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Original Article

Determinants of Credit Source Choice by Small-Scale Corn Farmers in the Philippines

Aphril Easter Sunday Jaemi Manuel Jayme*
Yoonsuk Lee**

Abstract

The corn sector in the Philippines has the potential for food security and to stimulate the rural economy. Although it has potential, 82 percent of corn farmers are small-scale farmers. There are several ways to support small-scale farmers. It is important to ensure that a formal agricultural credit service system is well established. This study focuses on the choice of credit sources when corn farmers need production capital. The selected place is the municipality of Bacnotan in La Union in the Philippines. The farm survey is designed using a structured questionnaire covering socioeconomic characteristics of households,

* **Main author:** Faculty, Institute of Agribusiness Management, Don Mariano Marcos Memorial State University / ajayme@dmmmsu.edu.ph
** **Corresponding author:** Associate Professor, Department of Agricultural and Resource Economics, Kangwon National University / yoonsuklee@kangwon.ac.kr

credit access, loan utilization, repayment conditions, and other information on the physical and institutional setting. Based on the survey data, the multinomial logit model is used to determine factors affecting credit source choice. The analysis revealed that informal credit sources are predominantly used in the study area, and each choice of credit source is affected by different factors. This study suggests adjusting the policy on agricultural credit services that promotes an accessible and friendly credit environment for small corn farmers in the area. Credit policies must be sustainable in the long run; specifically, they must include a systematic policy guideline for agricultural credit.

Key words: Agricultural Credit, Corn, Credit Source, Multinomial Logit Model, Philippines

Ⅰ. INTRODUCTION

Through the 2030 Agenda for Sustainable Development, Agriculture, which is seen as an essential and fundamental sector, meets the basic requirements of people by generating food, clothes, shelter, medicine, and leisure (Chandrasekaran et al., 2010). Additionally, as the foundation of the economy, agriculture plays a critical part in maintaining and activating a local economy, especially for developing countries (Chowdhury, 2015).

In the Philippines, the agricultural sector including forestry and fishing contributed 8.9% of the country's GDP in 2022 and accounted for 24.2% of the total employment share in 2021 (PSA AIS, 2022). The gross value added of the Agriculture, Forestry, and Fishing sector amounted to 1.78 trillion pesos[1)] in 2022(PSA AIS, 2022). Major agricultural crops are listed by rice, corn, palm oil, peanut and soybean and corn has become the second most important crop in the Philippines (Statista, 2023). According to the Department of Agriculture Regional Field Office III (2023), about 14 million Filipinos favor white corn as their primary food source, and yellow corn accounts for over half of animal-mixed diets and industrial uses. The average production from 1987 to 2022 is 5,981,103.42 metric tons while the total production of corn in 2022 reached 8,255,609.68 metric tons (PSA OpenSTAT, 2023). The top production province is Isabela and Bukidnon. In addition, corn provides a significant source of income for farm households and other stakeholders such as transportation services, traders, processors, and agricultural ingredient suppliers (Department of Agriculture-Regional Field Office III, 2023).

The corn industry in the Philippines has the potential to boost the rural economy, however, it has challenges because most of the corn farmers are small-scale farmers. The small farms in the Philippines can be defined as land cultivating below 2 hectares. According to the Farmers and Fisherfolk Registry System (cited in DA-BAR, 2022), 82 percent of corn farms have less than one hectare (an average of 0.54 ha), while 16.1 percent have between one and three hectares (an average of 1.95 ha) in the Philippines. Small farmers dominate the farm gate level and it can lead to inefficient productivity indicating an increase in cost per unit in their farming operations. In addition, the performance of corn

1) Pesos is monetary unit of several countries, and in this study, Philippine peso is used.

production has been affected by a variety of factors such as fertilizer, seeds, farming and postharvest facilities, government extension program, and so on. These challenges drive small-scale corn farmers away from a market. Financing can be one way to help small-scale farmers to increase production. To encourage small-scale farmers, production capital is needed (Poliquit, 2006). Agriculture credit has an important role in farm gate level and agribusiness of small farmers (Chandio et al., 2017). During the production process, financial capital is a crucial source to purchase necessary inputs (Chandio et al., 2021; Daemane et al., 2022; Duursma et al., 2012).

