



## **The Analysis of Farmers' Financial Literacy and its' Impact on Microcredit Accessibility with Interest Subsidy on Agricultural Sector**

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### **ABSTRACT**

The government of Indonesia has been rolling out the Food Security and Energy Credit (KKP-E) with interest rate subsidy since 2008 for the people who have no access to banking but have a feasible business. This study aims (1) to analyze the level and influence variables of respondents' financial literacy and (2) to analyze the variables that influence the farmers' accessibility to KKP-E. The methods used are multiple regressions and logistic analysis. The results show that the levels of financial literacy are in the medium categories, which variables affected consist of age, education duration, distance to the capital regency location, annual income, bank account ownership, and financial education experiences. The variables influence of KKP-E accessibility consists of farms' income, the width of the cultivated area, collateral, interest rate, financial literacy index, farmer group legal status, credit accessibility experiences, and loan amount. Financial literacy significantly influences the KKP-E accessibility.

**Keywords:** Agricultural, Credit Accessibility, Financial Literacy, Interest Rates Subsidy

**JEL Classifications:** G210, H250, Q140, Q180

### **1. INTRODUCTION**

Food security is state defense. If the food security threatened, the whole nations will be threatened. Siregar (2009) stated that national resilience depends on economic resilience. The economic resilience pillars consist of food and energy security, financial resilience and physical endurance. Among the economic resilience pillars, food security is the most important pillar. There are four pillars of food security namely food availability, food access, food stabilization, and food distribution.

The government pays more attention to the sustainable development of the national food security through its authorized fiscal policy by allocating state budget and subsidies for the agricultural sector. Farming businesses need some capitals as well as new farm equipment with more advanced technology. Lader

(1996) stated that one of the important problem facing small businesses is the access to capital, while Cook and Nixon (2000) argued that even though small businesses had an important role in the development process in many developing countries, small business is always limited by insufficient financial resources to meet some various operational and investment needs. In European Union countries, subsidy in the agricultural sector has been able to encourage farming production, farming productivity, and farming production (Tobias, 2006).

The accessibility of credit especially microcredit in rural areas is very limited (Etonihu et al., 2013). The accessibility to formal credit has some limitations such as strict requirements and procedures, lack of collateral and high-interest rates (Akram et al., 2008). Bank Indonesia (2014) stated that low access to formal credit is due to low-income levels, complicated bank

operating procedures, lack of financial and banking education, high bank administrative costs, and the difficulty to reach bank locations.

Another difficulty to access capitals is caused by low level of financial literacy. Cole et al. (2009) stated that low financial literacy is one of the obstacles to credit accessibility in Indonesia. Robb and James (2009) argued that adequate financial literacy would encourage a positive impact on financial behavior. Klapper et al. (2012) suggested that financial literacy increment would lead to increases in savings and access to credit for low-income society in the informal sector. The Indonesian Financial Services Authority (OJK, 2014) argued that the knowledge and understanding of Indonesian people on financial institutions, products, and services are low and uneven across the financial services sector. These conditions caused on the low utilization of financial products and services. Based on the survey conducted by OJK in 2013, respondents with sufficient financial literacy ranged from 21.8%.

The Government attempts to overcome the capital constraints for micro and medium enterprises by rolling out the interest subsidy program. The interest subsidy is the interest that the Government incurs for the applicable participants at the prevailing rate of interest. This credit disbursed to the people who do not have an access to capital in banking (un-bankable) but have business feasibility. One of the credit program schemes is the interest subsidy of the Food Security and Energy Credit (KKP-E).

KKP-E is a type of investment credit and working capital given in order to support the implementation of food stability program and food crop development program (Ministry of Agricultural, 2015). The main targets KKP-E are (a) food crop farmers that include rice, corn, soybeans, cassava, sweet potato, peanut, and sorghum, (b) horticulture farmers include onion, chili, potato, ginger, and banana, (c) farmers of sugarcane cultivation, (d) dairy farmers, dairy cattle, cattle breeding, race cock, domestic poultry, ducks, and quail, (e) cooperatives for the procurement of grain, corn, and soybeans. This research is only focused on the rice commodity.

The Government does a partnership with some Banks to distribute KKP-E for the eligible farms. The partnership between the Government and the Bank is set forth in the Financing Cooperation Agreement (PKP). The Bank is a commercial bank appointed by the Government to distribute loans with interest subvention. There are 22 Banks that distribute KKP-E throughout the country. By 2008 up to 2015, KKP-E provided by the Bank as amount IDR10 trillion in the average, but it only absorbs in the range of average IDR 3.2 trillion or equivalent to 32%. The low absorption indicates that the accessibility of KKP-E is low.

Based on the above background, the aims of the study are: (1) To analyze the level of farmers' financial literacy and the variables that influence financial literacy, (2) to analyze the influence of financial literacy, interest subsidy, and other variables on the accessibility of KKP-E by rice farmers.

## 2. LITERATURE REVIEW

### 2.1. Subsidy

The subsidy is one of the fiscal policy instruments provided by the Government in order to maintain the equity of access to economy and development. The function of subsidy is to perform correction on market imperfections. The main goal of subsidy policy in Indonesia is ensuring the poor people to be able to access the public services as well as economic and social development. The subsidy is not only intended to fulfill the domestic production but also to expand the share of the international market.

