Farmer's Motivation to Save Money in Bank Rakyat Indonesia: An Application of Logistic Regression

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Abstract: Saving in the bank did capital formation for the farmer in rural areas. However, the only few farmers who are motivated to save their income due to they are small farmers who need farming credit to finance their farming. Bank is one of the financial sources that can be used to save money. Because of the availability of the bank, farmers have a secure place to keep farming revenue. Bank Rakyat Indonesia is an alternative for the farmers to save money. The objectives of the study are identified farmer's characteristics that are saving money in the bank, and determinants the factors that become main motivation of the farmers to save money in the bank. The study was conducted in Bank Rakyat Indonesia (called BRI) Tadokkong Village, Lembang Sub-district, Pinrang District, South Sulawesi by considering 50 respondents. Data were analysed by using Descriptive Analysis and Binary Logistic Regression Analysis with Backward: Wald Method. The results show that the farmers who are saving money (42 households) in the bank are higher than the farmers who are not saving money (8 households). Farmers have productive ages (15-60 years) with higher education is Junior High School. Numbers of household members ranging between 1 to 7 people with farming income (on average) are IDR 26,028,720 per annum. Besides that, the result of Statistical of Logistic Regression shows that the factors of education, service satisfaction of the bank, trust on the bank, security and presents affects farmer's motivation in saving money in the bank.

I. INTRODUCTION

Community savings are a source of funds for national development. Savings are influenced by the willingness of the community to withstand their consumption desires. Savings behaviour in rural communities is still largely traditional, namely by storing part of the income that is not consumed in the form of jewellery, land and livestock. But conceptually in macroeconomics, only the portion entrusted to the banking institution can be stated as savings.

Rachman et al. (2009) claims there are three pathways out of poverty, namely commercially-oriented entrepreneurial smallholder farming; rural non-farm enterprise development, and out-migration [1]. Approximately 40% of oil palm smallholders can be classified as stochastic-transient poor [2].

The study of Cahyadi and Waibel (2016) shows that contract participation reduces the negative impact of oil palm price shocks which is not the case for production shocks [2]. Despite the positive income effects, the contract smallholders still remain vulnerable to poverty. In addition, Iskandar et al. (2017) reported a decrease of tobacco cultivation in Sumedang district, West Java, Indonesia are due to several factors such as lack of knowledge, climate anomalies, decrease of agricultural lands, lack of finance and farmers have less enthusiasm [3].

Utami et al. (2018) claims that farmers' education and experience in handling cattle are important which directly influenced on increasing income [4]. In Utami et al. (2018) study, it was found that farmers' age, the number of family members and purchasing feeder cattle are the factors that reduce the farmers' income [4]. In addition, the use of third-party certification (TPC) allows making shrimp aquaculture more environmentally sustainable in a rural setting in Indonesia, but difficult to implement everywhere in the world [5].

Adiyoga and De Putter (2018) claim that development of institutional arrangements can strengthen farm-market linkages which can overcome the marketing risks [6]. Besides that, self-farm-records will provide sufficient information for planning and managing risks in their next farm business activity[6]. Moreover, the adoption of technology and mechanical cultivation enhances the ability of farmers to cultivate wider land and more efficient rice farming compared to those of technical irrigation and freshwater swamp farmers [7, 8]. Furthermore, Dendi et al. (2005) claims that" provided land tenure is conducive, there are substantial possibilities for policies and interventions that focus first on agricultural diversification and then on organization building, to assist in dealing with farmers' vulnerability and environmental degradation in the uplands".

For farmers in the countryside, capital formation is done by saving. But very few farmers are motivated to set aside a portion of their income for the purpose of saving because most farmers are small farmers who actually need farming credit to finance their farms. Bank Rakyat Indonesia as a non-subsidized banking financial institution that plays an active role in national economic development through the provision of banking services, especially in small communities through services that are in line with needs in the form of deposits, credit, and other bank services, supported by adequate facilities. To increase the number of deposit customers, various deposit products, interest rates, service quality, and security guarantees are also offered by banks.