In the Philippines, agricultural credit has been demonstrated to be a significant support service that tries to meet farmers' financial needs for production, marketing, and other stages of the value chain. Improvement of credit services can be the driving force for developing a corn industry in the Philippines. Thus this study forces on the choice of credit sources. Agricultural credit can be categorized into institutional sources and non-institutional sources. Institutional sources include microfinance institutions, cooperatives and banks, and non-institutional sources include moneylender, relatives and neighbors, landlords and so on (Zuberi, 1989). In rural areas over the Philippines, the non-institutional sources are considered as a major source of agricultural credit. Such non-institutional credit sources have exploited high interests from small-scale farmers and it creates a vicious cycle in a rural community. The study analyzes factors affecting the choices of agricultural credit for corn farmers in the Philippines. The study area is in Bacnotan, La Union in the Philippines and 143 corn farm households are surveyed. The multinomial logistic model is utilized for analysis.

Ⅱ. LITERATURE REVIEW

Agricultural credit is a very important component of agricultural development (Poliquit, 2006). The rural population, characterized by a high level of poverty, greatly relies on agriculture as their source of income. Credit is an important and useful tool, especially in accessing the capital that will improve purchasing power for inputs and help the financial shortcomings of small-scale farms. Small-scale farms are mostly family-based, have multiple economic activities, and share income

and expenditures. It is important to provide easier access to formal financial markets of an agricultural sector (Agboklou & Ozkan, 2022; Anigbogu et al., 2014).

Credit need arises from the fact that there are different farming activities that farmers engage in which requires capital. For most developing countries, the Philippines for example, farmers lack the capital to sustain some of their farming activities. With climate change and the transformation of the global agricultural environment, demand for inputs increased and therefore enough agricultural credit is necessary for the development of this sector. Galang (2020) studied agricultural credit accessibility among members of Agrarian Reform Beneficiary Organizations in the Philippines. The results reported that farmers had easier accessibility through the organization, and they showed better performance with agricultural credit. Ambong & Pasco (2022) analyzed the determinants of rice farmers'decision to access rural credit in the Philippines. They found that gender, age, and education level were significant factors. Credit can help in the improvement of agriculture as it enables the acquisition of the needed capital that will increase not only the productivity of agricultural commodities but also the efficiency of a production process (Eusébio et al., 2016).

It is important to develop healthy sources of agricultural credit. Ijioma & Osondu (2015) found that there is a good proportion of farmers that did not misappropriate the credit acquired 53.33% while 37.78% misappropriated the credit acquired. The main sources of credit are from friends and relatives in Idemili of Anambra State, Nigeria. High interest rates and lack of collateral were the reasons why most farmers did not utilize formal credit institutions. Adebayo & Adeola (2008) also studied the sources and uses of agricultural credit by small- scale farmers in the Surulere local government area of Oyo State in Nigeria. The study found that most of the farmer respondents obtained their credit through informal sources. They pointed out that the interest rate is restricted from accessing credit 59% followed by the mode of repayment with 41% of the respondents regarding this as a major constraint for them in accessing credit. Djoumessi et al. (2018) determined the factors that affect credit access and demand of smallholder vegetable farmers in Cameroon, using a double hurdle model with survey data from 100 small vegetable farmers. The study suggested that the expansion of lending companies, farmer association membership, and agricultural extension programs enhance both the demand for and availability of credit. Nkwi et al. (2022) analyzed the factors that

influence loan acquisition of small-scale rice farmers in Nigeria with primary data from 215 farmer respondents. The findings demonstrated that 69% of the farmers lacked official access to loans. Significant factors influencing loan acquisition included interest rate, agricultural input, farm size, and loan periods. The long process for filling out documentation, the lack of suitable collateral, and the distance traveled to request loans were major factors that affected loan acquisition. Moahid & Maharjan (2020) analyzed the factors affecting farmers' access to formal and informal credit in Afghanistan. The study revealed that the farming household's decision to participate in credit and the decision of the amount of credit to be obtained is influenced by crop diversity, education, number of adults in the household, size of land, and access to extension. However, the study found that formal credit is not a significant factor that aids the needs of small-scale and remoter farming households. In addition, the household's religions decrease the access to formal credit but do not to informal credit.

