2029				
F-statistic	43,49				0,000

Source: Indonesia Family Life Survey 5 of 2014

Based on the results of the analysis of research data in table 1 above, the regression equation can be arranged as follows:

$$\begin{aligned} \text{LnIncome} = & 11,50 + 0,10\text{LnLandArea} + 0,20\text{LnWorkingCapital} + \\ & 0,14\text{elementaryschool} + 0,31\text{Juniorhighschool} + 0,45\text{Seniorhighschool} + 0,71\text{Diploma} + \\ & 1,01\text{University} + 0,26\text{LnAge} + 0,12\text{LnWorkingHours} \end{aligned}$$

Based on the results of the regression analysis, it can be concluded that the income of farmers in Indonesia is influenced by the area of arable land, working capital, education level, age and working hours with the direction of the positive regression coefficient.

Simultaneous Test (F)

The F test is used to see the ability of independent variables to jointly influence the dependent variable. The results of data processing from this study indicate that the calculated F value is 43.49 with a probability value of 0.000 which means it is smaller than the 0.05 significance level. This indicates that the independent variables in this study consisting of land area, working capital, education, age and working hours together affect the dependent variable, namely the income of farmers in Indonesia.

Partial Test (t)

The t test is used to see the ability of the independent variable to partially influence the dependent variable. The results of the data from this study show that:

1. Testing of land area variables on income produces a t value of 5.90 with a probability value of 0,000 (<0.05), it can be concluded that the land area partially has a positive and significant effect on farmer income.
2. Testing the working capital variable on income produces a t value of 10.04 with a probability value of 0,000 (<0.05), it can be concluded that working capital partially has a positive and significant effect on farmer income
3. Testing of educational variables on income is described in the education dummy as follows:
 - a. Testing of elementary education dummy variables produces a t value of 1.95 with a probability value of 0.05 (≤ 0.05), it can be concluded that the level of elementary education has a positive and significant effect on farmer income
 - b. Testing of junior high school dummy variables produces a t value of 3.55 with a probability value of 0,000 (<0.05), it can be concluded that junior high school education has a positive and significant effect on farmer income

- c. Testing the dummy variable of high school education produces a t value of 5.26 with a probability value of 0,000 (<0.05), it can be concluded that the level of high school education has a positive and significant effect on farmer income
 - d. Testing of Diploma education dummy variables produces a t value of 3.95 with a probability value of 0,000 (<0.05), it can be concluded that Diploma level of education has a positive and significant effect on farmer income
 - e. Testing of the University's dummy education variable produces a t value of 9.97 with a probability value of 0,000 (<0.05), it can be concluded that the University's education level has a positive and significant effect on farmer's income
4. Testing the age variable on income produces a t value of 3.01 with a probability value of 0.002 (<0.05), it can be concluded that age has a positive effect and significantly affects the income of farmers
 5. Testing of working hour variables on income produces a t value of 3.50 with a probability value of 0,000 (<0.05), it can be concluded that working hours have a positive effect and significantly affect farmer income.

Coefficient of Determination (R²)

Based on the results of the regression analysis in table 1, it can be seen the R-squared value of 0.2029 which means that variations in income variables can be explained by variations in land area, working capital, education and age variables of 20.29 percent, and the remaining 79.71 percent influenced by other variables not included in the model. The results of the analysis which showed a small r square value were caused by this study using cross-section data.

Classic assumption test

The classic assumption test is important to fulfill the BLUE tested model requirements (Best, Linear, Unbiased, Estimator). The classic assumption test carried out in this study, with cross section data included normality test, multicollinearity test, and heteroscedasticity test.

Normality test

In this study, the normality test was carried out using the Shapiro Wilk test.