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The objectives to be achieved in this study are to knowing the characteristics of farmers in Tadokkong Village, Lembang District, Pinrang Regency and identifying the factors that motivate farmers to save at Bank Rakyat Indonesia Unit TadokkongPinrang. This study benefits the government, as a material consideration in formulating economic policies in the interests of national economic growth and improving the welfare of the community. Next, this study also benefits for the bank, especially in the segmentation of farmer customers in the business of marketing banking products. The finding of this study becomes a reference and material for further research, especially related to the motivation of farmers in saving.

II. METHODOLOGY

Location and Time of study

This study was carried out in Tadokkong Village, Lembang District, Pinrang Regency, South Sulawesi Province in the year 2017. Site selection was carried out by purposive sampling, namely the deliberate selection with the consideration that the location was one of the areas where the majority of the people were farmers and also the working area of the Bank Rakyat Indonesia Unit TadokkongPinrang.

Sample Making Method

The population of this study is the farmers who live in Tadokkong Village, Lembang District, Pinrang Regency. The number of farmers in this area is 492 people. Determination of the sample is done by Simple Random Sampling, which is a sampling technique that is done randomly so that each case or element in the population has the same opportunity to be selected as the study sample. The number of samples in this study was chosen by 10% of the population, so the number of samples was 50 people.

Data Source

Data sources used in this study are primary and secondary data. Primary data were obtained from savers farmers at Bank Rakyat Indonesia TadokkongPinrang Unit and were domiciled in Tadokkong Village, Lembang District, Pinrang Regency, which were obtained through structured interviews using questionnaires as a data collection tool. Meanwhile, secondary data were obtained from the Tadokkong Village office, Bank Rakyat Indonesia TadokkongPinrang Unit, and documents that were closely related to this study.

Method of Collecting Data

The data are collected through conducting interviews the selected farmers. This method is used to obtain primary data through structured interviews using questionnaires as a data collection tool.

Data Analysis

Descriptive analysis is used to determine the characteristics of farmers and the factors that influence farmers to saving in the bank as respondents obtained from the results of structured interviews with farmer respondents using questionnaires. The data obtained is tabulated into the table framework that has been prepared, and then analysed the characteristics of farmers and the factors that influence farmers to saving in the bank. Furthermore, Binary Logistic Regression Analysis is used to find out the factors that motivate farmers to save at Bank Rakyat Indonesia Unit TadokkongPinrang. The logistic regression model used in this study is:

$$Y = \frac{\exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \beta_8 x_8 + \beta_9 x_9)}{1 + \exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \beta_8 x_8 + \beta_9 x_9)}$$

Where :
Y = Motivation of farmers (Saving / Not Saving)
x1 = Age (Year)
x2 = Education (Year)
x3 = Number of family dependents (people)
x4 = Revenue (Rp. / Year)
x5 = Interest rate (Match / Not)
x6 = Bank Service (Satisfied / Dissatisfied)
x7 = Trust in the Bank (Believe / Don't Believe)
x8 = Security guarantee (Safe / Not Safe)
x9 = Gift (In Accordance / Inappropriate)
β_0 - β_9 = regression coefficient

III. RESULT AND DISCUSSION

Characteristics of Respondent Farmers

Based on the results of a study of 50 respondent farmers in Tadokkong Village, LembangSubdistrict, Pinrang Regency, the age characteristics of respondents can be seen in Table 1.Table 1 demonstratesabout 46 respondents with a percentage of 92% are in the productive age with the age range of 15 years to 60 years. Meanwhile, there were 4 farmers who were less productive (> 61 years). This shows that the respondent farmers in Tadokkong Village, Lembang District, Pinrang Regency are mostly farmers who are in productive age. This is in accordance with the opinion of Mantra (2007) which states that productive age is the age at which a person can work [10]. The productive age starts at the age of 15 years to 60 years. Farmers' age is also related to the process of transfer and adoption of technological innovations, where young farmers tend to be more progressive in the process of transferring new innovations, so as to accelerate the process of technology transfer. This is consistent with the opinion of Soekartawi (1993) that younger farmers are poorer in experience and skills than older farmers, but has a more progressive attitude towards new innovations [11]. Progressive attitude towards new innovations will tend to shape the behaviour of young farmers to be more willing to make decisions in farming.