Agriculture credit can play an important role in enabling farmers to adopt improved agricultural technology. Ullah et al. (2020) investigated the factors that affect farmers' access to agricultural credit and its role in the adoption of improved agricultural technologies in Pakistan, using a binary logistic model. According to the findings, farmers who have access to agricultural loans are more likely to adopt new agricultural technologies. The sizable farm, high farm revenue, greater information access, and ownership of sizable physical assets had a favorable impact on credit access. In terms of credit sources, farmers with greater assets, experience, and information tended to rely on banks more than informal and input suppliers. The older farmers with higher levels of education, larger farms, and higher farm incomes had a higher propensity to borrow from input suppliers rather than banks. Chandio et al. (2021), also studied the determinants of demand for credit by smallholder farmers in Pakistan. The findings showed that formal education, agricultural experience, size of landholdings, proximity to roads, and extension contacts all had a positive and significant impact on the demand for formal loans.

In terms of technical efficiency, farmers with credit accessibility had improved production efficiency (Akramet al., 2013; Jimi et al., 2019). Several researches (Assouto & Houngbeme, 2023; Ruben & Kolk, 2005) supported such results which farm households who has accessibility to agricultural or rural credit are more inclined to input and labor-intensive production technology as compared to

non-credit farming households.

Several studies justify that agricultural credit is an essential mechanism for farmer borrowers to increase their agricultural output. The agricultural credit not only feeds rural areas but also taps into the development of another sector in society. However, agricultural credit still needs a lot of improvements regarding implementation and access. The government has pursued specific credit and financial policies and programs that would create access to credit among small farmers. The country remains inferior to other countries in terms of financing agriculture. This has serious implications since financing the sector contributes to it's the country's development. The government encourages the farmers to adopt new technology for farming, yet access to financial services that will enable them to acquire the needed technology remains a constraint.

III. MTERIALS AND METHOD

1. Data

The study incorporated primary and secondary data. Primary data were gathered through personal interviews with corn farmers, while secondary data were collected from the Municipal Agriculture Office and Barangay Officials in the Philippines. The farm survey is designed with a structured questionnaire covering the socioeconomic characteristics of households, credit access, loan utilization, repayment conditions, and other information on the physical and institutional setting. The study also incorporated questions regarding their income, income sources, problems faced in credit access, and household expenditures to achieve the objectives. The selected place is the municipality of Bacnotan, a first-class municipality in the northern part of the province of La Union in the Philippines. This municipality is composed of 47 barangays with 42,078 residents. The average farm size in the Philippines, which is constituting by small scale family farms is 1.29 hectares (SEARCA, 2018). For this study, small-scale farmers with cultivated land not over 2 hectares were considered.

The corn industry in the Philippines is separated into yellow and white (Salazar et al., 2021). White corn is used as a substitute for rice and yellow corn is used

as feeds for livestock. Yellow corn farmers were chosen from the different varieties planted in this area since yellow corn has a larger population and a bigger market compared to the different varieties present in the municipality. The list of the population of small-scale corn farmers is summarized in 〈Table 1〉.

This study selects Agtipal, Cabaroan, Legleg, and San Martin Barangay where the areas and population are relatively large enough to survey (〈Table 2〉). Based on the list of registered small corn farmers obtained from the Municipal Agriculture Office's data, farmers were surveyed.

〈Table 1〉 Land and population of yellow corn households in Bacnotan, La Union

Barangay	Total area for yellow corn (ha)	Numbers of households
Agtipal	43.25	40
Bacqui	12	12
Bacsil	1	1
Bagutot	8.25	5
Bitalag	9	6
Bulala	3	2
Cabaroan	50	61
Cabugao	6.5	6
Calautit	5	4
Casiaman	2.75	2
Galongen	2.5	3
Guinabang	3.25	3
Legleg	38.5	33
Oya-oy	1.5	1
Paagan	1	1
Pangpang	1.5	2
Salincob	3	2
San Martin	32.5	34
Say-oan	6.75	8
Ubbog	3	1
Zaragosa	1	1
Total	235.25	228

Source: Municipal Agriculture Office, Bacnotan, La Union.
Note: Barangay is the smallest administrative division in the Philippines and is the native Filipino term for a village.

〈Table 2〉 Distribution of sample size per Barangay in Bacnotan, La Union

Barangay	Total area for yellow corn (ha)	Numbers of households	Sample size
Agtipal	43.25	40	38
Cabaroan	50.0	61	38
Legleg	38.5	33	33
San Martin	32.5	34	34
Total	164.25	168	143

In the study, the demographic, economic, and institutional variables are considered as the factors that are related to choices of credit sources such as farm income, farm expenditure, age, gender, experience, household size, duration of loan, interest rate, and government program beneficiary. 〈Table 3〉 shows the description of variables.