Milton and Orley (1993) stated that subsidy is a payment done by the Government to company or household in order to achieve certain goals which enable them to produce or consume the product in a higher quantity or at a lower price. Economically, the purpose of subsidy is to decrease prices or increase output. Todaro and Stephen (2009) mentioned that subsidy (also termed as a subvention) is a type of financial support paid to a business or economic sector. Some subsidies are given by the Government to producer or distributor in industries to prevent the fall of the industries or the increasing of its product price or only to support industries to employ more labor. In the Indonesia state budget (APBN), the subsidy is defined as budget allocation distributed through companies or institutions which produce, sell goods and services which fulfill the life necessity of many people in such a way that they will be able to afford the selling price.

### 2.2. Microcredit

Microcredit has been a part that cannot be separated from the farm, mainly from smallholder farmers. Farmers urgently need a loan to perform their farm business, both for capital and technology investment to improve the farm business both in term of production quantity and productivity. To meet their need, farmers use their own money or access credit offered by microfinance institution. A microfinance institution is identical to providing a small amount loans to customers with low income to develop their own business.

Wadud (2013) analyzed the impact of microcredit on agricultural performance in Bangladesh. He stated that farmers who obtained the loan could increase their income of 9.46% higher than farmers who did not obtain the loan. Quach et al. (2005) stated that microcredit for a household in Vietnam had a positive and significant impact on the welfare along with the increasing both food and non-food consumption per capita. Montgomery (2005) mentioned that microcredit resulted in a positive impact on the indicator of the economy and society as well as income, particularly for the poor family.

The impact of microcredit can be seen from two points of view, namely who have been reached and what is the impact on the welfare of individual and household. Karlan and Goldberg (2006) mentioned that evaluation on the impact does not only measure whether a program has positively affected the credit borrower today, but it is also needed to consider the future. Aghion and Morduch (2005) stated that a business with relatively small capital will lead to the higher return on investment at small scale business compared to the business at larger scale. This opinion is based on

the law of diminishing marginal return to capital. Increasing capital in a unit of business will result in decreasing marginal output.

A study conducted by Ibrahim and Bauer (2013) about the impact of microcredit access on farmer income found that microcredit led to significant impact on farmer income. Group succeeded in accessing microcredit obtained higher income and profit compared to the group that was not able to access the credit. They concluded that the higher the amount of credit accessed by farmers, the higher the farmer income. Angioloni et al. (2012) examined the impact of microcredit intended to alleviate poverty and increase the economy in Kyrgyzstan. They concluded that higher amount of credit affected household to buy new house, land, and start a new business, however it was negative for food consumption. Research of Crepon et al. (2011) in Morocco found that microcredit created an impact on several aspects of people life, included the increasing demand for microfinance, increase in business scale, increase in family income, and the declining number of poor people.

### 2.3. Research on the Impact of Microcredit in Indonesia

Dewi et al. (2015) conducted a study on the role of KKP-E in increasing the production and profit of rice farmers in the Kampar Regency of Riau Province. The result of their study concluded that KKP-E of 46.98% was used for farm business, 29.43% for consumption, and 23.57% for other businesses. The use of KKP-E in the farm was intended to purchase and provide input such as seed, fertilizer, pesticide, and agricultural machinery. KKP-E had a role in increasing the rice production of 18.93% and significantly affected the farm profit.

Farida et al. (2016) performed analysis of the performance of micro business credit and its impact on the income of the micro business in the Pati Regency of Central Java Province. The finding of their study indicated that KUR generated impact on the increased profit and total income, declining expenditure share for food, increasing the number of labor, and increasing asset ownership.

Dahri (2015) carried out the analysis of accessibility, economic impact, and the level of credit repayment of KKP-E program in a cattle farm in Central Java. The study result showed that most cattle farmers used the KKP-E for cattle farm business, namely to buy feeder cattle or pregnant cattle, feed, medicine, and to repair the cage. Furthermore, KKP-E also positively affected the cattle population, working hour, and business income of cattle farmer.

Wati et al. (2014) conducted a research on the access and impact of microcredit on the production and income of organic rice farm in Bogor Regency. The result of their study indicated that microcredit led to a positive impact on the increasing production of organic rice, the quantity of input use, and labor. Finally, microcredit was able to increase the income of farm business.

Arief and Rosmiati (2013) performed study concerning the impact of credit access on the welfare of rice farmer household. They found that the limitation of access to the source of credit resulted in a significant and negative consequence on various

aspects like the adoption of technology, agricultural productivity, food safety, nutrient, health, and household welfare in overall. A household that was able to access the source of credit succeeded in increasing its welfare, increasing the production, using more labor outside the family, also increasing consumption and income.

Nuryartono et al. (2005) performed research about the limitation of credit on farmer household and agricultural production in the rural area of Central Sulawesi. The finding was similar to the existing study that the access of farmer household to both formal and informal credit institutions was seriously limited due to the absence of collateral and self-selection problem.

## 3. METHODOLOGY

### 3.1. Location and Time of Study

The research conducted in Kendal Regency, Central Java Province. Central Java is one of the largest rice producer provinces in Indonesia. The amount of interest subsidies disbursed in Central Java Province is the second largest after East Java Province. On the other hand, Kendal Regency faces some limitations such as (1) KKP-E accessibility is low; (2) rice productivity is below compared to the rice productivity others regencies in Central Java which have the identical geographic condition. The study conducted on April until July 2017.

### 3.2. Types and Data Sources

The data type used in this study is cross-section. Primary data obtained from questionnaires and direct interviews with the respondents either rice farmers accessing KKP-E or those not accessing KKP-E. Primary data also collected from the Bank officers. Secondary data obtained from the Ministry of Finance, Central Bureau of Statistics, Ministry of Agriculture, Bank Indonesia, Kendal District Government, and scientific journals as well as documents or publications from relevant institutions.