The level of education is very important for farmers. Therefore, farmers with a higher level of education will have different ways of managing farming, absorbing new technologies and innovations that have been affected which impact on the behaviour of farmers when compared to farmers who have lower levels of education. Based on Table 1, the majority of the farmers are educated but there are still 20% of the respondents never attend school before.

Table 1 shows that the number of family dependents of the respondent farmers ranged from less than 4 as many as 21 people or 42.00%, and the number of farmer respondents who had a family burden of 4 people and above were 29 people or 58.00%.

Table 1 shows the income from rice farming obtained by the respondent farmers per year. A total of 9 respondents received rice farming income ranging from Rp. 43,971,000 - Rp. 62,600,000, 12 respondents received income ranging from Rp. 25,273,000 - Rp. 34,970,000 and 27 respondent farmers received income ranging from Rp. 6,583,000 - Rp. 25,272,000.

Table. 1Characteristics of Respondent Farmers in Tadokkong Village, Lembang District, Pinrang Regency, 2014

Characteristics	Category	Frequency (n)	Percentage (%)
Age group (Year)	0 – 14	-	-
	15 – 60	46	92.00
	>61	4	8.00
Level of education	No school	10	20.00
	SD / equivalent	11	22.00
	SMP / equivalent	14	28.00
	High school / equivalent	13	26.00
	S1	2	4.00
Number of Family Expenses (People)	< 4	21	42.00
	≥4	29	58.00
Farming Income (Rp. / Year)	6.583.000 – 25.272.000	27	54.00
	25.273.000 – 34.970.000	12	24.00
	43.971.000 – 62.600.000	9	18.00

Analysis of Factors That Become Savings Considerations on the Farmer's Motivation of Savings

Descriptive Variables

Variability of respondents can be seen from the comparison of the frequency of respondents with different characteristics in each categorical variable. The frequency comparison aims to describe the level or extent of the variation that is owned by the research respondents. To see these comparisons a descriptive statistical test for continuous independent variables is used to determine the average of each variable. Table 2 tabulates the statistical descriptive results for the independent variables. Figure 1 illustrates the comparison of the independent and categorical variables to the dependent variable, namely the motivation to save and not save. The considered independent variables are the interest rate variables (X5), Bank Service Variables (X6), Trust in Banks (X7), Bank Security Assurance Variables (X8) and Prizes Given by Banks (X9).

Table. 2 Statistical Descriptive Results for Independent Variables of Age, Education, Number of Family Dependents, and Respondent Farmer Income in Tadokkong Village, Lembang District, Pinrang Regency, 2014.