Credit access can be influenced by loan amount, sources from credit, and the reason for the choice of source. The challenge for the Philippines is how to systematize accessible credit programs for the farmers. Studies like Ijioma &

〈Table 3〉 Variable description

Variable description	Units	Mean	Std. Dev.	Min.	Max.
Dependent variable					
Credit sources	5 categories	2	1.22	1	5
Independent variables					
Farm income	Philippine Peso	128,818.60	82,282.95	0	412,420
Farm expenditure	Philippine Peso	42,260.75	25,747.66	2,700	175,000
Age of farmer	Years	52.18	12.99	28	80
Farm experience	Years	13.83	10.59	1	40
Household size	Number of people	5.11	1.51	1	10
Duration of loan	Months	4.12	0.81	3	12
Interest rate	Percentage	0.03	0.02	0	0.10
Government program beneficiary	1 if the recipient, 0 if otherwise	0.72	0.45	0	1
Gender of farmer	1 if male, 0 if female	0.86	0.34	0	1

Osondo (2015), Moreno (2004), and Poliquit (2006) found that farmers resort to informal credit channels rather than formal credit channels. Institutional or formal credit requires a standard process that was set by each institution. Moreno (2004) reported that institutional credit requires a lot of administrative processes. Such difficult conditions can cause farmers to use informal credit sources such as friends, relatives and so on that they provide the money instantly at the time the farmer needs it. Additionally, according to Widyastuti et al. (2023), institutions that provide formal credit prefer borrowers who can provide a guarantee. The authors furthered that too many difficult credit terms will discourage the debtor from seeking a loan from a formal credit provider (Widyastuti et al., 2023). This has negative implications regarding credit access since the government continuously develop and provide credit programs for farmers, yet they opt to borrow from informal sources even if it is characterized by high-interest rate and is very exploitative. According to the study of Cuevas & Zumalde (2015), in the Philippines, informal sources charge the highest interest rate of 15 percent per month while formal lending institutions charge only 6 percent per month.

2. Methodology

Descriptive statistics such as frequencies, percentages, and means are used to analyze characteristics of sociological and economic variables. Based on the descriptive statistics, a multinomial logit model is used to determine the factors affecting the decision of corn farmers to choose credit sources.

A multinomial logit model is used to predict categorical variables. In the study, the dependent variable is the sources of credit such as a neighbor or relative, private institution, microfinance institution, cooperative, bank, and others. Credit sources can be represented by; $D^1=1$ if neighbors or relatives, and D^i=1, 2, 3, 4 or 5 if a farmer has different choices of credit sources (Chandioet al., 2017; Danso-Abbeam et al., 2016; Fufa, 2016). The model ensures that the probability lies between 1 to 5. The dependent variable is defined as follows:

$$D^i = \begin{cases} i=1 \ if \ credit \ from \ neighbors \ or \ relatives \\ i=2 \ if \ credit \ from \ a \ private \ money \ lender \\ i=3 \ if \ credit \ from \ microfinance \ institution \\ i=4 \ if \ credit \ from \ a \ cooperative \\ i=5 \ if \ credit \ from \ a \ bank \end{cases} \quad (1)$$

The model is specified, following as:

$$logit(P_i) = \ln\left(\frac{p_i}{1-p_i}\right) = \frac{\exp\,(a_0 + a_1x_1 + a_2x_2 + \cdots + a_9x_9)}{1 + \exp\,(f_0(a_0 + a_1x_1 + a_2x_2 + \cdots + a_9x_9).} \quad (2)$$

where x_i represents independent variables at ith variable, i consists of 9 variables such as farm income, farm expenditure, age, gender, farming experience, household size, duration of loan, interest rates, government program beneficiary, respectively, and a_i represents the coefficient at ith variable.

IV. RESULTS

1. Source of Finance in Farming and Access to Credit

〈Table 4〉 reports that the majority (90.21 percent) of corn farmers financed their farming activities by acquiring credit while others (9.79 percent) did not access credit. This implies that while some farmers have sources of income to finance their farming activities, the majority of the farmer respondents rely upon credit to finance their farming needs. In 2017, agricultural loans amounted to 618.79 billion which was 23.76 percent higher than the previous years. 〈Table 4〉 reveals that these farming households still have to borrow to finance their farming activities.