### 3.3. Sampling Method

Samples were collected using multistage purposive sampling method. The first stage is taking Kendal Regency as a research location. The second stage is determining the nine elected districts. The third stage is selecting of 13 villages. The fourth stage is selecting respondent within farmer groups. The questionnaires distributed to respondents amounted to 300 pieces with details of 200 pieces are for the respondent treatment and 100 pieces are for the respondent control.

### 3.4. Data Analysis Method

The first aim of this study could be reached by using multiple regression analysis. The dependent variable used is the financial literacy index, while the independent variables used consists of gender, age, education duration, main occupation, distance to the capital regency, annual income, bank account ownership, and participation in financial education. The equation model used is as follows:

$$RNLK = a_0 + a_{10}JKEL + a_2UMUR + a_3JLWP + a_4PKUT + a_5JLKB + a_6TPEN + a_7PREK + a_8IDPK + U \quad (1)$$

Where:

$a_0$  = Intercept (Constanta)

$a_1$ - $a_8$  = Coefficient regression of each variable

U = Error term.

The description of the variables used in the equation model (1) can be looked at Table 1.

Based on the regression results, the variables affected financial literacy index will be analyzed.

The second research aim could be reached by using logistic regression analysis. The dependent variable used is the accessibility of KKP-E and the independent variables used consists of age, education duration, farm income, the width of the cultivated area, collateral, the interest rate on the credit, financial literacy index, farm group legal status, credit accessibility experience, and loan amount. The variables used in the regression refer to economic theories and previous studies related to the microcredit accessibility. The equation model is as follows:

$$AKSS = b_0 + b_1UMUR + b_2JLWP + b_3PNUT + b_4LLHN + b_5AGUN + b_6TBKR + b_7RNLK + b_8KLBH + b_9JAKSB + b_{10}TOTPINJ + U \tag{2}$$

Where:

$b_0$  = Intercept (Constanta)

$b_1$ - $b_{11}$  = Coefficient regression of each variable

U = Error term.

The description of the variables used in the equation model (2) can be looked at Table 2.

## 4. RESULTS AND DISCUSSION

### 4.1. Financial Literacy Analysis

The financial sector has grown rapidly marked by the diversity of financial products. Public financial literacy should be sufficient in order to access modern financial products. Adequate public financial literacy will encourage the improvement of the quality of financial behavior toward their prosperous life. Lusardi (2008) stated that financial education will encourage increasing savings and improve the quality of decision making in the financial area.

People with sufficient financial literacy, at the micro level, will save more, manage risk better, have premium insurance, and more likely to access some credit in formal financial institutions. The adequate of community financial behavior will increase the gross domestic product of a country from the financial sector at the macro level. Garman et al. (1996) stated that in America 15% of workers have inadequate financial behaviors. This condition showed that decreasing productivity will increase production cost. In this research, financial literacy is measured by index value obtained from questionnaires that have been arranged systematically adjusted to the condition of farmers. The total number of questions are 31 consists of questions on personal finance, savings and loans, insurance, and investment.

### 4.2. Financial Literacy Characteristics of Respondents

Adequate financial literacy will encourage the goodness of financial behavior. Financial behavior in this research is indicated by some indicators such as bank account ownership, insurance policyholder, use of electronic banking facility, financial education experience, well known in making notes on revenues and expenditures, and transaction frequencies through banking facilities. The financial behavior of respondent indicator can be looked at Table 3 (N indicates a number of respondents).

**Table 1: The description of the variables in the equation model (1)**

Symbol	Variable name	Variable explanation
RNLK	Financial literacy index	The score in the range of 0-100
JKEL	Gender	Male=1, other=0
UMUR	Age	Respondents' age
JLWP	Education duration	Elementary school=6, junior high school=9, senior high school=12, college>12
PKUT	Main occupation	A farmer=1, others=0
JLKB	Distance to the capital regency	Kilometers
TPEN	Annual income	IDR million
PREK	Bank Account ownership	Bank account owner=1, other=0
IDPK	Financial Education Experience	Has experience=1, other=0

**Table 2: The description of the variables in the equation model (2)**

Symbol	Variable name	Variable explanation
AKSS	Subsidized microcredit accessibility	Accessed=1, other=0
UMUR	Age	Respondents' age
JLWP	Education duration	Elementary school=6, junior high school=9, senior high school=12, college>12
PNUT	Farmers' income per season	IDR million
LLHN	The width of the cultivated area	Hectares
AGUN	Collateral	Hand over collateral=1, other=0
TBKR	Interest rate on credit	Per cent per annum
RNLK	Financial literacy index	The score in the range of 0-100
KLBH	Legal status farmer group	Certificate holder=1, other=0
JAKSB	Credit accesses experience	Number of credit accessed in the past
TOTPINJ	Loan amount	IDR million

**Table 3: The financial behavior indicators**

Characteristics of respondents	KKP-E (n=175)	Non-KKP-E (n=83)	Total respondents (n=258)
	Total (%)	Total (%)	Total (%)
Bank account ownership	170 (97)	71 (86)	241 (93)
Policy insurance holder	80 (46)	18 (22)	98 (38)
Use of electronic banking	17 (10)	6 (7)	23 (9)
Financial education experience	97 (55)	44 (53)	141 (55)
Note making of revenues and expenditures			
Always	20 (12)	8 (10)	28 (11)
Seldom	67 (38)	33 (39)	100 (39)
Never	88 (50)	42 (51)	130 (50)
Banking transaction frequencies			
Weekly	2 (1)	0 (0)	2 (1)
Half monthly	5 (3)	2 (2)	7 (3)
Monthly	97 (55)	40 (48)	137 (53)
More than a month	71 (41)	41 (49)	112 (43)

Source: Primary data, processed 2017

Based on Table 3, not all of the respondents have a bank account. The respondents who have a bank account are 93%. The policy insurance holder respondents are 38%, the respondents who use electronic banking facilities are 9%, and the respondents who have financial education experiences are 55%. The respondents who actively record their revenues and expenditures are 11% and only 1% of respondents once a week doing transaction by utilizing banking facilities.