Table 2 Normality Test Results

Shapiro-Wilk W test for normal data					
Variable	N	W	V	Z	Prob>z
Residual	1.548	0,99235	7,186	4,969	0,00000

Based on the results of the Shapiro-Wilk W normality test above, it shows the prob value > z of 0,000. If p-value is <0.05, then the regression data is not normally distributed. This indicates that the results of the above normality test show data that is not normally distributed. However, if viewed from the number of observations used in this study there were 1,548 adjusted to the central limit theorem approach, which the distribution of OLS (Ordinary Least Square) estimation results would be close to the normal distribution if the number of observations was large.

Therefore, the problem of data that is not normally distributed can be solved according to the central limit theorem approach.

Multicollinearity Test

Multicollinearity test is a further test in the classic assumption test. This multicollinearity test is used to check whether in the regression model made there is a linear relationship between independent variables or not. The multicollinearity test is done by looking at the value of Tolerance or Variance Inflation Factor (VIF). After conducting this test the results of the multicollinearity test are obtained in the following table 3:

Table 3 Multicollinearity Test Results

Variabel	VIF	1/VIF
Land Area	1,18	0,850601
Working Capital	1,20	0,836525
Elementary School	1,51	0,661220
Junior HS	1,50	0,666994
Senior HS	1,50	0,665172
Diploma	1,07	0,934948
University	1,30	0,767683
Age	1,19	0,839350
Working Hour	1,01	0,989321
Mean VIF	1,27	

Source: IFLS-5 Year 2014 Data, Stata (data processed)

Based on the results of the multicollinearity test above, it shows the correlation value between independent variables. All independent variables showed VIF values <10 and $1 / VIF > 0.1$, so that the numbers showed a regression model formed free of symptoms of multicollinearity.

Heteroscedasticity Test

Heteroscedasticity test was conducted to test for the variance inequality of residuals in one observation to another observation, heteroscedasticity test was carried out by the Cook-Weisberg test method.

Figure 3 Heteroscedasticity Test Results

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity	
Ho: Constant variance	
Variables: fitted values of lnincome	
chi2(1)	= 0,11
Prob > chi2	= 0.7389

Source: IFLS-5 Year 2014 Data, Stata (data processed)

Based on the results of the heteroscedasticity test above, it can be seen that the value of prob> chi2 is 0.7389 (> 0.05) which indicates that the regression model formed is free from symptoms of heteroscedasticity.

Standardized Coefficient Test (Beta Coefficient Test)

Standardized coefficient test or beta coefficient test is used to see the dominance of the influence of independent variables on the dependent variable. The coefficient coefficient beta in table 1 can be explained that the dominant independent variable affecting income as the dependent variable is the education variable at the university level with a beta coefficient of 0.26.

Based on this research indicates that farmers as individuals are very important supported by a high educational background in conducting farming. Farmers who have a high educational background are expected to increase the income earned from their work as farmers. Besides, other factors will also influence farmers in increasing their income.

Table 4. Descriptive Analysis

Variable	N	Rata-Rata	Std. Dev.	Min	Max
Land Area (ha)	1.548	0.88	2,01	0.0002	60
Working Capital (thousand rupiah)	1.548	5.490	11.700	5	100.000

Education (1: TLSD), (2: SD), (3: Middle School), (4: High School), (5: Diploma), (6: University)	1.548	2	1,52	1	6
Age (years)	1.548	45	14	15	91
Working hours (hours / week)	1.548	34	18,51	1	140

Table 4...

Source: Data IFLS-5, 2014

Based on 1,548 respondents the workforce in the agricultural sector has an average income of Rp. 14,000,000 per year or an average of around Rp. 1,166,667, - per month. The lowest income obtained by farmers is Rp. 300,000, and the highest income of Rp. 222,000,000 per year. The amount of difference or income inequality can be seen from the value of the standard deviation of Rp. 18,500,000 per year or around 1,541,667 per month. This large difference shows that there are still high inequalities in the conditions of farmers' income in Indonesia.

