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DETERMINANTS OF ACCESS TO AGRICULTURAL CREDITS FOR SMALL SCALE FARMERS IN THE SOUTHERN PROVINCE OF RWANDA

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Abstract

This study investigated the determinants of financial inclusion for small scale farmers by focusing on the access to formal and informal agricultural credits in the Southern Province of Rwanda. Data were collected from 310 farmers from Huye and Nyamagabe districts through an open-ended structured questionnaire and analysed using the binary logistic regression method. The major findings, on one hand, showed that among the requested and approved agricultural loans, 87.2% and 12.7% were from informal and formal financial institutions respectively. Among those who accessed agricultural credits, 59.7% were from Huye and 40.3% from Nyamagabe. On the other hand, it was revealed that the household characteristics and the community attributes are the most important determinants. Those household characteristics include household income and expenditure, Ubudehe socio-economic category of the household, off-farm employment and the size of the land owned by the household whereas community attributes involve residence area, transport and informal financial services availability. Regarding farmer characteristics, the education level was found to be the only factor affecting the smallholder farmers' access to agricultural credit. In light of the findings, it was recommended to conduct sensitization sessions focusing on the importance of agricultural credits for smallholder farmers especially in the areas with high level of poverty. In addition, there is need to work on alleviating the formal agricultural credits access barriers, and to conduct a study on the dynamics of informal and formal agricultural credits up take and usage by smallholder farmers to explore all dimensions of financial inclusion in the study area.

Keywords: *agricultural credit, small scale farmers, Southern Province, Rwanda*

Introduction

The economy of Rwanda is highly depending on agriculture which employs 87.3% of economically active population and contributes up to 36% in the GDP (Gisaro, 2013). More than 70% of its adult population live in rural areas (NISR, 2012a) and rely mostly on agriculture for their daily livelihoods. Given the importance of agriculture to national economy, the raising of agricultural productivity and farmer's income remains the priority of the Rwandan government. The agricultural credit through microfinance institutions has been selected along with other mechanisms to achieve the main goal of transforming and modernizing the agricultural sector highlighted in different agriculture-related programs and strategies. The importance of credit for rural development is even more pronounced for developing countries with largely subsistence farming systems such as Rwanda (Muhongayire *et al.*, 2013), where, there are two major sources of agricultural credit namely formal institution and informal institution sources (NISR, 2012a). The first comprises development and commercial banks, microfinance institutions, and Saving and Credit Cooperatives (SACCOs) while the latter is made by internal value chain financing agents, agricultural

cooperatives, farmers' associations, tontines, loans clubs from Non-Government Organizations, friends and neighbors.

In the literature, it has been shown that agricultural credit is a tool to expand agricultural production (Balogun and Yusuf, 2011) and to promote the standard of living by breaking vicious cycle of poverty of small scale farmers (Ayegba and Ikani, 2013). It serves to improve the household welfare by increasing the total consumption levels and impacting positively the demand for children's health care and education, as well as leisure (Armendariz and Morduch, 2005). Agricultural credit is also seen as an important financial support that a small farmer can get in order to bridge the gap between his income and expenditure (Khan *et al.*, 2011).

In rural areas, the availability of agricultural credit and financial services is perceived as a critical matter but the access to these financial services by rural farmers is another one. This, because their availability does not guarantee their accessibility. As argued by Duy *et al.* (2012), the success of credit provision for poverty reduction depends on the possible access by poor households to credit-providing institutions. According to De Klerk *et al.* (2013), in sub-Saharan Africa, where most people still live in rural areas and agriculture is the mainstay of the rural economy, access to financial services of all kinds appears still to be poor. In this line, Anyanwu (2004) states that collateral, credit rationing, preference for high income clients and large loans, bureaucratic and lengthy procedures of providing loan in the formal sector keep poor people outside the boundary of the formal sector financial institutions in developing countries. According to Swinnen and Gow (1999), for most banks, financing agriculture is a high risk activity because of low profitability in the sector. As asserted by DID (2010), the other problem of lack of access is related to the fact that the farmer is faced with financing needs related to his family. The author also argues that women face significant family burdens related to child rearing, healthcare, clothing and other basic family needs, and this situation often leads them to exhibit greater aversion to risk and, therefore, be less inclined to use credit as a development tool.