The respondents who accessed KKP-E, 97% having bank accounts, 46% having insurance, 10% using electronic banking facilities, 55% having financial education experience, 12% always recording their revenues and expenditures, and 1% doing transaction by banking facilities once in a week.

The respondents who did not have an access the KKP-E, 86% having bank accounts, 22% having insurance, 7% using electronic banking, 53% having financial education experience, 10% always recording their revenues and expenditures, and none of the respondent who once a week doing the transaction through banking facilities. It is clear that the respondents who have accessed KKP-E have better financial behavior compare to the respondents who did not have an access KKP-E.

Servon and Kaetsner (2008) argued that financial and technological literacy are important for poverty reduction. Electronic banking technology will encourage financial literacy level due to the reason that financial literacy training becomes more effective by introducing electronic banking. In this research, financial literacy index calculated by dividing the number of correct answers with the total number of the questions. The financial literacy index divided into three categories. Respondents who have index values below 50 categorized as having low financial literacy, respondents who have index values in the range of 50 up to 80 categorized as having moderate financial literacy, and respondents who have index value above 80 categorized as having high financial literacy.

Based on Table 4, the average financial literacy index of all respondents is 64.3. The highest financial literacy index is 96.8 and the lowest is 29. Respondents categorized as having low financial literacy index is 19%, respondents categorized as having

moderate financial literacy is 64%, and 17% of respondents are in the category of high financial literacy. All of the respondents in this study averagely categorized as having moderate financial literacy. This finding is in accordance with the financial literacy survey conducted by OJK in 2013 which 75.44% of respondents have sufficient financial literacy.

The respondents who accessed KKP-E had an average of the financial literacy index score of 65.4 higher than the average financial literacy index of the respondents who did not have access KKP-E that is 62. Table 5 presents the financial literacy index based on the individual respondents' characteristics.

The average financial literacy index of female respondents are slightly higher compared to the average financial literacy index of male respondents. The respondents' education level highly affected the average of financial literacy index. The higher the respondents' education level, the higher their average financial literacy index. The average respondent's financial literacy index for elementary school, junior high school, senior high school, and college are 53.47, 65.05, 74.74, and 82.94 respectively.

Farm area divided into two, plateau/upland and lowland. In Kendal Regency, farming sites located at altitudes above 100 m above sea level are categorized in the highland, while farm sites located at altitudes below 100 m above sea level are categorized in lowland areas. The average index of respondent's financial literacy in the highlands is 64.79 whereas the average index of respondent's financial literacy lowland area is 64.02. There is no significant difference in the average value of financial literacy index based on the location of the farm.

In general, respondents have more than one job. They also have another job such as carpenters, construction workers, traders, driver of public transport, motorcycle taxi, factory working, farm workers, breeders, and others. The main occupation is divided into farming and non-farming. Respondents have a main occupation as farmers if more than 50% of their annual income is earned from farming operations if the annual income is more than 50% not from the farming, the main occupation is not the farmers. Respondents with their main occupations as farmers have an average financial literacy index of 59.79, it is significantly different

**Table 4: Financial literacy index**

Financial literacy index	KKP-E (n=175)	Non-KKP-E (n=83)	Total respondents (n=258)
	Total (%)	Total (%)	Total (%)
≤50	29 (17)	19 (23)	48 (19)
>50–80	110 (63)	54 (65)	164 (64)
>80	36 (21)	10 (12)	46 (17)
Maximum	96.8	90.3	96.8
Minimum	32.3	29	29
Average	65.4	62	64.3

Source: Primary data, processed 2017

**Table 5: Financial literacy index based on gender, education level, farm location, main occupation, age, and annual income**

Characteristics of respondents	Sample amount	Financial literacy index		
		Mean±standard deviation	Minimum	Maximum
Gender				
Male	239	64.18±14.65	29	96.77
Female	19	65.87±12.08	41.93	83.87
Education level				
Elementary school	102	53.47±11.84	29.03	83.87
Junior high school	66	65.05±10.71	41.93	87.09
Senior high school	76	74.74±9.02	51.61	90.32
College school	14	82.94±8.4	61.29	96.77
Farm location				
Upland	94	64.79±14.28	29.03	90.32
Lowland	164	64.02±14.61	32.25	96.77
Main occupation				
Non farmer	111	70.27±12.58	38.7	96.77
Farmer	147	59.79±14.2	29.03	90.32
Age (year-old)				
≤30	7	64.97±12.55	45.16	87.09
>30–40	42	71.04±14.96	38.7	96.77
>40–50	100	66.74±11.84	38.7	90.32
>50–60	79	59.69±14.79	29.03	90.32
>60	30	58.70±16.17	32.25	87.09
Annual income (million Rupiah)				
≤25	91	57.12±14.36	29.03	90.32
>25–50	113	65.00±12.77	38.71	96.77
>50–75	31	72.63±12.27	41.93	90.32
>75–100	18	77.78±8.34	58.06	90.32
>100	5	78.06±7.70	67.74	87.09

Source: Primary data, processed 2017

from respondents whose main occupations are non farmers where the average financial literacy index of 70.27.