Table 4 shows that, of the 1,548 number of farmers working on land, the average arable land is 0.88 hectares or less than 1 hectare with the lowest cultivated land area of 0,0002 hectares or equivalent to 2 square meters, and the widest arable land of 60 hectare. The amount of difference or inequality of cultivated land area for farming can be seen from the standard deviation value of 2.01 hectares. The following is the frequency of land-use farmers based on their land area:

Table 5. Number of Farmers based on the Land Area of the arable land

No.	Land Area (Ha)	Frequency	Percentage
1	<0,50	802	51,81
2	>=0,50	746	48,19
Total		1.548	100

Source: IFLS-5 Year 2014 Data (data processed)

Table 5 above shows that the number of farmers working on land under 0.5 hectares is 802 farmers or around 51.81 percent of the total land use farmers. Then, there are 746 farmers or 48.19 percent of farmers working on 0.50 hectares or more of land. If described according to the classification of land ownership can be seen in table below:

Table 6. Farmers' Frequency based on Land Ownership

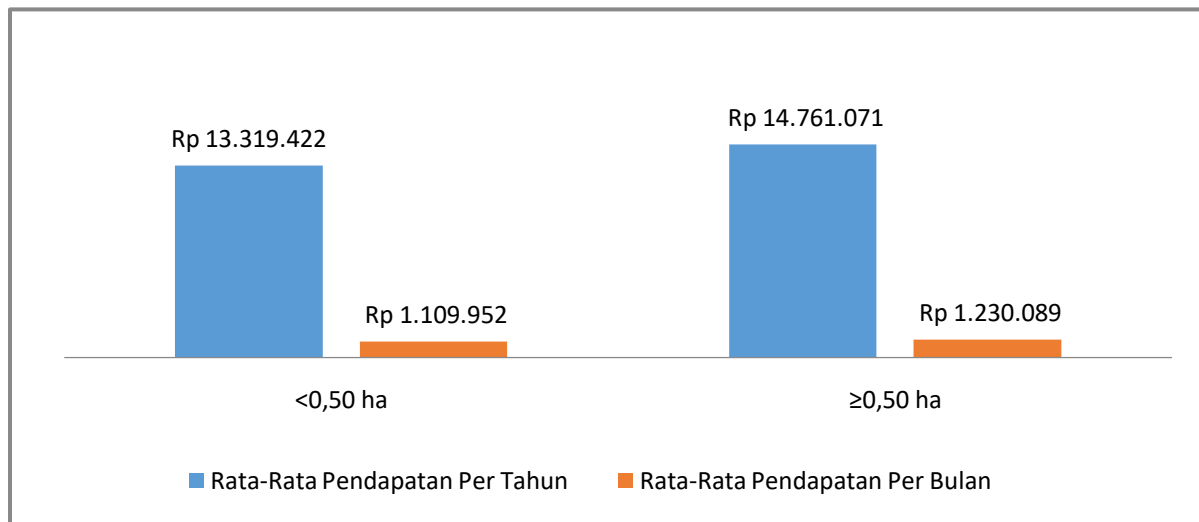
Land Ownership (ha)	Harvest Frequency (person)	(%)
0 dan <0,50 ha	945	61,05
>=0, 50 ha	603	38,95
Total	1.548	100

Source: IFLS-5 Year 2014 Data (data processed)

Based on table 6, it can be explained that the number of farmers who own land less than 0.50 hectares or no land at all there are as many as 945 people or equivalent to 61.05 percent. Whereas those with land of 0.5 hectares or more have around 603 farmers or 38.95 percent. This indicates that the majority of farmers in Indonesia are farmers who own less than 0.50 hectares of land, including those who have no land at all. The limited area of land worked will hamper the production process and disrupt agricultural productivity and will subsequently have an impact on income generation by farmers.

