Volume 1 · June 2017
Print ISSN 2508-0318 • Online ISSN 2508-0326
DOI: https://doi.org/10.7719/pjae.v1i1.485

Credit Needs of Rice Farmer-Households in Tayabas City, Quezon, 2015-2016

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ABSTRACT

Credit has provided a way to meet the requirements for rice production and household needs especially during the period when farmers wait for their harvest. Further examination on timing of funds of rice farmers is necessary so that their demand for credit can be sufficiently met. The study aimed to evaluate the credit needs of rice farmer-households in Tayabas City located in Quezon Province, Philippines. This was done by interviewing 90 randomly selected rice farmers with an aid of pre-tested questionnaire. The households' credit needs were assessed using funds flow analysis. Households' credit needs are the amount of deficit incurred from spending all expenditures. It was found out that farmers' demand for credit was at maximum during the months of December and June since these months were the start of cropping periods. Thus, they acquired necessary inputs and paid laborers. On the other hand, no demand for credit was observed during the months of March, April, August, September, and October. This was due to significant amount of income earned from rice farming and other farms. The findings of the study provide some implications on timing of credit distribution and monitoring of clients' funds flow. Furthermore, sufficient livelihood programs must be provided by the government to offset capital insufficiency especially during period of waiting for harvest.

Keywords — Agricultural economics, credit needs, funds flow analysis, Philippines

INTRODUCTION

Capital is defined as "produced goods and services saved from consumption (maintenance and direct satisfaction of man) and used by, or as a part of, the human agent in further production" (Baum, Diesslin & Heady, 1961). They also stated that an understanding on capital and production technology use are important factors to improve productivity and standard of living. Correspondingly, PCAC (1978) noticed that the higher the amount of capital available for a particular cropping season, the higher the production. However, the lack of capital has become a problem among farmers in the Philippines (Maclean, Hardy & Hettel, 2013). Innovation for Poverty Action (2009) explained that lack of capital was attributed to increasing farm input prices while farm income remained steady.

Farmers perform different ways to counteract the risk brought by capital inadequacy to agricultural production (Poverties.org, 2012). Farmers have engaged to non-farm activities which could facilitate them in purchasing tractors and necessary farm inputs (Takahashi and Otsuka, 2009). In addition, income from off-farm and non-farm activities assists them in sustaining household consumption while waiting for harvest (Valenciano & Cuyco, 2013). Other farmers resort to borrowing to finance rice production (PCAC, 1978).

Credit needs refers to the amount of money necessary for both farming and household consumption especially when farmers are waiting for their harvest (Ogunfowora, Essang, and Olayide, 1972). Several studies have identified factors which influence farmers' credit needs. These include socioeconomic characteristics such as farm income, off-farm income, non-farm income, and farm expenses. Farm, off-farm and non-farm income negatively affect credit needs of farmers (Llanto, 2005). On the other hand, an increase in farm size, farm expenses, household size, and household expenses led farmers to demand more credit (Nagarajan, Meyer & Hushak, 1998; Villa, 2001). Lastly, farmers who are tenants have higher credit needs compared to landowners (Godquin & Sharma, 2005).

Basically, capital shortage has been due to high prices of farm inputs which cause farm expenses to increase. In addition, farmers need to sustain continuous consumption in household yet they harvest only twice or thrice per cropping season. As a result, they engage themselves to various activities such as off-farm and non-farm to gain sufficient amount to finance rice production as well as home consumption. Farmers also rely on credit as additional source of funds to support their expenses. Due to this, it is aimed to analyze the amount and timing

of credit needs for household consumption and to determine the amount what farmers would need for the next cropping seasons.

FRAMEWORK

Credit needs was mainly influenced by the amount of available capital. The available capital was determined by the total income and total expenses where an increase in total income caused an increase to amount of capital. Thus, lessening the amount of credit needs of rice farmers. On the other hand, an increase in total expenses decreased the amount of capital, hence, credit needs of farmers increased. Total income is composed of farm income, income from other owned farms, off-farm income, and non-farm income. It negatively affects credit needs, thus, farmers' credit needs declined as total income increased (Llanto, 2005; Nagarajan, et al., 1995). Total expense on the other hand, is comprised of farm expenses, household expenses, and expense from other business which could increase the need for credit. This indicates the importance of credit on enabling farmers to afford expenditures in farm production (Medagbe, Diagne & Biaou, 2015).