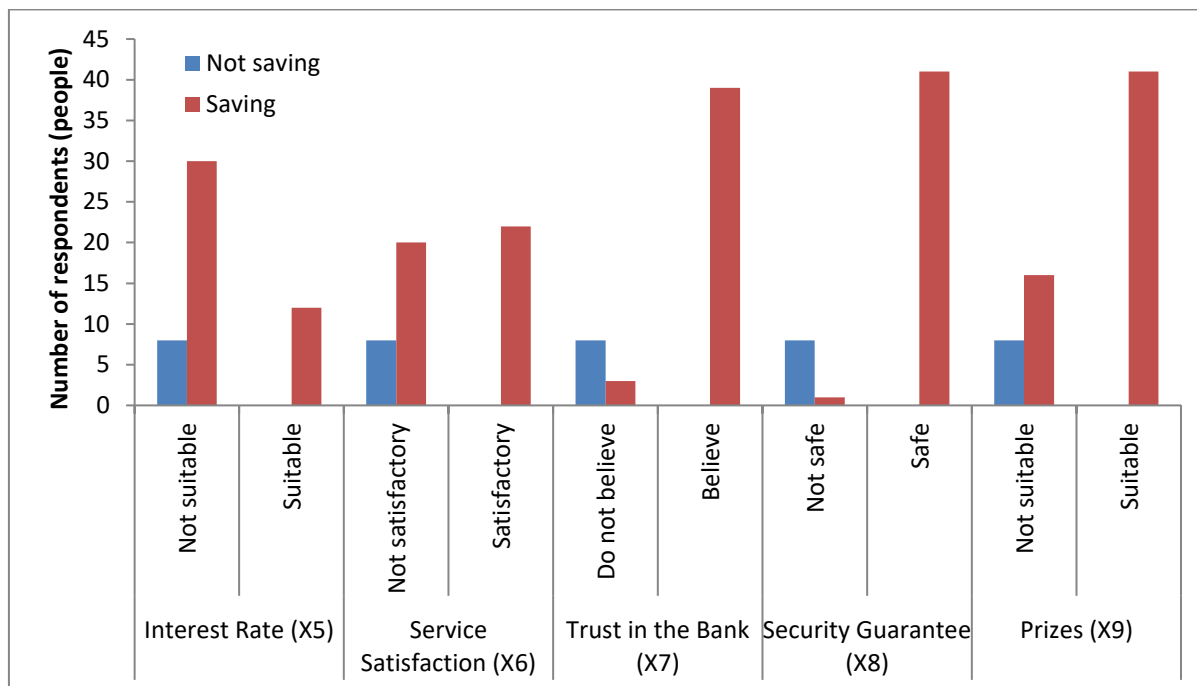| Variable	N	Minimum	Maximum	Mean
Age (X1)	50	27	65	47.94
Education (X2)	50	0	16	7.40
Number of Family Dependents (X3)	50	1	6	3.62
Revenue (X4)	50	6.538.000	62.650.000	26.028.720

Fig. 1 The comparison of the independent and categorical variables to the dependent variable, namely the motivation to save and not save

Effect of Factors That Become Savings Considerations on the Farmer's Motivation of Savings

To find out the influence of a number of independent variables on the dependent variable, multivariate analysis was performed. Multivariate analysis used was a logistic regression test using Backward: Wald method with a level of significant (α) of 0.05. In this analysis, all independent variables were tried together so that a logistic equation was produced. Variables that have a p-value <0.05 are issued in stages. Table 3 shows the influence of the factors that are a consideration for saving the motivation of farmers to save at the Bank Rakyat Indonesia Unit TadokkongPinrang.

Table. 3 Analysis of the Influence of Factors That Become Considerations for Savings Farmers on the Motivation of Savings Farmers at Bank Rakyat Indonesia TadokkongPinrang Unit, Tadokkong Village, Lembang District, Pinrang Regency, 2014.

No.	Variabel	B	p-value
1.	Age	0.064	0.800
2.	Education	14.632	0.000
3.	Number of Family Dependents	0.150	0.699
4.	Income	1.473	0.225
5.	Interest rate	3.008	0.083
6.	Bank Services	7.483	0.006
7.	Trust in the Bank	33.766	0.000
8.	Security Guarantee	43.386	0.000
9.	Gift	4.482	0.034

In accordance with Table 3, after being issued several variables with p-value> 0.05 in stages in the logistic regression test, the variables that will enter as predictors are obtained, namely education, interest rates, services, trust in banks, security guarantees, and prizes with a p-value <0.05,

so that the following binary logistic regression model is obtained:

$$Y = \frac{\exp(14.632X_2 + 7.483X_6 + 33.766X_7 + 43.386X_8 + 4.482X_9)}{1 + \exp(14.632X_2 + 7.483X_6 + 33.766X_7 + 43.386X_8 + 4.482X_9)}$$

According to the logistic regression model, it can be described that if there is an increase in education, service satisfaction, trust in banks, security, and gifts, then the motivation of saving farmers will also increase by 14.632 (education), 7.483 (service satisfaction), 33.766 (trust against banks), 43.386 (security guarantees) and 4.482 (gifts).