The following will be reviewed the average farmer's income obtained based on the cultivated land area in figure 4 below:

Figure 4. Average Land User Farmer Income in Indonesia based on the Land Area of the arable land



Source: IFLS-5 Year 2014 Data (data processed)

Based on Figure 4, it can be explained that the average income obtained by land tenants of less than 0.50 hectares is smaller than farmers who own an area of 0.50 hectares or more. Farmers who have less than 0.50 hectares of land obtain an average income of Rp. 10,771,262, - per year or around Rp. 897,605 per month, whereas for farmers who have 0.50 or more land, they are able to obtain an average income of Rp. 17,500,513, - per year or around Rp. 1,458,376, - per month. This indicates that the area of land is very important for farmers, because farmers who with cultivated land are able to earn more income.

Based on table 4 related to working capital of farmers, the average capital that must be spent by farmers in carrying out their farming is Rp. 5,490,271 per year or an average of around Rp. 457,523, - per month. The lowest capital issued by farmers is Rp. 5,000, - and the highest is Rp. 100,000,000, with a standard deviation of Rp. 11,700,000 per year or around Rp. 975,000 per month.

Table 7. Number of Agricultural Sector Workers by the Highest Education Level

No	Education Level	Amount (Person)	(%)
1	Not Graduating Elementary School	419	27,07
2	Primary school	456	29,46
3	Junior high school	251	16,21
4	Senior High School	246	15,89
5	Diploma	34	2,20
6	University	142	9,17
Total		1.548	100

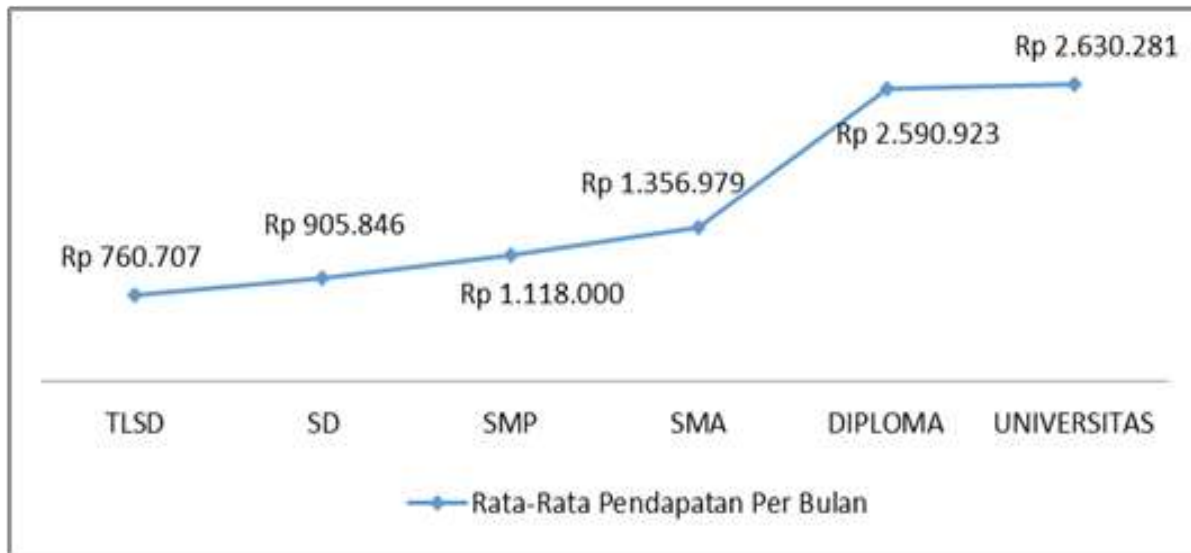
Source: IFLS-5 Year 2014 Data (data processed)

In Table 7 above, it can be explained that the number of farmers who did not pass primary school was 419 or 27.07 percent and educated farmers at the elementary school level were 456 people or 29.46 percent. Then, there were 251 farmers or 16.21 percent were junior high school graduates and 246 farmers or 15.89 percent were high school graduates. The rest, farmers with diploma graduates as many as 34 or 2.20 percent and graduates of Higher Education as much as 142 or 9.17 percent.