Credit needs for rice production is the difference between the amount of available capital during the current period and projected capital requirement that would be used for the next cropping season. The amount of available capital is obtained when total expense is deducted to the total income while projected financial requirement refers to the amount of money needed to finance farm operations for the next cropping period. When a shortage in capital occurs, farmers utilize credit which can be accessed from formal and informal financial institutions. Meanwhile, this also refers to the amount of deficit incurred from spending to all expenditures, thus, a difference between the total income and total expense. This provides an implication on the need to assess the timing of credit distribution and its sufficiency for household and production needs.

OBJECTIVES OF THE STUDY

The study aimed to assess the credit needs of rice farmer-households both in household consumption and rice production. Specifically, the study aimed to 1) determine the monthly deficit incurred by farmer-households in all expenditure; 2) estimate available capital of rice farmer-households; and 3) identify the financial requirement for rice production in next cropping seasons.

METHODOLOGY

Primary data were used in the study. The primary data were collected through personal interviews with rice farmers with the aid of pre-tested questionnaire. The list of rice farmers in Tayabas was obtained from the city agriculture office. Simple random sampling was employed in the selection of rice farmer respondents, wherein 90 farmers were randomly selected as respondents for the study.

Descriptive analysis was used to provide the general overview of the respondents' characteristics through frequency counts, averages, and percentages. Credit needs of respondents monthly and per cropping period were presented using descriptive analysis. According to Maclean, Hardy, and Hettel, (2013), the cropping periods for rice in the South Luzon are the reverse of that of the North. Based on this, wet season covered in the study occurs from November 2015 to March 2016 while dry season starts by June 2016 and ends by October 2016. Credit needs refer to the amount of projected capital requirement less the equity capital. The required capital or financial requirement is the amount of money needed to finance farm operation for the next cropping period while equity capital is the amount of capital available to farmers. Cost and returns analysis was also used to estimate the projected financial requirement. It is assumed that the total cash costs were equal to the amount of capital requirement for the next cropping period, holding other factors constant. Moreover, it was also used to determine the net income of the respondents on a specific cropping season. Another analysis utilized was funds flow analysis. Funds flow analysis was performed to estimate the available capital of rice farmers for wet and dry season. Furthermore, funds flow analysis was also used to indicate the amount and timing of credit needs of rice farmer-households. Negative net funds flow suggests the amount of credit needed to suffice all the deficits incurred from household, farm, and other requirements. On the other hand, a positive value implies the absence of credit needs.

Research Setting

Tayabas covers a land area of 23,095 hectares, composed of 66 barangays where 19 of these are urban and the remaining 47 are classified as rural. The urban core of the city only occupies 82.15 hectares which is actually less than one percent of the total land area. On the other hand, 13,822 hectares is devoted to agriculture. A large portion of it (85.23%) has been planted with coconut and 14.64% has

been devoted to rice production. Specifically, out of 2,024 hectares devoted to rice lands, 1,748.25 hectares is accounted for irrigated rice lands while the remaining 275.75 hectares is covered by rain-fed farms (City Agriculture Office, 2011 as cited by Office of the City Planning and Development Coordinator, OCPDC, 2012). Root crops and vegetables are also produced in Tayabas which has covered 0.07% and 0.05%, that is 10 and 7.38 hectares, respectively (OCPDC, 2012).

The City Agriculture Office (2011) as cited by OCPDC (2012) estimated the area, average yield, rice production, and consumption in Tayabas. In 2011, rice fields in Tayabas covered 2,024 hectares with an average yield of 3.72 metric tons per hectare. Given the population of 87,252 on 2011, rice consumption was estimated to be 10.470.24 metric tons per year.

Given the assumption that the demand for rice in 2011 was satisfied and that the supply of rice remained the same, it is projected that the demand for rice for 2015 was 13,518.6 metric tons, thus, creating shortage of 3,493.73 metric tons. Moreover, given the same assumptions, it is estimated that by the year 2020, the demand would increase to 22 13,718.6 hence, there would be a shortage of 4,693.73 metric tons (OCPDC, 2012).

Furthermore, it was estimated that the total income earned by the residents of Tayabas from all sources is PhP 149,270,363.28 whereas the total annual expenditures amounted to PhP 158,366,241.20. Thus, in 2011, there was a deficit of PhP 9,095,877.92 (Office of the City Treasurer, 2011 as cited by OCPDC, 2012).

