Role of Rural Development Banks and Its Impact on Paddy Harvest in Puttalam District in Sri Lanka

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Abstract

This paper examines the role of rural development banks and its impact on paddy harvest in Puttalam district in Sri Lanka. To achieve these objectives of the study, the primary data were collected through the questionnaires from the respondents who are cultivating paddy in the study area for the period 2017. Totally fifty samples were selected randomly from two villages and the collected data were analyzed using the paired sample t-test to identify whether there is any difference in average paddy yield pre and post receive the loans. In addition to that, descriptive statistics were used to analyze the socio-economic characteristics of the respondents while multiple regression analysis was used to quantitatively determine the impact of major contributions given by the banks on average paddy yield among small-scale farmers in the study area. Average paddy harvest considered as the dependent variable and the major contributions of rural development banks such as providing the loans benefits from the insurance and frequency of participated the meetings by farmers were used as explanatory variables in the analysis. The findings of the paired sample t-test show that the average yield of paddy has increased significantly due to the loans given by the banks. Results of multiple regression analysis prove that the use of credit in paddy farming has a negative and significant impact on farmers' paddy yield while benefits from insurance have a positive significant impact on average paddy harvest in Puttalam district. However, the impact of given loans by the banks on average paddy yield is negative illustrates that, there is an urgent need for monitoring and supervising the farmers regarding their usage of loans in paddy cultivation to appreciate the real effect of role given by the banks especially providing the loans on average paddy yield income of the farmers in Sri Lanka.
Keywords: rural development banks, paddy farmers, insurance benefits, paired

samples t-test, average paddy yield.

Introduction

Sri Lanka is a naturally gifted country for the agricultural development and the agriculture is the cornerstone in the economy with 28.2% (labor force survey,2017) of the population living in rural areas depending on the agricultural sector for their livelihoods and income generation. The agricultural sector currently contributes 6.9% to the GDP and out of this

0.5% (Central Bank Annual Report,2017) of the contribution were given by the rice production while 26.1% (labor force survey, 2017) of the population employed in this sector of Sri Lanka. In the agricultural sector, paddy is an important staple food of the people in the country and the government mainly focuses on the paddy to increase its production and income.

The average yield of paddy estimated for 2017 Yala season was 83.2 bushels per net acre (4,291Kg. per net hectare) and it is decreasing 2.4 bushels per net acre (126 kg per net hectare) compared to the 2016 Yala season. The estimated paddy production for 2017 Yala season was 43,580,000 bushels and this is about 40% less compared with the 2016 Yala season. Productions of 8,945,000 bushels, 8,320,000 bushels, and 4,651,000 bushels of paddy were reported from Ampara, Polonnaruwa and Hambantota districts respectively. Paddy production in Ampara district was accounted for about 21% of paddy production of the country. The contribution to the national paddy production from Polonnaruwa and Hambantota districts were recorded as 19% and 11% respectively. But total paddy production in Puttalam district was recorded about 161,000 bushels on 2017 Yala season.

Like many developing countries, several initiatives have been taken and implemented by the Sri Lankan government for the farmers and agricultural entrepreneurs to get credits and other benefits from various institutions especially Regional Development Bank (RDB) which helps in many ways to encourage their cultivation. RDB is a Government bank and as well as a development bank which was started in 1998. There are 17 Regional Rural Development banks were merged into 06 provincial levels, namely, Rajarata, Ruhuna, Wayamba, Uva, Kandurata, and Sabaragamuwa. These banks were further merged in May 2010 as a national level development bank namely Pradeshiya Sanwardhana Bank. RDB was established under the Pradeshiya Sanwardhana Bank Act. No. 41 of 2008, as a fully state-owned national level bank with the long-term objective of improving the living standards of the rural people by providing them accessible and affordable financial services that in turn, would contribute to uplift the rural economy. The RDB continues to implement its vision of providing financial assistance to the rural sector and developing and empowering the people in the country.

The objective of the RDB banks is to facilitate the regional economic development of Sri Lanka by promoting the sectors, such as agriculture and fishing, trade and commerce, industrial, housing and other development. For this purpose, the banks are providing the short term, medium term and long-term loans and other accommodation particularly to farmers and agricultural workers, whether individually or in groups, and to co-operative societies and marketing and processing societies for agricultural operations

or other purposes relating to agriculture and giving insurance facilities. The Bank may promote and sponsor the training of banking and technical personnel, farmers and artisans and other persons engaged in allied activities individually or in groups or through co-operative societies in the subjects of agriculture, industry, commerce, fishing industry, trade and other development activities. For these purposes, the Bank is authorized to defray the costs incurred in that regard.