The Effect of Age on the Farmer's Motivation of Savings in the Bank

The results of statistical tests between age and farmer's saving motivation obtained p-value of 0.800. This value is greater than the level of significance (α) 0.05. That is, the alternative hypothesis is rejected, namely there is a negative influence between age and the motivation of farmers to save in the bank. From the results of the study, most of the respondents were farmers who were of productive age, in the range of 15 - 60 years. This is contrary to Pratama's opinion (2011) which states that farmers under the age of 60 have low motivation to save money, while the age above or equal to 60 years has a high level of motivation to save [12]. Customers' high motivation above is equal to 60 years due to the perception of customers aged 60 years and over saving for old age needs because that at the age of 60 years and over they are thinking of investing their income for old age or retirement by saving.

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The Effect of Education on the Farmer's Motivation of Savings in the Bank

The results of statistical tests between education and the farmer's motivation of saving obtained a p-value of 0.000. This value is smaller than the level of significance (α) 0.05, which means that the alternative hypothesis is accepted, namely that there is a positive influence between education and the motivation of farmers to save. From the results of the study of farmers who save but not school obtained a value of Ŷ of 4055.567, the level of formal education of farmers at the elementary school level (SD) obtained a value of Ŷ equal to 4120.832, junior high school (SMP) obtained a value of Ŷ equal to 4158.791, High School (SMA) is obtained Ŷ equal to 4196.75, and for S1 is obtained the value of Ŷ equal to 4247.362 so that Odds Ratio (OR) of the highest and lowest levels of education is 191.795. This shows that the higher one's education level, the higher the motivation to save. Likewise, if someone's education is lower, they don't even get formal education, the motivation to save will also be lower. All this implies that to increase the level of education, the bank should provide assistance in the form of education funds to the farming family. This is in line with Siagian's (1996) opinion which states that education has a significant impact on individual savings [13]. The tendency to save will increase in individuals who have higher achievement. This is because higher education makes a person have knowledge about finance. Besides that, it also contributes to the growth of one's income and wealth.

The Effect of Number of Family Dependents on the Farmer's Motivation of Savings in the Bank

The results of statistical tests between the number of family dependents and the farmer's motivation of saving obtained a p-value of 0.699. This value is greater than the level of significance (α) of 0.05, which means that the alternative hypothesis is rejected, namely there is a negative influence between the number of family dependents and the motivation of farmers to save in the bank. From the results of the study, farmer respondents who have a number of family dependents equal to 4 or more than 4 people are more than the respondent farmers who have a number of family dependents under 4 people. This is in line with the opinion of Sukirno (2012) which states that the higher the number of family members; the greater the level of consumption and the amount of savings or difference in income and consumption will decrease [14].

The Influence of Income on the Farmer's Motivation of Saving in the Bank

The results of statistical tests between income and the farmer's motivation of saving obtained a p-value of 0.225. This value is greater than the level of significance (α) 0.05, which means that the alternative hypothesis is rejected, namely there is a negative influence between income and the motivation of farmers to save in the bank. From the research that has been done, it is known that only a small proportion of farmers who have income from rice farming results in more than Rp. 50,001,000 per year. This is consistent with the opinion of Sukirno (2012) which states that farmers who have low income will only be sufficient to finance their consumption, so the amount of savings is getting smaller

[14]. In societies with a more balanced income distribution, the savings rate is relatively small because they have a high consumption bias.