Age variable has influenced the financial literacy index. The highest financial literacy index of respondents was in the age range of 31–40 years. The average of respondents' financial literacy index with age below 30 years is 64.97. The average of respondents' financial literacy index with age range between 41 and 50 years is 66.74. The average of respondents' financial literacy index with age range 51–60 years is 59.69. The age above 60 years has the lowest financial literacy index.

The annual income has a correlation with the financial literacy index. The higher the income per annum then the financial literacy index will also be higher. Respondents with annual income below IDR25 million had the lowest financial literacy index score of 57.12. Respondents in the range of IDR25 million up to IDR49 million had an average of 65.00 of financial literacy index, respondents in the range of IDR50 million up to IDR74 million

had an average of 72.63 financial literacy index, respondents in the range of IDR50 million up to IDR99 million has an average of 77.78 financial literacy index. The highest financial literacy index is 78.06 by respondents in the range of annual income more than IDR100 million.

### 4.3. Variables Affecting Financial Literacy

Linear regression model in determining the variables impacted financial literacy can be seen in Table 4. The numbers of observations in the regression were 258 samples. The value of  $F(8,249) = 36.65$  indicates that the number of variables tested is 8 and the number of observations minus the number of variables is 249.  $P > F = 0.0000$  is smaller than  $\alpha$  ( $\alpha = 5\%$ ), it indicates that independent variables simultaneously and significantly affect the financial literacy index.

Adj  $R^2$  value 0.5260 shown the value of financial literacy is influenced by independent variables that exist in the regression model of 52.60%, while the rest of 47.40% influenced by other

variables not included in the regression model. Root mean square error (RMSE) is a frequently used measure of the differences between values (sample and population values) predicted by a model or an estimator and the values actually observed. The regression model is good if the MSE root value is less than the standard deviation of the dependent variable (financial literacy index). Table 6 shows that the RMSE value is 9.9625 while the standard deviation of financial literacy value is 14.4709. Thus, the model is categorized as a good and fit model to predict the index of financial literacy. The t-value shows each of independent influenced the dependent variable partially.

The result of regression shows there are four variables that significantly influence the financial literacy index at the level of significance of 1%, those are the education duration, the distance of the farm location to the capital regency, the annual income, and the financial education experience. Furthermore, the age and bank account ownership variables significantly influence the financial literacy index at the level of significance of 10%. The gender and main occupation do not significantly impact financial literacy.

Age is a variable that negatively and significantly affected the financial literacy index at the level of significance of 10%. The coefficient of age variable is negative; this indicates that the younger has the tendency to have good financial literacy. In this study, the youngest respondent was 28-year-old and the oldest was 73-year-old. In the era of digital information, that younger generation shows to more easily adopt technological advancements than older ones (over 50-year-old). Information grows faster and can be obtained anywhere and anytime. The younger generations (under 50-year-old) are able to receive more information as they are more familiar with the features of modern electronic devices over the internet. Hence the regression results reflecting that the younger generations have better financial literacy than the acceptable older generations. In Table 3 it can be seen that the highest of financial literacy index is in the 31-40 year age range. At this age, vulnerable people will generally be easier and more diligent in finding information. In the age range below 30 years, the value of the financial literacy index is lower than the age range 31-40 years. Then in the next age range, the index of financial

literacy gradually falls below 31-40 years. The results of this study are similar to the results of a study conducted by Usera (2002) who found that in the lowest age range (15-25 years) had a lower index of financial literacy value compared with the next age range 26-45 years and the lowest index is in the span of time over 60 years.

The duration of formal education has a positive and tangible effect on the financial literacy index at the level of significance of 1%. The higher education is to have better financial literacy. Educations both formal and non-formal are impacted the way of thinking, how to act and how to solve their problem. People with higher education level will have a good point of view, acceptance of changes and good to use information technology wisely. Chen and Volpe (1998) and Usera (2002) stated that the higher the education level, the higher of financial literacy index.

The distance of farm location to the regency capital has a negative and real impact on the financial literacy index at the level of significance of 1%. The longer distance the lower respondent financial literacy level. The capital regency is the location in which the center of information, economy, government, and education. Therefore, the location of the capital regency influenced the financial literacy index.

Annual income positively influenced the financial literacy index at the level of significance of 1%. The higher the income will have good financial literacy. The income level is directly proportional to the level of education, while the level of education will be in line with financial literacy. People who have sufficient financial resources will rationally seek to improve their knowledge. High income allows having access to more information and technology than low-income people.

Bank account ownership positively impacted on the financial literacy index at the level of significance of 10%. Individuals who have bank account tend to have better financial literacy index. Having an account at the bank has become a primary requirement for every individual to carry out daily financial transactions. Many benefits that can be obtained from opening an account in the bank such: Security reasons, easier in financial transactions, earn interest and guaranteed by the government. In general, banks required accounts ownership for clients in order to access other banking financial products and services. The use and utilization of various banking facilities show a higher level of financial literacy. It is possible that someone who has an account at the bank will have better financial literacy.

Participation in financial education with banking topics has positively impacted on the financial literacy index at the level of 1% significance. Someone who has attended banking's products and services training is to have better financial literacy. Wagner (2015), Lusardi (2008), Bank Indonesia (2012), Garman et al. (1996), Servon and Kaetsner (2008) agreed that financial education has a positive effect on the financial literacy index.