The growth of the agriculture sector including paddy has to face some problems and challenges, especially financial and credits. The contributions of government sector for providing loans to the farmers also inadequate to improve the agriculture sector and in a certain level private banks and other institutions such as RDB are providing loans.

The objectives of this study are,

To find out whether there is any difference in the average amount of paddy harvest after receiving the loans from RDB in Puttalam district in Sri Lanka

To identify the impact of rural development bank's services such as, providing loans, insurance, arrange the meetings for farmers regarding training and workshops on the amount of paddy harvest in the Puttalam District in Sri Lanka.

Literature Review

Previously, many researchers have done their studies related to the impact of various financial institutions and the services on agricultural production and income in many countries.

Mohan (2006), examined the agricultural credit in India: Status, Issues and future agenda and through the study, he suggested that in the changing scenario strong and viable agricultural financial institutions are needed to requirements of finance for building the necessary institutional and marketing infrastructure in India.

Golait (2007) issues in agricultural credit in India and he identified those crop losses, consecutive failure of monsoon, recurrent drought, mounting debts and land tenancy, as some of the main causes which led many distressed farmers to commit suicide in the country.

Akerele, Ezekiel Olaoluwa (2016), analyzed the Effects of Cooperative Credit on Cassava Production in Yewa Division, Ogun State, and their study concluded that farming experience, credit use, interest rate charged, total expenditure on production, and loan repayment period were the major

significant farm socio-economic variables determining loan repayment in the study area.

Another study has done by Mahoukede, Aliou and Gauthier (2015) in Benin to identify the impact of the use of credit in rice farming on rice productivity and income for rice farmers. Their findings show that the use of credit in rice farming has a positive and significant impact on farmers' rice yield, rice output, rice income, per capita rice income, annual household income and per capita annual household income.

Devi (2012) analyzed the impact of the co-operative loan on the agriculture sector in Andhra Pradesh and the results proved that co-operatives are functioning in the most efficient manner by providing adequate, cheap and timely credit to agriculture and allied sector in the study area.

Shafiwu, Salakpi, and Bonye (2013) have analyzed the role of the agricultural development bank in the development of rural women in agriculture in Wa-West District. According to their study, they have found that loan size, interest rate and mode of payment used by banks are inappropriate and as a result, there is no much improvement in their way of lives and farming practices in the study area.

Obilor (2013) has examined the impact of commercial banks' credit to agriculture on agricultural development in Nigeria and the results from the study revealed that agricultural credit guarantee scheme and government fund allocation to agriculture produced a significant positive effect on agricultural productivity in the country.

Method of data collection

Primary data were collected through the set of questionnaires from the farmers who are engaging in paddy cultivation in Puttalam district. Two villages namely Neelabemma and Puliyankulam were selected for the study and out of 410 paddy farmers, 25 of them were selected from each village randomly.

Analytical framework

The collected data were analyzed using frequency analysis, descriptive statistics, paired sample t-test and multiple regression analysis described below.

Frequency analysis

Frequency analysis is more useful to explain the main features of the variables related to the farmers, their personal characteristics and profiles related to gender, age and educational levels.

Descriptive statistics

Descriptive statistics is the basic statistical analysis which represents the mean and standard deviation of the variables used in the study. For descriptive statistics, variables such as the amount of paddy harvest, amount of loans received by the farmers from rural development bank, insurance benefits obtained by the farmers and number of meetings attended by them were used in the study.

Paired sample t-test

The paired sample t-test was applied to determine whether there is statistical evidence that the mean difference between paired observations on an outcome is significantly different from before and after the occurrence of an event. This test was used to identify whether an average harvest of paddy is differing before and after a farmer received the loans from the rural development bank.