If you look at the number of farmers based on their level of education, farmers who are less in terms of education or with low educational background (not graduating from elementary and elementary school) and secondary education (junior and senior high school) still dominate. Farmers who are able to study up to universities are still very few in number. This means that,

the majority of the workforce in the Indonesian agricultural sector is still low to middle education with a total of 1,372 farmers or 88.63 percent of the total workforce in the agricultural sector. While those who are able to take higher education only range from 176 people or 11.37 percent of the total workforce in the agricultural sector.

Figure 5 Average Income Per Month Agricultural Sector Workers Based on the Highest Education Level Completed



Source: IFLS 5 Year 2014 data (data processed)

Figure 5 above shows the tendency of the average income earned per month by farmers based on the classification of education levels completed. For farmers who do not pass elementary school get the least income which is Rp. 760,707, - and farmers with an elementary school education level of Rp. 905,846, -. Then, farmers with junior high school education receive an average income of Rp. 1,118,000, and farmers graduating from High School get as much as Rp. 1,356,979, -. Then, for farmers graduating Diploma and Higher Education each of them gets an average income per month of Rp. 2,590,923, - and Rp. 2,630,281, -. From the figure, it is indicated that farmers with college graduates obtain the highest average income compared to farmers who have low and middle education.

Increasing education needs to be pursued, given that education is an important basic thing for individuals of all ages. The level of education based on age is described in table 8 below.

Table 8. Frequency of Farmers Based on Education Level and Age.

Age Category (Years)	Education level						Total
	TLSD	elementary	Junior	Senior	Diploma	University	
Adolescents (15-25)	7	24	29	33	3	9	105
Adults (26-45)	116	211	157	151	12	87	734
Elderly (46-65)	224	163	59	57	17	45	565
Senior (> 65)	72	58	6	5	2	1	144
Total	419	456	251	246	34	142	1.548

Source: IFLS-5 Year 2014 Data

Based on table 8 above, it can be explained that overall the majority of farmers in Indonesia are at the level of not passing elementary school and elementary school level. If seen in higher education, farmers who fall into the adult age category dominate the University education as many as 87 people, even the elderly age group is only 1 person who has university education.

Table 9. Number of Farmers by Age Category

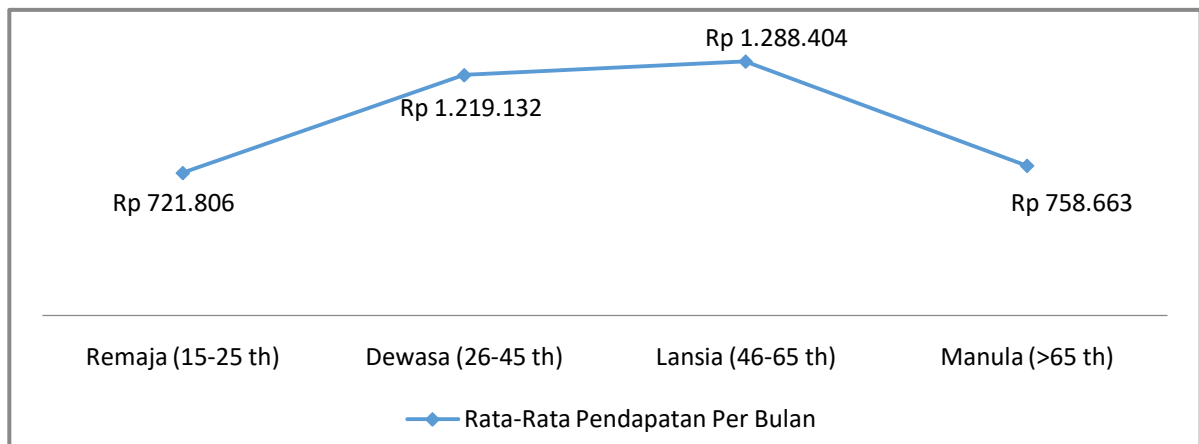
No.	Age category	Frequency	%
1	Adolescents (15-25)	105	6,78
2	Adults (26-45)	734	47,42
3	Elderly (46-65)	565	36,50
4	Senior (> 65)	144	9,30
Total		1.548	100