In Rwanda, besides the fact that some of rural credits are not adapted to the activities and profile of farmers, a number of factors – including lack of awareness of rural farmers regarding rural credits availability and utility, fearness to take credit, difficulty to meet eligibility criteria for farmers to access bank credit, high interest rate on bank credits, physical access-distance to formal financial institutions, poverty and other deprivations – have been identified as limiting the access of rural farmers to credits (MINAGRI, 2009; NISR, 2012a). The Government of Rwanda, through various mechanisms such as setting up projects, task forces, funds and local saving and credit schemes as SACCOs in each administrative sector tried to find out solutions to overcome the aforementioned hindrances. Despite all the efforts made, Muhongayire *et al.* (2013) affirm that, access to formal credit remains steadily low even as the national economy is considerably growing. A study by NISR (2012a) reveals that in 2012, 71.9% of adult population were financially included (or have had access to formal and/or informal financial products) but only 7.4% applied for agricultural credit and 90.5% of them were approved. Agricultural inputs are less affordable to farmers because of lack of domestic sources of fertilizer and high cost of pesticide, while most farmers are poor and lack access to credit to finance inputs (IPAR, 2009). Consequently, agricultural productivity is still low and for some food crops such as maize, rice and other selected priority crops, the country relies on imports and many rural households are living in poverty with 44.9% in poverty and 24.1% in extreme poverty (NISR, 2012b).

While it has been shown that the level of investment in agricultural activities is correlated with agricultural productivity which goes together with improving food security and reducing poverty (Khan *et al.*, 2011; Zeller *et al.*, 1997), the following concern arises in the context of

rural areas of Rwanda where, according to NISR(2012b), smallholder farmers still face low productivity and poor living conditions: What are the factors affecting the access to both formal and informal agricultural credits for smallholder farmers?

Studies (for example, Sebakambwe, 2012; Muhongayire *et al.*, 2013) have documented the issue of rural credit in Rwanda but none has been conducted to study the accessibility of agricultural credits in Southern Rwanda from the point of view of the demand side. Therefore, this study seeks to identify the determinants of access to formal and informal agricultural credits for smallholder farmers in the Southern Province of Rwanda.

Materials and Methods

This study was carried out in Huye and Nyamagabe districts of the Southern Province of Rwanda, a purposively selected study area. The choice of this area was motivated by the highest level of poverty prevailing in this Province (56.5%), and to enhance the situation understanding, the districts of Huye and Nyamagabe were selected as they are respectively least poor and poorest in this Province (NISR, 2012b). The study used a sample of 310 farmers determined using the Cochran (1963) sampling formula based on the financial access strand of 71.9% in Rwanda (NISR, 2012a). Sampling frames were obtained from heads of six agricultural cooperatives selected in the two districts (three in each). A simple random selection technique with probability proportional to size was used to obtain the number of interviewed farmers in each of the cooperatives. The data collection was performed from January to March 2015 and used an open-ended structured questionnaire highlighting the main features pertaining to the objective of the study. Given that our model has a dichotomous dependent variable with two values, 1 (when the farmer is having access to agricultural credit) or 0 (otherwise), data were analysed using the binomial logistic regression method following Hosmer and Lemeshew (1989). The set of explanatory variables is made by continuous and categorical/dichotomous variables on the community and institutional characteristics, socioeconomic and demographic situation, land and dwelling endowment among others.

Results and Discussions

The descriptive analysis reveals that among the requested and approved agricultural loans, 87.2% were from informal sources while only 12.7% were from formal financial institutions. The study shows that 59.7% of those who accessed agricultural credits were from Huye district and 40.3% from Nyamagabe district.

Regarding Ubudehe socio-economic categories namely first category (people in abject poverty), second category (very poor people), third category (poor people), fourth category (resourceful poor people), fifth category (food rich people) and the sixth category (money rich people) (NISR, 2012c), the results showed that 37.5% of farmers from Nyamagabe district are in the first and second socio-economic categories. Those from Huye district in those very same first and second categories accounted for 32.3%. Among the interviewed farmers, 62.6% and 66.5%, respectively, from Nyamagabe and Huye districts are counted in the third socio-economic categories. All interviewed farmers from Nyamagabe district belong only to the first three categories whereas 1.3% of the respondents from Huye district are in the fourth category. None of the sampled farmers is in the fifth and sixth socio-economic categories.

Concerning the factors affecting the access to agricultural credits, the results of the logit estimation are presented in Table 1.