Multiple regression analysis

In addition to the above analysis, multiple regression analysis was used to find out the impact of explanatory variables on the dependent variable. Amount of paddy harvest considered as the dependent variable and other three explanatory variables such as the amount of loan received by the farmers, amount of insurance benefits and numbers of attending for public meeting were considered as independent variables in the analysis. The following regression model was specified to evaluate the impact of three independent variables on the dependent variable which was used in the study.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where,

Y = Amount of paddy harvest　　　　X_1 = Amount of loans received

X_2 = Insurance benefits X_3 = Number of meetings attended by the farmers

β_0 = Constant value　　　　　β_1, β_2 and β_3 are the coefficients of variables

ε = Error term　　　　each independent

Results and Discussions

Personal characteristics of the farmers especially, gender, age, and educational levels were explained by frequency analysis and the results are shown as below:
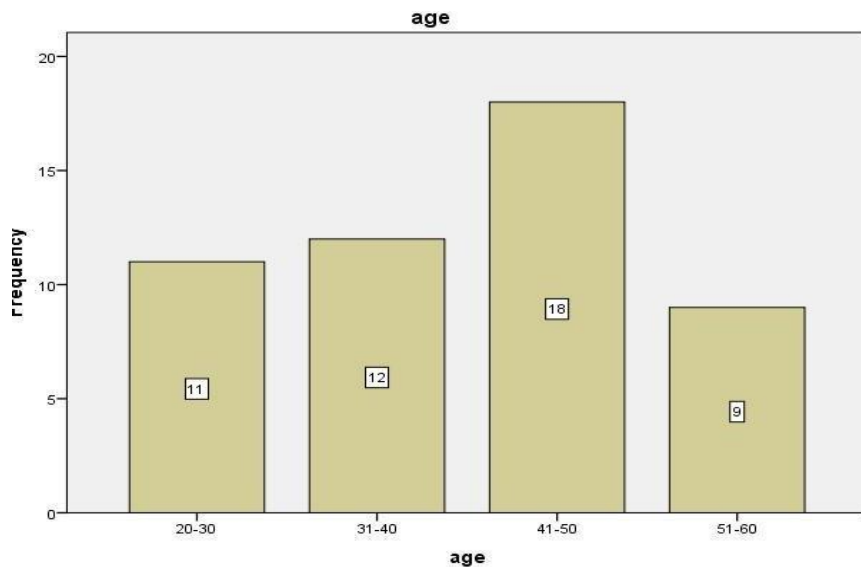
Table1: Gender of the farmers

Variables	Frequency	Percentage
Male	35	70.0
Female	15	30.0
Total	50	100.0

Source: survey data, 2017

According to the above table, 70% of the farmers were males and only 30% of them were females who are engaging in paddy cultivation in the study area.

Figure 1: Age distribution of the farmers

Source: survey data, 2017

According to the above chart, it shows that the age profile of the farmers ranged from 20-60 years and the majority of them (18) belong to the age group between 41-50 old while only 9 of them belong to 51-60 age. A significant amount of the farmers (11) are youngest and 12 of them belong to 31 to 40 years old.

Majority of the farmers were qualified up to primary level (58%) and a minority of them studied up to (16%) the higher educational level in the sample. 26% of farmers are included in secondary education
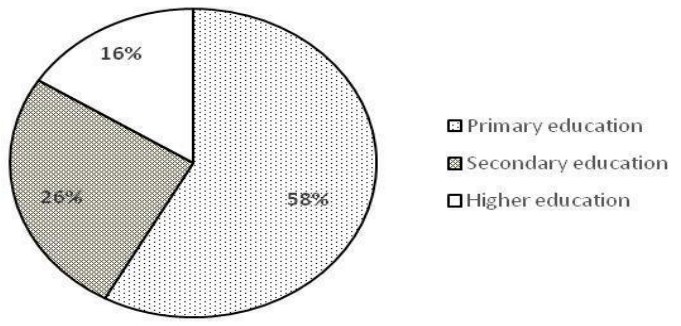

Figure 2: Education profile of the farmers

Source: survey data, 2017

The following table represents the results of descriptive statistics of the variables and according to that maximum amount of paddy harvest is 14300 kg and minimum amount of paddy harvest is 2000 kg derived by the farmers in 2017.

Table 2: Results of descriptive statistics

Variable	N	Minimum	Maximum	Mean	Sd
Amount of paddy harvest	50	2000	14300	5954.00	3268.664
Amount of received loans	50	50000	550000	142500.00	121454.82
Insurance benefits	32	1078	2850	1934.31	585.545
Number of the meeting attended	50	3	12	8.82	2.388

Source: Calculated by researcher, 2017

Similarly, the maximum amount of loan received by the farmers is Rs 550,000/= while minimum loan Rs 50,000/=and mean and standard deviation of other variables also illustrated in the above table.