RESULTS AND DISCUSSION

General Characteristics of Respondents

Socio-demographic characteristics of rice farmers in Tayabas City included rice farmers' age, sex, educational attainment, civil status, and household size. Farm-related attributes, on the other hand, referred to farm size, tenure status, and farming experience.

The characteristics of respondents were discussed. Farmers aged from 51 to 60 years old comprised the biggest percentage (37%) among the age groups while there was only four percent aged 23 to 30 years old. On the average, rice farmers in the area had an age of 55 years old. Some of the respondents stated that due to their old age, they could not work on the farm for longer hours so they hired laborers to do the farm activities. Moreover, majority of them are male (89%) and married (93%). Most of the respondents (40%) are elementary graduate.

It was stated that they were forced to work on the farm at an early age because they could not afford to study in high school and recognized farming as an effective income-generating activity because it does not require any educational attainment. On the average, household size of rice farmers in Tayabas is four. In terms of farm size, it was observed that rice farmers work in an average farm size of one hectare. In fact, 80 percent of the respondents were tenants. Since tenants have to give a certain portion of their produce to landowners, their income was not maximized, thus, can affect demand for credit. Lastly, farming experience refers to the number of years a farmer has been engaged to rice farming. On the average, rice farmers in Tayabas have been involved in rice farming for 32 years. This shows consistency with the outcome that most of the rice farmers were already aged.

Monthly Funds Flow

The funds flow analysis was used to determine the amount of available capital at the end of each period. The negative values of net funds flow denote the amount of credit needed by rice farmer-households to suffice the expenditures in household, other businesses, and rice farm. Income and expenditures occurred simultaneously and it can be observed that the peak months of inflow and outflow happened at different periods. As a result, deficits occurred.

Figure 1 shows the flow of funds of respondents. This emphasizes that during the months of December and June, farmers incurred the highest amount of expenditure. The months of December and June were the usual months when farmers acquired farm inputs and paid hired laborers. In fact, expense in hired labor constituted the largest portion of the farm expenditure. It is also noticed that the total inflow was at peak during the month of March and April, and October. This is because farmers usually harvested rice during these months which gave account to increasing their farm income. On the other hand, total inflow was at minimum during January and July since these months were acknowledged to be the waiting period of their harvest. Hence, they did not gain significant amount of income. As presented (see Figure 1), deficit occurred during the months of November, December, January, February, June, and July. The occurrence of funds inflow and outflow is shown to be simultaneous. However, during these months, outflow exceeded the inflow, hence, deficit became inevitable.

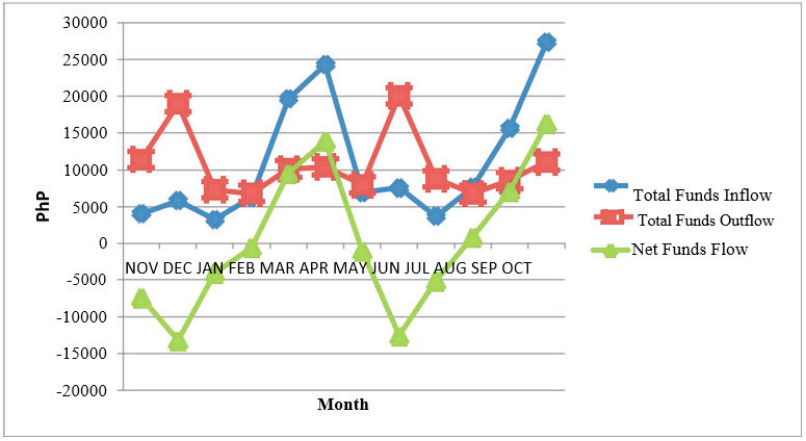

Figure 1. Monthly funds flow of 90 rice farmer-respondents, Tayabas City, Quezon, 2015-2016

Household Credit Needs

Wet season falls from November to April and dry season occurs from June to October. The sum of the deficits from November to February denotes the amount of households' credit needs by rice farmers during wet season. This amounted to PhP 25,183 (USD 504), as presented in Table 1. This means that rice farmer-households would need PhP 25,183 (USD 504) to compensate the deficit from household and other needs. On the other hand, during dry season, farmer-households would need a total of PhP 17,664 (USD 353) to offset the shortage incurred particularly during June and July.