Table 1. Binomial Logistic Regression model: Estimation results

Variable	Coeff. (β)	Stand. Error	p-value	Exp (β)
Constant	-4.373	1.952	0.025	0.013
<i>Individual level</i>				
Gender	-0.028	0.379	0.941	0.972
Marital status	0.423	0.450	0.347	1.527
Education level	0.403	0.237	0.049*	0.648
Agricultural training	0.431	0.695	0.535	1.539
Awareness about microfinance institutions	0.138	0.722	0.848	1.148
Farming activities recording	0.499	0.455	0.272	1.648
<i>Household level</i>				
House ownership	0.438	0.833	0.599	1.550
Livestock ownership	-0.116	0.403	0.774	0.890
Income	-1.046	0.371	0.005**	0.352
Land size (in acres)	0.014	0.007	0.037*	0.986
Farm profitability	-0.180	0.433	0.678	0.836
Ubudehe socio-economic category	0.415	0.287	0.047*	1.514
Number of household members	0.029	0.089	0.741	1.030
Household monthly expenditure	-0.924	0.440	0.036*	0.397
Off-farm employment	2.033	1.230	0.041*	7.636
<i>Community and Institutional level</i>				
Area of residence	0.612	0.475	0.049*	1.844
Roads availability	0.649	0.437	0.137	1.914
Distance to microfinance institutions	0.082	0.474	0.863	1.085
Transport availability	0.889	0.420	0.034*	2.433
Availability of agriculture-related information	0.846	0.495	0.088	2.330
Informal financial services availability	3.833	1.514	0.009**	46.21
Length of the loan procedures in formal institutions	-0.841	0.685	0.219	0.431

(*): significant at 5% and (**): significant at 1%

-2Loglikelihood=226.345 Cox and Snell $R^2=0.280$ Nagelkerke $R^2=0.405$
Hosmer and Lemeshow test: Chi-square=6.768, p-value=0.562

The study reveals that the level of income of the household head and informal financial services availability in the neighborhood are the most significant variables. The availability of informal financial services increases the probability of having access to agricultural credit by 383.3% whereas the level of income of the household decreases the probability of accessing agricultural credit by 104.6%. This empirical finding supports the assertion that higher income households may be less risk vulnerable and have less demand for credit because they have enough capital from previous earnings (Nunung *et al.*, 2005). The significantly positive coefficient of the size of the land owned by the household variable in the model suggests that the size of the land increases a farmer's likelihood of having access to agricultural credit.

The results show that being a resident of Huye district increases the probability of having access to agricultural credit by 61.2%. Rural farmer's access to agricultural credit is also positively affected by off-farm employment in the household and transport availability in the community. High level of education of the farmer and Ubudehe socio-economic category of

the household are also positively significant in determining the probability of having access to agricultural credit. The empirical model reveals that an increase in one level among Ubudehe socio-economic categories multiplies the likelihood of having access to agricultural credit by 1.5 and the level of education of the farmer increases the probability of having access to agricultural credit by 40.3%. This appears very intuitive and evident as a literate and/or a wealthier farmer is likely to have a better understanding and then be opened for financial products and services than an illiterate and/or poor farmer who is less likely to manage his business with success. The results show that when the household monthly expenditure is perceived as high compared to its monthly income, the probability of having access to agricultural credit decreases by 92.4%. This may be explained by the fact that when the small scale farmer faces financing needs related to his family (consumption expenditure, education, health and leisure) and to his farm (purchasing inputs, rent for land, cost of post-harvest technology, ...) which require an amount greater than the income from his farm, this may lead to an increase in the risk of his ability to repay the loan and then, to less demand for agricultural credit.

However, the estimated coefficients on gender, house ownership, livestock ownership, distance from home to micro finance institutions, time taken by the loan procedures in formal institutions, farm profitability and the number of the household members are not statistically significant and were not found to be factors affecting the access to agricultural credits. These results are not in line with those found in the literature (for example, Sebakambwe, 2012; Anyanwu, 2004; Swinnen and Gow, 1999) in regards to rural credits. This may find its explanation in the fact that in rural areas, where the level of poverty is high with subsistence agriculture, farmers mostly rely on agriculture-related activities funding from informal financial institutions which are mostly found in the neighborhood, and where the gender of the applicant, the collateral and the guarantor are not among the main requirements.

Conclusion

This empirical study investigated the determinants of access to formal and informal agricultural credit by smallholder farmers from the Southern Province of Rwanda. The results revealed that the household characteristics and the community attributes are the most important factors, affecting the farmers' access to agricultural credit. The transport and informal financial services availability at community level have been found as the most significant determinants of agricultural credit access. The residence area, the level of education of the farmer, the Ubudehe socio-economic status of the household and off-farm employment in the household are also positively associated with the likelihood of having access to agricultural credit. The level of household income, the size of the land owned by the household and the level of household monthly expenditure are negatively affecting the farmers' access to agricultural credit. In light of the findings, the following recommendations emerge: the sensitization sessions focusing on the importance of agricultural credits in enhancing the smallholder farmers' operating conditions are needed especially in the areas with high level of poverty; for formal agricultural credits, policymakers should work on alleviating the access barriers; and, to explore the three dimensions of financial inclusion for small scale farmers in this area, a study on the dynamics of informal and formal agricultural credits up take and usage is necessary.

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