Table 3: Descriptive statistics of the amount of paddy harvest

Variables	Mean	N	S. D	S. Error
Harvest before receiving loans	5954	50	3268.664	462.259
Harvest after receiving loans	6192	50	3217.797	455.259

Source: Calculated by researcher, 2017

Based on the above results, the mean value is differing from before and after receiving the loans from RDB. Before getting the loans from the bank, an average harvest is 5954kg and after getting the loan, the average harvest is 6192kg. Therefore, after getting the loan average paddy harvest has increased by 238kg.

Table 4: Results of the paired sample t-test

Variables	Mean difference	Standard deviation	Standard error	t	df	sig
Amount of harvest before and after receiving loans	-238.00	300.94	42.56	-5.59	49	0.000

Source: survey data, 2017

Paired sample t-test was used to identify whether there is any difference in average yield of paddy due to the loans received by the farmers from the bank. The table 4 proved that the mean value is different across the two conditions and it is statistically significant at 1% level indicates that by comparing the average yield of paddy of borrowers in the post- loan with pre-loan periods proved that, there is an improvement in the yield of paddy in the study area.

To identify the impact of services given by rural development bank in terms of providing loans, amount of insurance benefits and conduct the meetings with farmers on the average yield of paddy, multiple regression analysis also applied. The results are shown in the following table.

Table 4: Estimated results of multiple regression analysis

Variables	β	Std. Error	Standardized Beta	t	Sig
Constant	714.353	2578.35		0.27	0.78
Amount of loans received	-0.009	0.004	-0.33	-2.22	0.03 **

Insurance benefits (Rs)	3.664	0.84	0.63	4.33	0.00 *
Number of meetings attended	-6.044	204.24	-0.004	-0.03	0.97
Adjusted $-R^2$ = 0.368					

Source: survey data, 2017

Note:* and ** represents the significant levels of 1% and 5% respectively.

The model is adequate or not can be decided by adjusted $-R^2$ and its value in this model is 0.368 shows that nearly 37% of the variation in the amount of paddy harvest explained by three explanatory variables namely, amount of received loan, insurance benefit and number of meetings attended by the farmers. Rest of the other 63% represents that the amount of paddy harvest is determined by other factors such as irrigation and water facilities, pesticides and input usages, farmers education and storage facilities etc. All the predictor variables in the model were the statistically significant impact on the average amount of paddy harvest except the number of meetings attended by the farmers.

The coefficient of loans amount has a negative sign represents that, as the number of loans received by the farmers from banks increases it will reduce their average amount of paddy harvest assuming other factors held constant. The number of loans may be used for other purposes such as, build up their houses, personal consumption, buying vehicles, etc and due to these reasons, they were unable to use the loans properly in their cultivation and the average yield may fall.

One of the services given by the banks is the insurance benefits and as the farmers getting more benefits from insurance, it helps them to encourage getting more yields from paddy cultivation. The coefficient of this variable is statistically significant and its standardized beta is 0.63 reveals that 63% of the contribution is given by the insurance benefits to produce more average paddy yield in the district. On the other hand, the number of meetings attended by the farmers at the meeting regarding the programs and advice related to paddy production given by the banks has insignificant indicates that average paddy yield does not depend on those services in Puttalam district.

Conclusion

Findings of the study concluded that rural development banks are contributing in many ways to raise the amount of paddy harvest in Puttalam district in Sri Lanka. There are three main services given by the banks which were considered as the independent variables in the study. Paired

sample t-test suggested that getting the loans from banks enhance the average amount of paddy harvest significantly. Out of three independent variables, insurance benefits are the major contributor to the production of paddy than other factors and as the farmers receive more benefits from insurance, they are able to raise their paddy harvest in their cultivation.

The banks are providing more loans to the farmers for the cultivation purpose even though they were unable to get more output due to the many reasons such as not using the loans properly in their paddy cultivation and inadequate of the suitable monitoring facilities after given the loans.

Recommendation

When the RDB in Puttalam district provides the loans, it must be investigated and monitored properly. Then only the farmers can encourage and use the loan facilities effectively and efficiently.

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