Journal of Co-operative and Business Studies (JCBS)
Vol.9 No.1 Publication Date: June 30, 2025
ISSN: (Online) 2714-2043, (Print) 0856-9037
The current issue and full-text archive of this journal is available at: journals.mocu.ac.tz
Cite this article as: Ndereyimana, R. & Kimaro, P.J.
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JCBS, 9(1), 1-16

Factors Influencing Youth Participation in Agricultural Co-operative Societies in the Northern Region of Burundi

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Abstract

The active participation of youth in Agricultural Co-operative Societies (ACS) is essential for advancing both co-operative development and socio-economic growth. However, their involvement remains low. This study assessed the factors influencing youth participation in ACS in the northern region of Burundi. Specifically, the study focuses on level of awareness among youth regarding ACS in the study area, cultivation related co-operative crops in which youth are involved, benefits associated with their participation in ACS and lastly the socio-economic factors influencing youth engagement in ACS. The study adopted a cross-sectional research design; with a sample size of 332 respondents selected from youth aged between 18 and 35 years old in the study area. Both quantitative and qualitative data were collected using questionnaires, interview guides and focus group discussion guides. Data were analysed through descriptive and inferential statistics analysis, supported by IBM SPSS version 25 and Microsoft Excel. Results indicated low awareness level among youth regarding ACS with an average mean index of 2.23 and aligning standard deviation of 1.35. The benefits associated with youth participation in ACS encompassing both financial gains and personal development opportunities. Notably, crops like beans, vegetables, rice cultivation, maize and coffee were the most crops in which youth are involved. Socio-economic related factors namely access to market (p=0.009), access to credit (p=0.026), access to land (p=0.022), profitability (p=0.018), education level (p=0.018) and social capital (p=0.020, significantly influence youth participation in ACS. The study concludes that there is a low awareness level among youth regarding ACS, youth benefit from ACS in both financial gains and personal development opportunities. Furthermore, crops including beans, vegetables, rice cultivation, maize and coffee attract youth and lastly, the socio-economic factors including access to market, access to credit, access to land, profitability, education level and social capital have impact on youth participation in ACS. It is recommended to different stakeholders in ACS to increase awareness among youth through training forums and changing from traditional model to entrepreneurial model of co-operatives which will attract more youth. Furthermore, young

people should take the initiative to form their own youth-led agricultural groups or co-operatives in order to spearhead their involvement in ACS.

Keywords: Participation, youth, co-operatives societies, northern region, Burundi

1.0 Introduction

Agricultural Co-operative Societies (ACS) have a long history in reducing poverty and increasing employment opportunities across the globe (Sultana, 2020). In Canada, the United States of America and across Europe, agricultural co-operatives have helped small-scale farmers to link up with the export market (Mdluli, 2019). In Africa, co-operatives serve as mediating agencies for livelihood assets, including financial capital, natural capital, physical capital and social capital, by providing mechanisms for collective action and resource sharing. They enable members to access various forms of capital more effectively than they could individually, thereby improving their livelihoods and fostering sustainable development (Mdluli, 2019). In this respect, co-operatives can enable access to financial capital as well as physical and natural capital such as land and infrastructure for agricultural purposes (Makoye et al., 2022). They also constitute an essential part of social capital, in terms of dialogue, democracy and human empowerment, giving a voice and livelihood to workers in the informal economy (Godden et al., 2017).

In the East Africa, youth participation in Agricultural Co-operative Societies(ACS) is still low. For example, in Uganda, youth participation in agricultural co-operatives has shown a decline trend, dropping from 73.2% to 24.2% between 2005-2006 and 2009-2010 (Ahaibwe, 2013). In Tanzania, agricultural co-operative societies have been key players in the co-operative and agricultural sectors. However, the sector is predominantly rural-oriented and mostly carried out by older people with an average age of 50 years (Anania et al., 2020). In Kenya, youth are the major drivers of change and the foundation of the country but their participation in co-operative is generally minimal though higher compared to nearby countries. In the country, there are nation-wide initiatives for mobilising youth in supporting the national development through participation in agricultural co-operatives (Situma, 2021; Kissing, 2016).