Gender did not significantly influence the financial literacy. Coefficients with positive signs indicate that men tend to have better financial literacy. However, both men and women are

**Table 6: Multiple regression results the variables affected financial literacy index**

Name of variable	Coefficient	Standard error	t	P> t
Gender	0.7309	2.4422	0.30	0.765
Age	-0.1265	0.0762	-1.66	0.098*
Education duration	2.2753	0.2944	7.73	0.000***
Main occupation	-1.5371	1.5076	-1.02	0.309
Distance to capital regency	-0.2098	0.0626	-3.35	0.001***
Annual income	0.1035	0.0349	2.96	0.003***
Bank account ownership	4.6827	2.6586	1.76	0.079*
Financial education experience	4.8323	1.5251	3.17	0.002***
Constanta	43.9724	6.3263	6.95	0.000

equally likely to obtain a financial education to improve their financial literacy.

The main occupation has no significantly affected the financial literacy index. The negative sign of coefficients indicates the respondents with the main occupation as farmers have lower financial literacy. The types of work and the work environment will influence the information absorbed. Someone who works daily in the wetland environment will get less information than those who work as traders for example. Farmers working in the rice fields will only interact with soil, plants, pests, and farmers. While employment related to the crowd will be easier to obtain various types of information.

#### 4.4. KKP-E Accessibility

KKP-E can be accessed individually or in groups with their respective advantages and disadvantages. The respondents who accessed KKP-E through farmer groups amounted to 76.5%, while the remaining 23.5% accessed KKP-E individually. There is no difference in interest rates either accessing through farmer groups or individually. The amount of loans received through farming group system tends to be smaller at an average of IDR6.8 million. While the loans received from farming access KKP-E individually in an average of IDR9.5 million.

This study employed 258 samples with 175 samples accessed KKP-E while 83 samples did not access KKP-E for various reasons. The causes of inaccessibility of KKP-E can be grouped into seven reasons: (1) Not knowing the existence of the KKP-E interest subsidy program, (2) no needing the loan, (3) no collateral, (4) assuming the loan to the bank is usury, (5) rejected when proposing KKP-E, (6) afraid to borrow to bank, and (7) farmer group is not active. The reasons why respondents do not access KKP-E can be seen in Table 7.

The largest percentage of respondents did not access KKP-E because they were not aware of any interest subsidy granted by the government through KKP-E, which amounted to 28.92%. The second sequence that causes the respondent not to access KKP-E is because the farmer group that he participates in is not active and rarely the members meeting is held. Farmer group meetings are conducted only when the government will provide assistance such as seeds, fertilizer, and production equipment. The number of respondents, for this reason, is 24.10%. The reason that respondents do not require loans for farming costs amounted to 12.05% ranked third as the cause of not accessing the KKP-E.

Maldonado and Vega (2004) divided non-proposed households into four groups (1) does not require credit, (2) avoids credit risk, (3) assumes that credit is high cost and (4) assumes not getting a loan despite applying for credit. Groups (2-4) are part of the credit rationed. Based on Maldonado's opinion above, the farming that does not access KKP-E due to reasons 2-7 in Table 7 is the farming impacted by credit rationing.

In term of the above conditions, the percentage of dispersed respondents did not access KKP-E due to their ignorance of the government's program of subsidizing interest for KKP-E. This

**Table 7: The reason not to access KKP-E**

The reason no to access KKP-E	Total (%)	Total Cumulative	Rank
No need loan	10 (12.05)	12.05	3
Not know the existing of KKP-E	24 (28.92)	40.97	1
No collateral	8 (9.64)	50.61	4
Loan usury perspective	7 (8.43)	59.04	6
Loan rejection experience	6 (7.23)	66.27	7
Afraid to borrow from bank	8 (9.64)	75.90	5
Inactive farmer group	20 (24.10)	100	2

Source: Primary data, processed 2017

indicates the need for more massive dissemination of information on government programs in order to achieve the goal of the KKP-E subsidy program. Dissemination of information can be done by banks, related offices, and farmers group either individually or collectively. The second largest percentage is inactive farmer groups. The guidance of farmer groups should be the main agenda of the agricultural regional office and other government elements so that the farmer group's institute will run as expected.

Although KKP-E accessibility is not widespread, only 8.3% of 766 farmer groups in Kendal, data in the field shows there are some respondents who have repeatedly accessed KKP-E. Respondents who have accessed KKP-E five times 22.29%, accessed KKP-E 3 times 41.14%, accessed KKP-E twice 12.57%, accessed KKP-E once 24%. This fact proves that the spread of KKP-E is uneven to farmer groups. According to KKP-E executing bank officers, disbursing KKP-E to members of farmer groups who have already received KKP-E will save money for surveys, assess business feasibility, collect collateral, reduce the risk of default, and accelerate the achievement of their lending targets. To distribute KKP-E to new borrowers must go through a more rigorous procedure, requiring more cost and effort, and the risk of default is still high.

In the triangle of microfinance introduced by Zeller and Meyer (2002), there are three important factors that must be achieved by microfinance institutions namely outreach, impact, and sustainability. This study indicates that the KKP-E accessed by participants is still small. Executing Banks in Kendal need to innovate in order to reach the broader KKP-E participants that will affect earn higher profits and bank businesses sustainability growth. The positive impacts caused by the wide range of participants of KKP-E and the increasing profit earned by the Executing Bank and the high sustainability are improving the welfare of the farmers that will ultimately drive the local and national economy.

#### 4.5. Loan Application

Based on the respondent's data, KKP-E was accessed individually by 24.57% and accessed through farmer groups by 75.43%. This suggests that 3 out of 4 farms apply for KKP-E loans through farmer groups. It is therefore important for a farm to join a farmer group, and it becomes important for the farmer group to become an active farmer group in meeting the interests of its members. Applying for a KKP-E loan through the group has advantages and disadvantages as can be looked in Table 8.