Source: Indonesia Family Life Survey 5 (data processed)

Table 9 explains the number of farmers by age group, where the number of farmers belonging to adolescents aged 15 to 25 years is 105 farmers or 6.78 percent. Then, the number of farmers who are categorized as adults in the age range of 26 to 45 years is 734 farmers or 47.42 percent. While the number of elderly farmers with ages between 46 to 65 years is 565 farmers or 36.50 percent. The rest, 144 farmers or around 9.30 percent are farmers who are over 65 years old. The table indicates that the majority of farmers in Indonesia are in the adult age at 47.42 percent of the total number of farmers using land.

Furthermore, the average amount of income of farmers based on the age range category of farmers in doing their work in Figure 3 follows:

Figure 6 Average Farmer Income Per Month by Age Category



Source: IFLS-5 Year 2014 Data (data processed)

Based on Figure 5 above, teenagers are able to obtain income of Rp. 721,806, -. Furthermore, the average income obtained by adult farmers is Rp. 1,219,132, -, while the category of elderly farmers obtained Rp. 1,288,404, -. In every age of farmers, farmers are able to obtain higher income. Increasing one's age will be in line with the increasing experience in doing an activity. In this study, the peak of the increase in income was in the elderly category, namely farmers whose ages ranged from 46 years to 65 years. Furthermore, there is a decrease in income in the elderly category or those aged over 65 years with only being able to earn as much as Rp. 758,663, -. Entering non-productive age, a person will experience a condition of decreased stamina in carrying out an activity, especially in heavy activities.

Table 10. Table of Number of Farmers Based on their Working Hours

No.	Working Hours/week	Frequency (person)	(%)
1	1-20 hours	389	25,13
2	21-40 hours	598	38,63
3	>40 hours	371	36,24
Total		1.548	100