In Burundi, there has been an increase of agricultural co-operatives in rural areas. In 2012, the department of cooperatives commissioned by the International Labour Organization (ILO) reported an overall quantitative evolution of agricultural cooperatives in the country. Between 1952 and 1967, sixteen cooperatives were registered, twenty-one cooperatives in 1970 and twenty-six cooperatives in 1973. Due to a revival between 1990 and 2000, around 689 farming cooperative groups were registered in 1998 and 1500 in 2013 totalizing nearly 63126 members and more than 157 285 households in 2016.

However, despite the increase of membership in agricultural cooperatives in rural areas and strong support from various stakeholders, the living conditions of farming households have not improved (Manirakiza, 2020). Furthermore, youth participation in agricultural co-operative societies is limited as they prefer engaging in other economic activities such as mining, industrial sectors and small businesses (Yami et al., 2019).

Furthermore, youth participation in agricultural co-operative societies is limited and they prefer engaging in other economic activities such as mining, industry sectors and small businesses (Yami et al., 2019). Local community participation has been poor and there are issues with inadequate allocation of resources, poor farming and weak monitoring of co-operative societies (Buthelezi, 2020).

The government and stakeholders have established various initiatives and policies to promote and support cooperative societies. For instance, the National Agency for Promotion and

Regulation of Cooperative Societies, Investment Bank for Youth and Youth Economic Empowerment Program were introduced. Their roles were to empower youth and provide them with opportunities for agricultural macro-credit, along with education and information on herbal resources. However, these initiatives have not been effective in integrating the youth into agricultural cooperative societies (Manirakiza, 2020).

In the north region of Burundi, agricultural co-operatives are seen as the economic base of the region. The region is also rich in terms of fertile soil, availability of rain and medium sized flowing streams. Yet, there are lower numbers of youths participating in agricultural co-operatives compared to other regions (Manirakiza, 2020). Most youths in the Northern region of Burundi leave their native areas moving to city like Bujumbura and Gitega to look for better life while they leave agricultural opportunities at their home places. Hence, this study sought to establish factors influencing youth participation in agricultural cooperative societies in the Northern Region of Burundi.The northern region is selected because of its unique characteristic which is availability of agricultural cooperative activities, where some youth engage in agricultural co-operatives that produce different products such as rice, beans, maize, banana, Irish potatoes, livestock keeping, tea, coffee and other vegetable products (ISTEBU, 2015).

The Social Exchange Theory (SET) supported this study. The theory originated from George Homans and Peter Michael Blau (1961), who explained motivations behind individuals' involvement in social groups and how their interactions are shaped by associated benefits. Within the context of youth participation in agricultural co-operative societies, this theory suggests that the likelihood of their engagement is influenced by perception of whether the benefits outweigh the associated costs (Cropanzano et al., 2017). The theory offers a foundation for predicting individual behaviours in social situations. This theory applies across contexts, encompassing interpersonal relationships, organisational behaviour and economic transactions for comprehending exchange dynamics across a variety of settings (Choi, 2017). Therefore, the theory appears to be useful in studying youth participation in the agricultural co-operatives.

2.0 Research Methodology

2.1 Research Design

The study employed a cross-sectional research design, which facilitates data collection at a specific moment in time (Ali-Azzam et al., 2020). This design was selected as it accommodates various tools and methods of data collection. Furthermore, it permitted comparisons among different respondent groups and enabling an understanding of the interplay between dependent and independent variables.

2.2 Population and sampling strategies

The target population for this study comprised youth who are both members and non-members of agricultural co-operative societies in the northern region of Burundi. This population is estimated to encompass 1920 youth, with 728 from Muyinga, 977 from Ngozi, and 215 from Kirundo. The selection of Agricultural Co-operative Societies in the northern region was motivated by their higher susceptibility to the issue of lower youth membership in ACS in such locality. As such, the unit of observation was the youth members and non-members of these agricultural co-operative societies while the unit of analysis was agricultural co-operative societies in northern region of Burundi.

The sample size for this study was 332 respondents determined by Yamane (1967) formula:

$$n = \frac{N}{1+N(e)^2}$$

Where, n is sample size, N is number of population and e is the error or confidence level. Convectional confidence level of 95% was used to ensure the more accurate findings from sample and sample error of 0.05 using the total population of 1920. Therefore, the sample size comprised 332 respondents.

2.3 Source of Data

Data for this study were gathered from primary sources only. Primary data collection involved the use of survey questionnaires, focus group discussions and key informant interviews. The use of primary sources of data increases the reliability of the collected data since the data was collected directly from respondents and specifically for this study's objectives.