The Influence of Interest Rates on the Farmer's Motivation of Savings in the Bank

The results of statistical tests between interest rates with the farmer's motivation of saving obtained p-value of 0.083. This value is greater than the level of significance (α) 0.05, which means that the alternative hypothesis is rejected, namely there is a negative influence between interest rates and the motivation of farmers to save in the bank. From the results of the study, most farmers who saved money did not make the interest rates offered by banks as a consideration for saving because the interest rates were not as expected. According to Thamrin (2011), the interest on savings provided by bank aims to make the funds saved in savings grow, so that customers are increasingly diligent in saving [15]. Savings interest is usually calculated at the end of each month from the average daily balance for the month. Savings interest can be given in a single rate. That is, regardless of the amount of savings, the interest will remain the same. However, it can also be given in stages. In other words, on different balance amounts, the interest given is not the same. The existence of interest on deposits of customer funds provided by the bank is what usually attracts people to save in the bank.

Effect of Bank Services on the Farmer's Motivation of Savings in the Bank

The results of statistical tests between services with the farmer's motivation of saving farmers obtained p-value value of 0.006. This value is smaller than the level of significance (α) 0.05, which means that the alternative hypothesis is accepted, namely there is a positive influence between bank service and the motivation of farmers to save in the bank. From the results of the study, it is known that farmers who save in the bank because they have been satisfied with the services provided by the bank more with a value of 86 amounted to 3686.9202 compared to saving farmers, but feel dissatisfied with the services provided by the bank with a value of Ŷ equal to 3671.9202 with Odds Ratio (OR) of 14.966. This shows that the higher satisfaction with the services provided by bank employees when making transactions, the higher the motivation to save people. Vice versa, if someone feels dissatisfied with the services provided by bank employees when they are conducting transactions, then the motivation to save will go down. Therefore, the services provided by the bank must be kept in mind and continuously improved. According to Nazrian and Hidayat (2012), banks will gain trust from the community if managed professionally [16]. Bank service is one of the factors that must be considered to gain customer trust. With good service, customers will get a good impression of the bank. The quality of services provided by banks in meeting customer expectations in the form of bank physical appearance, reliability, care and attention, responsiveness, and customer assurance, will affect customer satisfaction.

This means that the better the quality of services provided by the bank, the customer will be more satisfied with the service [15].

The Influence of Trust in the Bank on the Farmer's Motivation of Saving in the Bank

The results of statistical tests between trusts in banks with the farmer's motivation of saving obtained a p-value of 0.000. That is, this value is smaller than the level of significance (α) of 0.05, which means that the alternative hypothesis is accepted, namely there is a positive influence between trust in the bank and the motivation of farmers to save in the bank. From the results of the research, it is known that saving farmers are in a bank because they have confidence in the bank as a good fund storage institution and banks are financial institutions that can facilitate the community to save their funds with a value of 3735.2482 and for saving farmers but do not have confidence in the bank obtained a value of Ŷ of 2519.6722 with Odds Ratio (OR) of 1215.576. This shows that the higher the farmer's trust in the bank, the higher the motivation of farmers to save. Vice versa, if farmers do not have confidence in the bank as a good fund storage institution, then farmers will not have the motivation to save. Therefore, the bank must maintain its image and performance to increase farmers' trust. This is in line with the Olson's opinion (Tyas, 2012) which states that trust is a behavioural drive to make purchases repeatedly and to build customer loyalty to a product / service produced by the business entity [17]. The basis of trust is satisfactory, then trust arises and after that is committed so that it has a long-term relationship. Relationship behaviour that occurs between a company and its customers is determined by the trust so that it can be determined that trust and commitment will have a positive relationship with loyalty. The indicator that forms trust in the company is performance, has a good reputation, a feeling of security, trust, quality of service.