2. Farmer's Sources of Credit

〈Table 5〉 shows that among the 133 credit participants, 69 farmers (48.25%) borrowed from their relatives or friends while 22 farmers (15.38%) borrowed from informal money lenders, 18 farmers (12.59%) borrowed from cooperatives, 16 farmers (11%) borrowed from microfinance institutions, and 2 farmers (1%)

〈Table 4〉 Frequency of credit participants of corn farmers

Participation	Frequency	Percentage
Credit participant	133	90.21
Not participant	10	9.79
Total	143	100

〈Table 5〉 Frequency of credit sources of corn farmers

Source of credit	Frequency (n=143)	Percentage (%)
Neighbors or relatives	69	48.25
Private money lenders	22	15.38
Cooperatives	18	12.59
Microfinance institutions	16	11.19
Banks	2	1.40
Total	133	100

borrowed from formal institution from banks. Given the growing number of formal lending institutions and the increasing government support given to farmers, the result showed that there is still a large percentage (63.63) of credit sources borrowing from relatives or neighbors and informal money lenders. Kislat et al. (2013) enumerated reasons why informal lending becomes the primary choice of borrowers when they need credit. The study stated that collateral requirement is not required in informal lending and second these types of lenders are closer, in terms of geographical location, and easier to access therefore increasing their credit availability as compared to formal lending institutions which require more administrative process, collateral and approval before processing the loan.

3. Reason for Choice of Credit Sources

〈Table 6〉 reveals the reason for the choice of credit sources. The primary reason small-scale corn farmers choose friends or relatives as a source of credit is because it is easy to access (38.73%). The main reason farmers choose private money is because of the quick process (36.17%). Cooperatives are not the preferred choice for farmers (41.86%). The major reason to choose microfinance institutions is due to lower interest rates. The results show that farmers choose each credit source for different reasons.

Farmers were also asked if they consider interest when they borrow. 〈Table 7〉 shows that 87.20 percent of the farmer borrowers consider interest when acquiring credit while 12.03 percent did not. Interest is the payment of the borrower from the lender for the use of the latter's money. Most of the time it is referred to as the monetary return to the lender.

〈Table 6〉 Frequency of reason for choice of credit sources

Sources	Reason					Total (%)
	Easy accessibility (%)	Lower interest rates (%)	Fast process (%)	Higher amount of loan (%)	No other sources of loans in the area (%)	
Friends/ relatives	55 (38.73)	45 (31.69)	20 (14.08)	9 (6.34)	13 (9.15)	142 (100)
Private money	5 (10.64)	2 (4.26)	17 (36.17)	16 (34.04)	7 (14.89)	47 (100)
Cooperatives	9 (20.93)	3 (6.98)	8 (18.60)	5 (11.63)	18 (41.86)	43 (100)
Microfinance institutions	10 (27.78)	11 (30.56)	6 (16.67)	3 (8.33)	6 (16.67)	36 (100)
Banks	1 (16.67)	1 (16.67)	2 (33.33)	1 (16.67)	1 (16.67)	6 (100)

Note: Values in parentheses (•) is percentage of multiple responses.

〈Table 7〉 Frequency of farmers'consideration of interest rate

Interest rate	Frequency	Percentage
Yes	110	82.70
No	16	12.03
Did not answer	7	5.26
Total	133	100

4. Reason for Accessing Loan

For small farmers, operation costs for farming and maintenance costs of land keep increasing. Adding up the cost of the entire farming process, a farmer will need financing. 〈Table 8〉 shows that 81 out of 133 farmers borrow for farming activities, and 52 out of 133 of the respondents use the credit acquired for consumption purposes. Following the experience of the lending institutions and the farmer borrowers from the implemented directed credit programs of the government, the result coincides with the discussion of Geron et al. (2016) that credit is flexible and borrowers may use it for other activities and not solely for its intended purpose since some 52 farmers used the credit borrowed for consumption purposes. According to Moreno(2004), the need for credit is rooted in two main reasons. The first is for survival and the other reason is for income augmentation.