#### 4.6. The Impact Variables of KKP-E Accessibility

The regression analysis of variables that influences the accessibility of KKP-E is done by logistic model. The result of logistic estimation can be seen in Table 9. Based on likelihood ratio 186.42, the degree of freedom 10, pseudo-R<sup>2</sup> 57.52% and P = 0.000 far below the level of significance ( $\alpha = 5\%$ ), it can be said that logistic regression model is good and fit model and can explain the farming decision in accessing KKP-E. There are several variables used in the model. These variables include age, education duration, farm income, the width of the cultivated area, collateral, interest rate, financial literacy index, farmer group legal entity, credit accessibility experience, and loan amount.

The estimation results showed that 10 independent variables used in the model there are six independent variables that have a significant impact on the acceptance of KKP-E at a significance level of 1%. These variables include farm income, the width of the cultivated area, collateral, interest rates, farmer group legal entity, and credit accessibility experience. The variables that significantly impact at the 5% significance level are financial literacy index and loan amount. While the 2 variables did not significantly impact KKP-E accessibility include age, education duration.

Farm income variable measures money value from production result by multiplying the amount of rice production with the price of paddy. The lowest income of respondent is Rp1.7 million and the

**Table 8: Advantages and disadvantages accessing KKP-E through farmer group**

KKP-E accessibility	Farmer group	Individually
Credit approval possibility	Higher	Lower
Collateral	Joint collateral group	Mandatory
Risk default	Group responsibility	Individual responsibility
Loan amount	Smaller	Bigger
Timing credit process	Longer	Shorter
Cost of loan	Group responsibility	Individual responsibility

**Table 9: Logistic regression result farm accessibility on KKP-E**

Name of variable	Odds ratio	z	P> z
Age	0.965	-1.27	0.205
Education duration	0.917	-0.66	0.506
Farm income	0.719	-2.69	0.007 ***
Width of cultivated area	1.001	2.74	0.006 ***
Collateral	19.377	4.85	0.000 ***
Interest rate	0.634	-5.48	0.000 ***
Financial literacy index	1.042	1.92	0.055 **
Farmer group legal status	9.080	3.57	0.000 ***
Credit accessibility experience	4.828	6.32	0.000 ***
Loan amount	1.109	2.26	0.024 **
Constanta	0.785	-1.20	0.230

Observations=258; LR  $\chi^2$  (11)=187.64; Prob>  $\chi^2$ =0.0000  
 Log likelihood=-68.243; Pseudo R<sup>2</sup>=0.5789

\*\*\*Significant at 1%; \*\* significant at 5%

highest is Rp64 million. The average respondent's farm income in the study area is Rp12.4 million per season. The Z value of the farm income variable is negative, it indicates that the smaller the farm income the more likely to obtain KKP-E. In accordance with the purpose of the KKP-E, that interest subsidy is delivered to small farms with low-income so that large-income farms are less likely to access KKP-E. The value of odds ratio of 0.719 can be interpreted that any increase in farm income of Rp1 million will decrease the possibility of farming to obtain a KKP-E loan of 0.719 times. The P-value value of the farm income variable is significant at 1% level, indicating that farm income has a negative and significant effect on the KKP-E accessibility. This finding is not in line with the research of Isaac et al. (2011) in which they stated that farm income has a significant effect on credit accessibility.

Cultivated area is the main factor of production in rice farming. The wider the cultivated area the possibility of its production will be higher, otherwise the narrower the cultivated area its production will be less likely. The width of the cultivated area shows the scale of farming, the bigger the cultivated area, the bigger the farming scale. The cultivated area for every single respondent in this study varies. The most extensive cultivated area is of 3.5 hectares while the narrowest cultivated area is of 0.1 hectares. In average the cultivated area is 0.63 hectares. Based on the regression results, the Z value of cultivated area variable has a positive sign, it indicates that the larger cultivated area is more likely to access KKP-E. The value of odds ratio of 1.001 means that every increase of the cultivated area of 1 hectare then the possibility to access KKP-E increased by 1 time. The P-value value of the variable of cultivated area is at a significance level of 1%, indicating that the width of the cultivated area has a positive and significant effect on the accessibility of KKP-E. This finding is in accordance with Hall et al. (2004) stated that larger business scale would usually be easier to access credit.

Collateral is a guarantee for a lender's financial institution in order for the loan disbursed to be repaid with the interest rate. Zhao et al. (2006) stated that the collateral asset is the debtor's guarantee if the business is not profitable, in order not to lose its assets, the debtor will try harder to increase his business which makes the probability of success of his business will be high. The Z value of the collateral variable is positive, indicating that if there is collateral pledged, then the possibility to access KKP-E will be greater. The odds ratio value is 19.377 and the P-value value of the collateral variable is significant at the 1% level, indicating that the collateral positively and significantly affects the accessibility of KKP-E.

The interest rate variable is the interest rate within a year that must be borne by the debtor. The KKP-E interest rate is 5.5% per annum in flat. While other financial institutions set different interest rates adjusted with market interest rates and policies respectively. Based on the regression, the value of Z is negative; this indicates that the higher the interest rate will be less chance of the respondent accessing KKP-E. The negative sign of the Z value corresponds to the expectations and theories. The odds ratio value is 0.634 and the P-value of the interest rate variable is significant at the 1% level, indicating that the interest rate negatively and significantly impacted the accessibility of KKP-E.