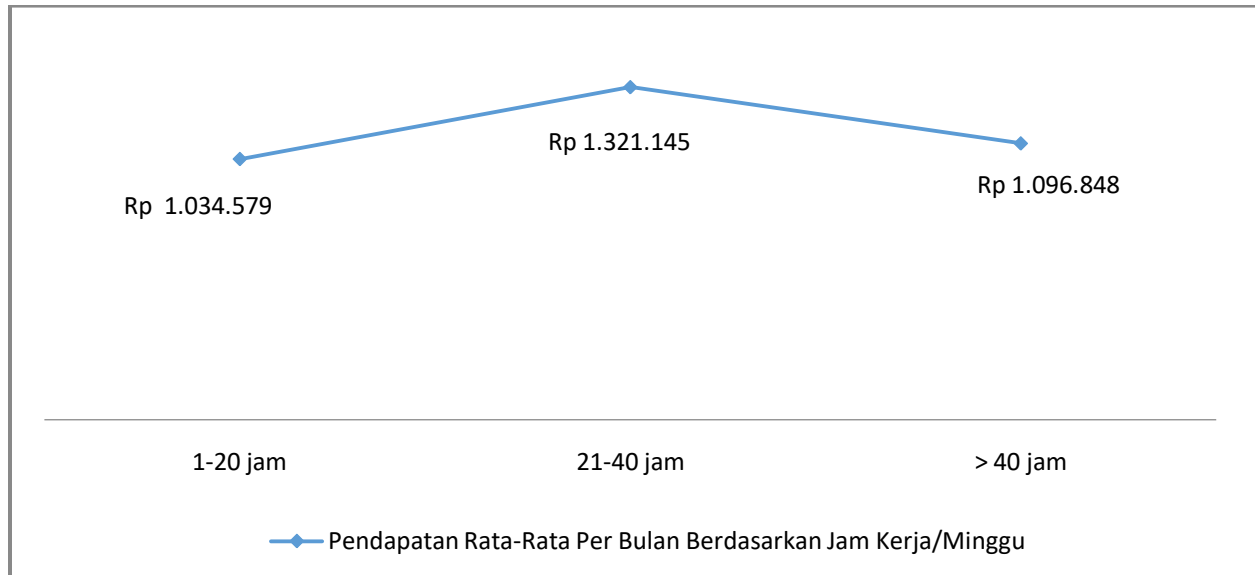
Source: IFLS-5 Year 2014 Data

Table 10 explains the number of farmers based on the number of hours worked, where the number of farmers with the number of working hours between 1-20 hours was 389 farmers or 25.13 percent. Then, the number of farmers who worked within 21 to 40 hours was 598 farmers

or 38.63 percent. The rest, 371 farmers or around 36.24 percent are farmers who work more than 40 hours per week.

Furthermore, the average number of farmers' income will be described based on the number of hours worked in conducting or running farming in the following figure:

Figure 7. Average Farmer Income Per Month Based on Number of Working Hours / Week



Source: IFLS-5 Year 2014 Data

Based on Figure 7 above, farmers who work 1-20 hours / week are able to earn Rp. 1,034,579, -. Furthermore, the average income obtained by farmers who work 21-40 hours / week is Rp. 1,321.145, -. Meanwhile, the rest of farmers who work above 40 hours / week are able to earn Rp. 1,096,848, -. In every increase in working hours of farmers, farmers are able to obtain income tends to be higher. In this study, the peak of the increase in income of working farmers was up to 31-40 hours per week. Furthermore, there is a decrease in income in working hours above 40 hours.

Average Position of Indonesian Farmers' Income

The Central Statistics Agency distinguishes income based on four groups including: (1) Low income group with an average income of Rp. 1,500,000 per month; (2) Middle income group with an average income between Rp. 1,500,000 to Rp. 2,500,000 per month; (3) High income group with an average income of Rp. 2,500,000 to Rp. 3,500,000 per month; (4) The income group is very high with an average income of more than Rp. 3,500,000 per month.

Based on descriptive analysis before, the average farmer's income is Rp. 14,000,000 per year or an average of around Rp. 1,166,667, - per month. This figure shows that the position of the average income level of farmers in Indonesia is still in the low income group. This also illustrates that the level of welfare of farmers is still relatively low. This condition can be a serious threat to Indonesian agriculture. If farmers are consistently in the low income group, it will trigger farmers to switch professions to the non-agricultural sector.

DISCUSSION

Based on the results of the study, land area, working capital, education level, age and working hours have a positive and significant effect on the income of farmers in Indonesia, especially farmers who use land. This shows that the need for basic capital for farmers in conducting farming, not only capital in the form of land and working capital, but also needs to be supported by competence, productive age and optimal working hours in conducting farming.

The area of agricultural land is important for farmers, especially farmers who use land because the land is the main capital of the farmers in the production process. With extensive land tenure, production is expected to increase and will affect the income that farmers will get. The results of this study are in line with the research conducted by Kaplale (2011), which states that land area affects the increase in farmers' income because narrow land ownership tends to produce less yields and has an impact on the low income earned. In line with previous research, research by Novianti (2017), revealed that the area of land ownership has an effect on farmers' income because the more land they have, the farmers will get more income without the need to share the results like land tenants.

The research results by Karyanto (2008), which states that capital influences the increase in farmers' income because the lack of capital in farming affects the limited use of production facilities which affects production and income. In line with the research, Kosmayanti (2017) in his research concluded that capital has a positive and significant effect on farmer income because without capital, farming will not work even though other conditions have been met. Increasing capital will affect the use and selection of quality inputs in the production process so as to be able to provide maximum production results and their effect on increasing farmers' income.