〈Table 8〉 Frequency of reason for borrowing

Reason for borrowing	Frequency	Percentage
Capital for farming	81	56.64
Home consumption	52	36.36
Total	133	100

5. Multinomial Logit Model

The first model in 〈Table 9〉 shows that the predictor variables, farm income, age, and interest rate are statistically significant. The one-peso increase in farm income is associated with a 0.0000265 increase in the relative log odds of farmers choosing informal private money lenders over relatives/neighbors as creditors. A year increase in age is related to a 0.1110421 increase in the relative log odds of farmers choosing informal private moneylenders over relatives/neighbors as creditors. The one percent increase in interest rate is associated with a 139.52 increase in the relative log odds of farmers choosing informal private moneylenders over relatives/neighbors as creditors. These suggest that older farmers as well as those with higher farm income are at a relatively higher risk of availing credit from informal private money lenders, as compared to younger farmers, as well as those with lower income. On the other hand, the predictor variable farm expenditure is significant but negative. This means that a one-peso increase in farm expense decreases the relative log odds of farmers choosing informal private moneylenders over relatives/neighbors as creditors.

For the second model, loan duration and interest rate are statistically significant and the sign is positive. The one month additional in loan maturity will increase the relative log odds of farmers choosing microfinance institutions over relatives/neighbors as creditors. One percent increase in interest rate is associated with a 69.87 increase in the relative log odds of farmers choosing microfinance institutions over relatives/neighbors as creditors. These suggest that giving additional months for loan maturity and increasing interest rates makes a farmer choose to avail of credit in a microfinance institution.

For the third model, the predictor variables age, loan duration, and interest rate are statistically significant and the sign is positive. A year additional age of the farmer is associated with a 0.071 increase in the relative log odds of farmers

choosing cooperatives over relatives/neighbors as their source of credit. One month additional in loan maturity will increase the log odds of farmers choosing cooperatives over relatives as a source of credit by 1.008. The one percent increase in Loan Interest is associated with a 197.13 increase in the relative log odds of farmers choosing cooperatives over relatives/neighbors as creditors. These suggest that older farmers will most likely be borrowing in cooperatives if there will also be additional months in loan maturity and an increase in loan interest.

For the last model, farm income, gender, farming experience, household size, loan duration, and farm expenditure are positive and significant. This indicates that a peso increase in farm income will increase the relative log odds of farmers choosing banks over relatives/neighbors as creditors, the relative log odds for male farmers is 22.50 times higher than female farmers in choosing banks over relatives/neighbors as creditors. A year increase in farm experience will increase the relative log odds of farmers choosing banks over relatives/neighbors by 0.18, an additional member of the household is associated with an 11.44 increase in the relative log odds of a farmer in choosing a bank over relatives/neighbors as their credit source. An additional month for loan duration will increase the relative log

〈Table 9〉 Determinants of credit sources choice for corn farmers in Bacnotan, La Union

Variables	Private lending	Microfinance institutions	Cooperative	Banks
Constant	−17.264*	−9.545*	−18.881*	−118.291*
Farm income (PHP)	0.00003*	3.910	8.400	−0.00004*
Gender	1.642	0.602	0.809	19.193*
Age (years)	0.111*	−0.021	0.071*	−0.073
Farm experience (years)	0.071	0.048	−0.056	0.194*
Household size	0.165	−0.044	−0.062	10.421*
Loan duration (months)	0.467	1.008**	1.108*	1.676*
Government program beneficiary	0.143	1.172	0.888	−5.059*
Farm expenditure	−0.0001*	9.770	0.00001	0.0002*
Interest rate (%)	139.532*	69.870**	197.142*	20.931

Note: 1) Neighbor or relative is the base outcome.
2) * Indicates significance a tα=1%, ** indicates significance at α=5%, *** indicates significance at α=10%.

odds of farmers choosing banks over relatives/neighbors by 2.096 and a peso increase in farm expenditure will increase the relative log odds of farmers choosing banks over relatives/neighbors by 0.00018. This suggests that a male farmer with a higher income, longer farm experience, and who belongs to a larger household will likely be borrowing from banks if a higher interest rate and an additional month for loan maturity will be imposed. On the other hand, the variable farmer being a government program beneficiary is negative and significant. It implies that the relative log odds of a farmer who is a government program beneficiary relative to a non-government program beneficiary in choosing banks over relatives/neighbors as creditors are decreased by 5.17. The negative result suggests that farmers will be least likely to be borrowing from banks if they are beneficiaries of government programs.