2.4 Data collection Methods

The study employed a self-administered survey questionnaire to obtain quantitative data from participants. A self-administered survey is one in which the respondent fills out the questionnaire on their own, without the help of an interviewer. The method of distribution, which is typically used to reach a large number of people was in-person and it was done with paper and a pen.

Therefore, it made it possible to quickly and accurately collect data from a large number of respondents by using a survey questionnaire.

Moreover, the study employed the key informant interview method, chosen to complement the information gained from questionnaires regarding youth engagement in agricultural co-operatives. An interview guide was utilised for data collection, designed and conducted in a professional manner to extract valuable insights and opinions from key respondents who possess extensive knowledge about youth participation in agricultural co-operative societies. The key informants comprised three co-operative officers and three experienced farmers.

A focus group discussion involves approximately six to twelve participants guided by a facilitator, where group members engage in open and spontaneous discussions about a given topic. This technique proves valuable for exploring ideas, concepts and perceptions related to specific existing situations (Barbour, 2014). For this study, focus groups discussion was conducted until saturation is reached, each comprising 9 to 12 participants (Barbour, 2014).

2.5 Statistical Treatment of Data

Data Analysis was facilitated through the utilisation of Statistical IBM-SPSS version 25 and Microsoft Excel, enabling efficient data processing and analysis. Both quantitative and qualitative data analysis methods such as descriptive and inferential statistics were employed and the results obtained presented using tables.

For the first, second and third objectives, data were analysed through descriptive analysis for quantitative data (such as frequencies, percentages, means, and standard deviations) to understand the behaviour and characteristic of variables and content analysis for qualitative data to understand the experience about youth participation in ACS. For the fourth objective, the study utilized a binary logistic regression model to analyse the relationship between socio-economic factors and youth participation in agricultural cooperative societies. This statistical approach is suitable when the responses are binary, as in this case where youth participation was categorized as either yes or no. The regression equation employed included various independent variables such as access to market, access to credit, profitability, access to land, access to fertilizer, gender, household size, education level, marital status and social capital. Each independent variable was binary-coded to represent the presence or absence of certain conditions. The regression coefficients determined the influence of each independent variable on the likelihood of youth participation in agricultural cooperative societies.

The analysis was done by using the following binary logistic regression equation:

$$\log(p/(1-p)) = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_{81}EDU_1 + \beta_{82}EDU_2 + \beta_{83}EDU_3 + \beta_{84}EDU_4 + \beta_{91}MAR_1 + \beta_{92}MAR_2 + \beta_{10}X_{10} + \varepsilon$$

p =dependent variable and represents the probability of either youth participating in ACS or not participating coded as 1 and 0 respectively.

α = intercept, β1 – β10 = Regression coefficients, εo= stochastic error term.

Table 1: *Variable definitions and dummy coding*

Variable	Description	Coding
$\mathbf{X_1}$	Access to market	0 = No, 1 = Yes
$\mathbf{X_2}$	Access to credit	0 = No, 1 = Yes
$\mathbf{X_3}$	Profitability	0 = No, 1 = Yes
$\mathbf{X_4}$	Access to land	0 = No, 1 = Yes
$\mathbf{X_5}$	Access to fertilizer	0 = No, 1 = Yes
$\mathbf{X_6}$	Gender	0 = Female, 1 = Male
$\mathbf{X_7}$	Household size	Continuous
$\mathbf{EDU_1}$	Secondary education	0 = No, 1 = Yes
$\mathbf{EDU_2}$	Bachelor's degree	0 = No, 1 = Yes
$\mathbf{EDU_3}$	Master's degree	0 = No, 1 = Yes
$\mathbf{EDU_4}$	PhD	0 = No, 1 = Yes
(Reference)	Primary education	Omitted
$\mathbf{MAR_1}$	Single	0 = No, 1 = Yes
$\mathbf{MAR_2}$	Divorced	0 = No, 1 = Yes
(Reference)	Married	Omitted
$\mathbf{X_{10}}$	Social capital	0 = Low/Absent, 1 = High/Present

Note:

Categorical variables such as education level and marital status have been dummy-coded with one category omitted as a reference group. This prevents multicollinearity and allows proper estimation of regression coefficients. The coefficients can be exponentiated to interpret them as odds ratios (i.e., e^β).