Farmers have been engaged to other income-generating activities other than rice farming to assist them in sustaining all the expenditures, particularly, during the months of waiting for harvesting rice. Nevertheless, deficits still occurred at specific months. The occurrence of shortage implies that rice farmer-households in Tayabas City did not have sufficient amount of money to afford all of their expenditures such as expenses in household, rice farm, and other income-generating activities at specific months. In fact, based on the survey result of Philippine Statistics Authority (2003), the average annual family income in 2015 was PhP 189,000 (or USD 3,780) while average annual household expense was estimated to be PhP 152,000 (USD 3,040), whereas in Tayabas, total annual income was PhP 131,859 (USD 2,637) and total household expenses was PhP 72,816 (USD 1,456). This implies that the income of rice farmers in Tayabas

City was not enough to meet household's basic requirements including food and non-food items. Based on this, rice farmers were more likely to use credit to finance their expenditures including household and farm expenses.

Table 1. Monthly credit needs of rice farmer-households, Tayabas City, Quezon, 2015-2016

MONTH	CREDIT NEEDS (PHP)
November	7,363
December	13,196
January	4,049
February	575
March	0
April	0
TOTAL (WET SEASON)	25,183
May	1,051
June	12,555
July	5,109
August	0
September	0
October	0
TOTAL (DRY SEASON)	17,664

Credit Needs for Rice Production

Credit needs also refers to the amount of money needed to be borrowed to suffice the financial requirements for rice production at a specific cropping period. The projected amount of financial requirement, equity capital and credit needs are summarized in Table 2.

The projected capital requirement was based on the amount of farm cash expense estimated using costs and returns analysis, assuming that the projected capital requirement is equal to the amount of financial requirement during the previous cropping seasons. The projected capital requirement for rice production during dry season (June to October 2017) would be PhP 25,353 equivalent to USD 507 (whereas capital requirement for wet season (November to April 2017) would be PhP 23,209 (USD 464). The amount of capital requirement is the actual amount of money that farmers needed to carry on farm operations and purchase the necessary inputs. Using funds flow analysis, there would be a deficit

at the start of the next cropping season by PhP 1,738 (USD 35). Thus, resulting to a need for credit amounting to PhP 27,091 (USD 542). On the other hand, the available cash at the start of wet season is estimated to be PhP 6,559 (USD 131) hence, farmers would need to borrow PhP 16,650 (USD 333) to fully sustain rice farming operations for wet season.

As shown from the previous table, credit needs of households during wet season occurred from November to February, thus, these are the months when farmers are more likely to demand for credit for wet season. Furthermore, credit needs for rice farming for dry season is also anticipated to occur during the months of June and July.

Table 2. Credit needs of 90 rice farmers per cropping season, Tayabas City, Quezon, 2015- 2016

Item	Dry Season Requirement (PHP)	Wet Season Requirement (PHP)
Financial Requirement	25,353	23,209
Equity Capital	-1,738	6,559
Credit Needs	27,091	16,650

Source of basic data: Survey result, 2016

CONCLUSION

The availability of credit needs for both cropping seasons denotes that income was generally insufficient to cover the amount of capital required. Due to this, credit plays an important role in farm capital formation as well as to achievement of higher yield because farmers would be able to purchase necessary inputs and perform various tasks in farming through hiring laborers. However, it was discussed that credit needs of rice farmers occur at several months specifically during November, December, January, February, June, and July as farm expense happens continuously and harvesting only occurs twice a year. Rice farmers in the area must borrow on financial institutions which do not only provide credit during the start of the cropping period but also during the months when deficit usually occurs. It is important then for financial institutions in the area to determine the timing of flow of funds of farmers in order to see the months when they usually have higher outflows while inflows are low. Moreover, it can assist the institutions in determining the months when farmers usually earned relatively higher amount of income. Due to this, they can identify the months

when rice farmers are more able to repay loans. Based on the findings of the study, it is, therefore, recommended that farmers must have access to more livelihood programs that will help them generate more income. Nonetheless, since most farmers are already old, their household members are then encouraged to participate in any income-generating activity. Moreover, provision of additional livelihood programs led by government agencies such as the Department of Agriculture would facilitate farmers to increase their income. These programs should assist farmers financially particularly during the months where deficit usually occurs. By this, household income would increase thereby increasing the available capital both for rice production and household consumption.

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