Effect of Security Assurance on Farmer's Motivation of Saving in the Bank

The results of statistical tests between trusts in banks with the farmer's motivation of saving obtained a p-value of 0.000. This value is smaller than the level of significance (α) of 0.05, which means that the alternative hypothesis is accepted, namely there is a positive influence between security guarantees and the motivation of farmers to save in the bank. From the results of the study, it is known that farmers save in the bank because of the security of money stored in banks is more secure with a value of 93 of 3793.1602 and farmers who feel the security of money storage in the bank is not guaranteed obtained a value of Ŷ of 2057.7202 with Odds Ratio (OR) of 1735.44. This shows that the better the security of the storage of farmers' funds provided by the bank, the higher the motivation of farmers to save. Likewise, if the bank does not guarantee the security of depositing funds, farmers will not be motivated to save. Therefore, the bank must continue to provide security guarantees for funds saved by farmers. This is in line with the opinion of Thamrin (2011) which states that the need for security is a major factor in a person [15]. When people feel themselves insecure, psychological reactions arise like anxiety, fear, and it will be difficult to

trust someone. Someone will entrust the storage of funds in the bank if there is a security guarantee provided by the bank.

The Effect of Gifts on the Farmer's Motivation of Savings in the Bank

The results of the statistical test between the prizes offered by the bank and the farmer's motivation of saving obtained a p-value of 0.034. This value is smaller than the level of significance (α) of 0.05, which means that the alternative hypothesis is accepted, namely there is a positive influence between the prizes offered by banks and the motivation of farmers to save in the bank. The results showed that the respondent farmers who saved at the Bank because the prize given by the bank was as expected with a value of 64 amounting to 3764.8342 and for farmers who felt that the prize given by the bank was not in accordance with the expected value Ŷ of 3720.0142 with Odds Ratio (OR) is -44.82. This shows that even though the prizes offered by the bank have not been as expected, the farmers still have the motivation to save in the bank and have implications for the bank to give gifts as expected by the customer. Banks usually give gifts to customers for various reasons, such as based on the amount of the balance or the level of activity to save their customers. Gift giving is also a form of gratitude for the bank for its trust in saving funds provided by customers. In addition, it is also a factor that motivates customers to continue to increase the balance of their savings [15].After knowing the value of Odds Ratio (OR) of each variable entered as a predictor, the binary logistic regression model is obtained as follows:

$$\hat{Y} = \frac{\exp(191.795X_2 + 14.966X_6 + 1215.576X_7 + 1735.44X_8 - 44.82X_9)}{1 + \exp(191.795X_2 + 14.966X_6 + 1215.576X_7 + 1735.44X_8 - 44.82X_9)}$$

According to the binary logistic regression model, it can be seen that if there is an increase in education, bank services, trust in banks, security guarantees, and gifts, then the motivation of saving farmers increases by 191.795 in the education variable, an increase of 14.966 in the bank service variable, an increase in 1215,576 on the trust variable to the bank, an increase of 1735.44 in the security guarantee variable, and a decrease of 44.82 in the prize variable.

IV. CONCLUSIONS

Farmers in Tadokkong Village, LembangSubdistrict, Pinrang Regency save more at the Bank Rakyat Indonesia Unit TadokkongPinrang than those who do not save. Respondent farmers have a productive age (15 - 60 years) with the last education in junior high school. The number of family dependents owned by the respondent farmers ranged from 1-7 people with an average income of Rp. 26,028,720 per year. Educational factors, service satisfaction, bank trust, security guarantees, and gifts affect the motivation of farmers to save in the bank.The farmers are encouraged to save a portion of their income in the bank even though they are still in the productive age range, the education level is

low, and the number of family dependents is classified as large. This will become an investment for further farming capital and fulfillment of life needs in the future. The government can emphasize interest rates, professional services, security guarantees, and attractive prizes given to customers while making banking regulations. The bank required to continue improving their service quality, the security guarantee of money storage, prizes given to customers and provide some education funding assistance. Thus, the bank will also gain trust from the community and people are more motivated to save their money in the bank.

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