Human capital theory which states that investment in HR is a step to improve self-quality in order to produce higher returns than what has been issued, so that humans have the capacity to provide maximum work effort. Farmers armed with education tend to be better able to manage farming well because they are armed with a good mindset and absorption so that good farming management will have an impact on increasing farmers' income.

This study shows that age has a positive and significant effect on income. The results of this study are in line with research by Romaully and Yanti (2018) and research by Yanutya (2013) which revealed that age has a positive and significant effect because increasing age of farmers tends to increase experience in running farming. Increasing the age of farmers with experience will be able to increase farmers' income. However, it is described descriptively that income remembrance has a certain peak with age. After reaching a certain peak, the income level tends to decrease. This decrease occurs because the relatively old age will affect physical labor in carrying out activities, especially in carrying out farming.

Similar to the age variable, working hours also have a positive and significant effect on the income of farmers in Indonesia. The results of this study are in line with the research by Setiyowati (2016) that working hours have a positive and significant effect on the income of shallot farmers in Bantul Regency. The application of the right working hours will affect the increase in income generated by farmers. In addition, Arliman (2013) also revealed that informal workers who work more than 35 hours per week have the opportunity to earn more income from the UMP. But keep in mind that humans have limited energy in working. There will be a certain limit of increasing age will affect an increase in one's income.

Seeing the results of the descriptive analysis carried out in this study answered that along with the increase in working hours, the income will increase, but only to a certain point that is 40 hours per week, and then decreases. This decline occurs because over-working hours tend to reduce one's power to produce, thus affecting the reduction in the amount of production and a decrease in income.

SUGGESTIONS

The development of agricultural land is very necessary, especially emphasizing and clarifying land ownership rights by farmers because land ownership status will affect the high value of the land. Opening and generating sleeping areas (non-productive) and temporary unused land considering that the land area is wider than the area of productive land in Indonesia. More emphasizing regulations related to conversion of agricultural land, especially amid a population surge and the need for residential land. In order not to lead to the reduction of productive agricultural land.

Increasing working capital for farmers is needed to help farmers in providing input inputs. The government can implement subsidy programs in the form of production inputs such as superior seeds and fertilizers, as well as other production facilities. Even though all this assistance has been carried out by the government, it is expected that there will be appropriate and strict supervision regarding the procurement of goods so that they can avoid KKN practices

in it. For farmers, steps can be taken independently or forming farmer groups by fostering an entrepreneurial spirit through crop management so that farmers can get added value from harvested commodities. In addition, this can also foster the independence of farmers so they do not have a strong dependence on government assistance.

Improving farmer education is very much needed in the hope that educated farmers can more easily absorb information related to agricultural development in developed countries, market share information, and the application of modern technology. Scholarship assistance is devoted to generations of farmers by designing certain conditions so that when a generation of farmers completes higher education is able to contribute back to the agricultural sector and does not choose to leave the family economic lifestyle, because each rupiah issued by the state should have a backward impact on the country's economic growth and growth. This is also expected to create a continuous regeneration of farmers. But still prioritizing accurate data collection and strict supervision in its implementation. Government cooperation with the private sector can be through CSR and so on, or cooperation between countries in the form of an apprenticeship program to provide assistance in providing training that is able to increase the absorption and expertise of farmers as human capital.

LIMITATIONS

Based on the results of the research obtained several limitations can be stated in this study, including:

- 1) This study uses four variables that affect farmers' income including land area, working capital, education, age, and working hours sourced from IFLS data. There are other variables that are not used in this study which have an influence on the income of farmers who if they can provide better results. Especially the factors outside the individual's internal farmers themselves.
- 2) The IFLS data analyzed in this study is a 2014 cross section data. In the future it is expected that there will be a development of research related to farmers' income by analyzing time series or panel data to be able to describe income differences over a certain period.

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