2.6 Validity and Reliability

Validity

To ensure validity in the sample survey, the research instrument underwent validation, including a pilot study. A pilot test with potential participants assessed the questionnaire's validity by identifying and removing ambiguous, confusing, or potentially offensive questions. Both the survey questionnaire and interview guide underwent content validity tests to ensure adequate item representation for accurate measurement, with expert input refining poorly phrased questions. According to Rugasira et al. (2022), a Content Validity Index (CVI) above 0.5 is recommended and this study achieved a CVI of 0.84, indicating satisfactory validity. Internal validity was ensured by controlling extraneous factors, thereby supporting reliable generalizations and enhancing external validity. The study's validation process incorporated both qualitative and quantitative approaches, with the CVI calculated by dividing the number of valid questions (22) by the total questions (26).

Reliability

Data reliability was assessed to ensure the consistency of the research tools and to identify and correct errors, as suggested by Mahajan (2017). Internal consistency was measured using the Cronbach's alpha coefficient. A pilot study with 12 participants, following Creswell's (2014) recommendation that the sample size should exceed the number of questionnaire items, was conducted. The Cronbach's Alpha coefficient for the questionnaire was calculated to be 0.81,

indicating strong internal consistency, as values above 0.7 are considered acceptable. The high reliability value of 0.81 suggests that the internal consistency of the study's variables is stable and dependable.

2.7 Ethical Considerations

Throughout the research process, ethical norms and standards were strictly adhered to. The research guideline was followed. Prior to data collection, a research permit was obtained from National Commission for Science, Technology and Innovation of Burundi. The study further prioritized principles of confidentiality, privacy, honesty, sensitivity and participant anonymity.

3.0 Findings and Discussion

To understand the factors influencing youth participation in ACS, an assessment was conducted on questions related to awareness about ACS, cultivation related cooperative activities, benefits of participating in ACS and socio-economic factors influencing youth participation.

3.1 Level of Awareness of Agricultural Co-operative Societies among Youth

The findings from Table 2 assessed the level of awareness among the youths in the northern region of Burundi regarding (ACS).

Table 2: *Level of awareness among youth regarding agricultural marketing societies*

SN	Statements	Mean	Interpretation	STD Dev
1	I am aware of the benefits of ACS.	3.01	Neutral	1.28
2	I am aware of the existence of ACS	2.84	Neutral	1.52
3	I understand the process of forming ACS.	2.66	Neutral	0.80
4	I am aware of ACS educational forums	1.37	Strongly disagree	1.31
5	I understand all the registering requirements	1.30	Strongly disagree	1.87
	Average	**2.33**	**Neutral**	**1.35**

Respondents were asked to rate their level of awareness on a scale of 1 to 5 where 1=Strongly Disagree, 2= Disagree, 3= neutral, 4= Agree and 5= Strongly Agree. The responses were interpreted based on a mean index where a mean of 1.00-1.49, show strongly disagree, a mean of 1.50-2.49 show disagree; a mean of 2.50-3.49 show neutral; a mean of 3.50-4.49 show agree and a mean of 4.49-5.00 show strongly agree.

Findings presented in Table 2 indicate the level of awareness. The first three items in the table scored the mean of between 2.50 and 3.49, which means the general response of the subjects in those items was neutral. This means that the perception of respondents about benefits of ACS, existence of ACS and the process of ACS was below the agreement level and therefore, something is missing to raise the perception of the respondents to the agreement level. The last two items in the table scored the mean of between 1.00 and 1.49, which denotes strong disagreement. This shows that respondents completely disagreed about awareness of ACS educational forums and registering requirements. Therefore, the awareness of the respondents on Agricultural marketing societies was poor. The findings indicate a significant lack of awareness and understanding among respondents regarding ACS, leading to low engagement and inefficiencies in agricultural marketing. This highlights the need for targeted awareness campaigns and educational programs to improve understanding and participation.

The findings also point to a failure in effective information dissemination, requiring better communication strategies to reach farmers. Additionally, cooperatives need to enhance their outreach and build trust among farmers to demonstrate their value and increase membership. Robust capacity-building initiatives are essential to address both practical and administrative

gaps, thereby improving cooperative performance. The above findings are supported by a study of Mwaura (2014) who found that many farmers are unaware of the benefits of joining agricultural cooperatives, leading to low membership rates. Similar to the findings, Chibanda, Ortmann, and Lyne (2009) noted that educational and informational gaps significantly hindered the effectiveness of cooperatives in rural areas.