V. CONCLUSION AND IMPLICATION

This study analyzed the choices of credit sources among small corn farmers in Bacnotan, La Union. The study emphasized the role of agricultural credit and a continuous plan in order to develop corn farms in the Bacnotan municipality. The results of the study can provide information with the farmers to utilize formal lending institutions, and with policymakers to understand the behavior of these small farmers and to formulate policies that will create a better credit environment. The study incorporated descriptive statistics to characterize the credit needs for small corn farmers and a multinomial logit model was used for determining factors that affect credit source choices for small corn farmers. The study revealed that most of farmers prefer informal lending sources in the study area. Such results are similar with several studies (Ijioma & Osondu, 2015; Poliquit, 2006). The studies showed that farmers heavily rely on acquiring credit from their relatives and neighbors instead of accessing agricultural credit from formal lending institutions. The results imply when farmers use formal lending institutions, they go through a complicated process and submit several requirements to get a loan.

Current policies for agricultural credit in the Philippines need to be reviewed and realigned. The status of agricultural credit in the country is not improving with the growing dependence of farmers on informal credit to finance their farming

operations. The government needs to create an healthy environment that will encourage farmers to acquire the government's credit programs through formal lending institutions, with an emphasis on accessibility and lower interest charges.

The current administrative process for agricultural credit from the formal lending institutions became a burden for farmers mainly because a process requires time and expense. The issue with time and expense arises partly due to the geographical characteristic of the Philippines being an archipelago. When farmers apply for loans from formal lending institutions, they must travel since formal lending institutions are situated at the center of the town. In addition, the formal lending institutions also cater to other clients which implies that the waiting time that the loan will be received by the borrower will be longer. Given that farmers in the study area do not borrow ahead of time, the delay in having the needed capital requirement for their farming activity would mean a delay in their operations. Comparing the accessibility of acquiring credit to neighbors and relatives with formal lending institutions, the former is very accessible.

To address these issues, the government can leverage various local resources. One approach is to activate village cooperatives, enabling them to conduct the role of credit union that grants loans out of accumulated savings to members for agricultural activities. The history of cooperatives in the Philippines began in 1907 (Ferrer, 1956). However, due to various reasons, they have experienced repeated failures and have not been able to establish themselves in local communities for a long time. To remedy problems of cooperative such as mismanagement, politics, insufficient working capital, lack of the trained person and so on (Lacuna-Richman et al., 1993), the government, the government should establish systematic programs for education and capacity-building, and farmers should also fulfill their role as members of cooperatives.

Along with domestic efforts to improve the agricultural credit environment, the issue of low accessibility from formal lending institutions can be helped through international cooperation with countries with advanced financial systems. Firstly, the Philippine government can establish a regional office without having to move to the city for loans, and secondly can receive support for a workforce training program that enables financial services. Talents who have been trained in advanced financial techniques will help find ways to support farmers who have low accessibility to formal lending institutions. In Germany and Australia, various

training program for financial workforce are being implemented for efficient microfinancing.

From the results, we can infer that some farmers do not allocate the credit acquired mainly to farming operations as some would use it for personal consumption. This is problematic because to repay the loan acquired, the money needs to become productive. Since most farmers acquire credit from relatives and neighbors, it is very hard to determine and monitor whether the loan was used mainly for its purpose. Agricultural credit programs in the 70's became a failure mainly because of loans becoming unproductive.

The Philippine government needs to come up with a good monitoring mechanism that will check on whether the farmer uses the loan in farming operations. Also, government can actively utilize international organizations and Non-Governmental Organization (NGO) as cooperative organizations to construct a good monitoring system for productive agricultural credit.

To increase the efficiency of agricultural credit, it must work complementarily with other factors of agriculture as well as the improvement of its own system. Irrigation, improved seed distribution, fertilizer subsidy, and farm machinery have to be intensified for higher productivity which will result in higher income for the farmers. With the increase in income, farmers therefore can finance not only their farming operations but also their consumption. In order to improve such issues, agriculture programs are to be improved. In addition, off-farm opportunities should be strengthened for farmers to have income when it is still not the season for farming.

If the Philippines works with the private sector or international organizations to develop manpower capabilities in the agricultural credits and at the same time increase the scale of Official Development Assistance support in productivity improvement, the Philippines can expect efficient results in agricultural credit.

While this study has drawn implications from both domestic and international perspectives to enhance credit accessibility for farming households, it emphasizes that efforts from the domestic government and stakeholders are crucial for improving formal financial institutions and environments. Moreover, research is needed not only on economic and institutional improvements but also on enhancing accessibility to agricultural credit and increasing the utilization of formal institutions from socio-cultural perspectives.

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