A good index of financial literacy will be in line with financial behavior and high financial products as well. If all the society in the country having good financial behavior it will encourage the development of the financial services sector that will ultimately drive economic growth. Based on regression, the variable of financial literacy index has positive Z value. It means that farms with higher financial literacy index are more likely to access KKP-E than farms with lower financial literacy index. The odds ratio is 1.042 and the P-value of the financial literacy index variables is significant at the 5% level, indicating that the financial literacy index positively and significantly impacts the accessibility of KKP-E. This finding is different with Cole et al. (2009) suggested that financial literacy is a secondary or even tertiary determinant in the demand for financial services in Indonesia.

Many benefits can be obtained from the legal status of farmer groups such as registered in the office of the ministry of justice and human rights, obtain formal legal recognition, and potentially more often receive a government subsidy. Based on the regression result, the Z value of variable legal entity status of farmer group has a positive sign. It means that farmers participating in farmer groups with legal status are more likely to access KKP-E compared to farmer groups with no legal status. Value of odds ratio variable legal status of farmer group of 9.080, this means every farmer who joined in a group of a farmer with legal status have the possibility to access KKP-E 9.080 times bigger than the farmer who joined in a group of the farmer which have not legal status yet. The value of P-value of the variable legal status of farmer group is significant at 1% level, it indicates that farmer group having a legal status has a positive and significant effect on the accessibility of KKP-E.

Participants of KKP-E who have previously accessed KKP-E will have a greater chance to borrow it again as long as the previous loan has been paid in an orderly manner. The Bank could save more money by screening the KKP-E candidates who have already obtained credit in the past. Based on the regression result, the credit access experience variable has a positive Z value. It means that farms with experience in accessing credit in the past are more likely to access KKP-E than farms with no credit access experience. The value of the odds ratios of the credit access experience variables of 4,828, It means that every farm that has experience accessing credit in the past has the possibility to access KKP-E 4,828 times greater than farming without experience accessing credit. The P-value of accessing credit experience variable significant at the level of 1% indicates those farmers who have experience in accessing credit in the past have a positive and significant impact on the accessibility of KKP-E.

The amount of KKP-E could be disbursed by a KKP-E participant maximum of Rp100 million. The higher the KKP-E disbursed by the Bank, the faster the Bank will reach its target of KKP-E disbursement. Based on regression result, the Z value of loan amount variable has a positive sign. It means that the greater the loan amount proposed then the possibility to access KKP-E will be greater. The value of the odds ratio of the loan amount variable is of 1.109, it means the increase in loan amount of Rp1 million will have the possibility to access KKP-E 1,109 times bigger. The p-value value of the variable of the loan amount is significant

at the 5% level, it indicates that the loan amount positively and significantly influences the accessibility of KKP-E.

Age variable referred to the age of farmers at the time of the research conducted. In this study, the youngest respondent age is 28-year-old, while the oldest respondent aged is 73-year-old. The average age of respondents is 49-year-old. The Z value of age variable has a negative sign. It indicates that the older a person is likely to be able to access KKP-E is getting down. This is in line with the theory and it makes plausible because financial institutions will be at high risk of default if they provide loans to elderly customers (above 60 years). This finding is in line with Nkuah et al. (2013), which stated that productive age has a greater chance of accessing credit. The findings in this study differ from Nguyen and Luu (2013), in which they stated that age has a significant effect on credit accessibility. The P-value of the age variable above 10% indicates that the age variable has no significant effect on the KKP-E accessibility. KKP-E distributed to some elderly respondents as they obtain KKP-E loans through the group. The Bank considers that the risk of default of KKP-E loan through the group is borne by the group, thus the risk of default for older KKP-E participants can be mitigated.

The education duration variable has no significant effect on the accessibility of KKP-E. This variable indicates the time taken by the respondent to pursue his formal education. Respondents who have an elementary education, the duration of education is 6 years, junior high school is 9 years, senior high school is 12 years, and college is 16 years. Respondents who have longer education duration, they will hold a higher level of education. Respondents who hold elementary education are 39.53%, junior high school education is 25.58%, senior high school education is 29.46%, and college education is 5.43%. Based on these data, the majority of respondents hold elementary education. The Z value of the education duration variable has a negative sign, this indicates that the lower the level of education, the more likely it is to obtain credit. Given the majority of respondents education are elementary level, then the possibility of respondents who can access KKP-E at the elementary level will be higher. This finding is different from Han (2008) and Pandula (2011), in which they stated that education is an important factor because with higher levels of education the debtor will have better ability to seek financial information.

## 5. CONCLUSION AND SUGGESTION

In line with the OJK survey, the average of financial literacy index of the respondents in the study was at a moderate level. The variables that significantly affect the financial literacy are age, education duration, distance to the capital regency, annual income, bank account ownership, and financial education experience.

The outreach of KKP-E distribution is still low, reaching 8.3% of all farmer groups in the study area and the total amount KKP-E distributed is still far below the available loan ceiling. Some of the problems why the KKP-E could not widely access by the farmers are (1) no need loans; (2) not know the existing of KKP-E; (3) no collateral, (4) loan usury perspective, (5) loan rejection experience,

(6) afraid to borrow from the bank (7) inactive farmer groups. Variables that positively and significantly affect the accessibility of KKP-E are the width cultivated area, collateral, financial literacy index, farmer group legal status, credit accessibility experience, and loan amount. While farm income and interest rate have a negatively and significantly affect on KKP-E accessibility.

The Indonesia government together with related institutions such as Bank Indonesia, OJK, Financial Institutions either jointly or individually need to improve their efforts to increase financial education through learning, training, socialization with the theme of finance and banking. Those efforts are intended to increase the financial literacy of the community. Adequate financial literacy will create better public financial behavior so that they are able to access financial institution products and services to the well-being of the community and encourage the improvement of the national economy through the financial sector.

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