3.2 Cultivation Related Co-operative Crops in which Youth Are Involved

The respondents were asked the kinds of cultivation related co-operative crops in which youth are involved most in ACS. The Table 3 presents the mean and standard deviation responses for each cultivation related co-operative activity undertaken by youth in their respective area as depicted here-under:

Table 3: *Cultivation related co-operative crops that attract most youth*

Statements	Mean	Interpretation	Stand. Dev
Vegetable cultivation attract youth in ACS	3.887	Agree	1.974
Rice cultivation attract youth in ACS	3.921	Agree	1.974
Beans cultivation attract youth in ACS	4.132	Strongly Agree	3.754
Maize cultivation attract youth in ACS	3.232	Agree	1.875
Banana cultivation attract youth in ACS	2.912	Neutral	1.875
Irish potatoes cultivation attract youth	2.912	Neutral	1.976
Livestock keeping attract youth in ACS	3.113	Disagree	0.678
Coffee cultivation attract youth in ACS	3.624	Agree	1.765
Average	**3.569**	**Agree**	**2.089**

The respondents were asked the kinds of cultivation related co-operative crops that attract youth in the study area. Respondents were asked to rate their level of attraction on a scale of 1 to 5 where 1=Strongly Disagree, 2= Disagree, 3= Nneutral, 4= Agree and 5= Strongly Agree. The responses were interpreted based on a mean index where a mean of 1.00-1.49, show strongly disagree, a mean of 1.50-2.49 show disagree; a mean of 2.50-3.49 show neutral; a mean of 3.50-4.49 show agree, and a mean of 4.49-5.00 show strongly agree.

Findings presented in Table 3 reveal the cultivation-related cooperative activities that attract youth to Agricultural Cooperative Societies (ACS) in the study area." The mean scores for vegetable (3.887), rice (3.921), beans (4.132), maize (3.232) and coffee (3.624) cultivation suggest that these activities are generally appealing to youth, with beans cultivation receiving the highest level of agreement. In contrast, banana (2.912) and Irish potatoes (2.912) cultivation received neutral responses, indicating mixed or moderate interest, while livestock keeping (3.113) showed disagreement, suggesting it is less attractive to youth. The overall average mean score of 3.569 indicates a general agreement that cultivation-related activities attract youth to ACS. However, the wide range of standard deviations suggests variability in how different activities are perceived. These findings imply that activities with higher attraction levels, such as beans, rice and vegetable cultivation, should receive targeted support and resources to maximize youth engagement. For crops with neutral responses, such as banana and Irish potatoes cultivation, further investigation is needed to identify and address barriers to greater interest. Livestock programs should be redesigned to better meet youth interests. Promoting the economic viability of attractive activities and tailoring agricultural programs to youth preferences can enhance participation and benefits. Policymakers should use these insights to develop agricultural programs that align with youth interests, ensuring that cooperative activities are both appealing and beneficial.

The empirical findings are corroborated by insights garnered from an interview conducted with a farmer who noted that:

"Banana cultivation in the northern region predominantly involves older farmers, attributing this trend to the allure of alternative crops that offer shorter harvest cycles, thereby capturing the attention of the youth demographic. Furthermore, the farmer highlighted the prolonged harvesting period and substantial capital investment required for banana production, underscoring the perceived challenges and deterrents associated with engaging in this…." (Gashoho locality, 14th May, 2023)

The above findings correlate with a study by Kimaro et al. (2015), reinforcing that vegetable, maize, beans and rice cultivation are pivotal activities engaging youth. This suggests similarities in agricultural preferences and practices between the northern region of Burundi and the Karehe East ward in Moshi District, as noted in the study. Overall, these insights provide a nuanced understanding of the dynamics of youth attraction to different cultivation-related co-operative activities in the northern region of Burundi, laying the groundwork for informed policy and intervention strategies.

3.3 Benefits of Participating in Agricultural Co-operative Societies

Participants were surveyed regarding the advantages of involvement in Agricultural Cooperative Societies (ACS). The data presented in Table 4 illustrate the measurable benefits accrued by ACS participants.

Table 4: *Benefits of participation in agricultural co-operative societies*

Estimated amount	Frequency	Percentage (%)
Income generated from ACS		
10 000-30 000 BIF	315	94.9
30 001-50 000 BIF	16	4.8
50 001-10 0000	1	0.3
Salary generated from ACS		
100 000 BIF	2	0.6
100 000-200 000 BIF	2	0.6
200 000 BIF and above	282	98.8
Food generated from ACS		
50 000- 90 000 BIF	2	0.6
90 000-100 000 BIF	329	99.1
100 000 BIF and above	1	0.3

The results presented in Table 4 reveal that a notable majority, specifically 94.9% of respondents, indicated that their income stemming from participation in agricultural co-operative societies falls within the range of 10 000 BIF to 30 000 BIF. Additionally, 4.8% of respondents specified their income to be within the range of 30,001 BIF to 50 000 BIF, while 0.3% of respondents mentioned an income range spanning from 50 001 BIF to 100 000 BIF. This data suggests that the prevailing income bracket for most youth engaged in agricultural co-operative societies is a maximum of 30 000 BIF per month. The collective annual income estimation could potentially reach 360 000 BIF. Respondents were asked regarding the monthly salary amounts provided to youth in agricultural co-operative societies. The results outlined in Table 4 reveal that a substantial majority, specifically 98.8% of respondents, indicated that youth receive a salary of 200 000 BIF or more each month.

Furthermore, 0.6% of respondents reported that the salary acquired from agricultural co-operative societies amounts to 100 000 BIF, while an additional 0.6% of respondents mentioned a salary range spanning from 100 000 BIF to 200 000 BIF. As such, these findings indicate that the predominant remuneration for youth engaged in agricultural co-operative societies is a minimum of 200 000 BIF. The cumulative annual salary computation could potentially reach 2 400 000 BIF. In addition, respondents were surveyed regarding their monthly estimates of the monetary value of food obtained from agricultural co-operative societies. The results presented in Table 4 demonstrate that a significant majority, specifically 99.1% of respondents indicated an

estimated range of food value between 90 000 and 100 000 BIF per month. Additionally, 0.6% of respondents stated they received between 50 000 and 90 000 BIF worth of food from agricultural co-operative societies each month, while 1% of respondents mentioned amounts at 100 000 BIF and above. Consequently, this data signifies that the majority of young individuals participating in agricultural co-operative societies estimate the value of their monthly food at 100 000 BIF. The calculated total annual benefits could potentially amount to 1 200 000 BIF.

To gain the overall understanding of benefits of youth participation in agricultural co-operative societies, focus group discussion and interview were conducted: on other non-monetary benefits or intangible benefits such as social and environmental impacts.

Findings from Focus Group Discussion revealed a number of benefits: In Muyinga Province, it was stated:

> "*Our involvement in agricultural co-operatives provides opportunities for skill development in leadership, teamwork, communication, decision-making and project management. Members take on leadership roles, engage in collaborative projects and participate in democratic decision-making processes, enhancing their abilities in governance and strategic planning. Regular meetings and discussions improve their communication skills, while voting on key issues and analysing cooperative operations develop their critical thinking and decision-making capabilities. Planning and implementing agricultural projects, as well as monitoring and evaluating their progress, build their project management skills. Overall, these experiences equip members with the essential skills needed for both cooperative success and personal growth.*" *(Bwasare locality,16 May,2023)*

In Ngozi province, one of the respondents revealed that:

> "*Co-operatives foster an environment where knowledge and information are shared among us…by participating in such societies, we have access to valuable agricultural knowledge and expertise from experienced farmers. This knowledge sharing helps in preserving traditional farming practices while also incorporating new techniques and innovations…building relationships within the agricultural community can be beneficial for our future endeavours and personal growth." (Kiremba locality,16 May, 2023)*

In Vumbi District, it was revealed,

> "Participating in co-operatives gives us a sense of empowerment and confidence as we actively contribute to decision-making processes……we have a platform to voice our opinions, ideas, and concerns, which enhances our self-esteem and fosters a sense of ownership and responsibility." (Vumbi loclity,15 May,2023)

The above findings are supported by Manirakiza (2020) found that agricultural cooperatives significantly improve the socioeconomic conditions of rural households in Burundi by increasing food production and providing access to agricultural training and chemical fertilizers. Akpalu & Centre, (2020) and Anania et al. (2017) reported two approaches for youth employment creation in Tanzania's agricultural sector: direct employment and support through cooperatives. Direct approaches include hiring youth as staff, financing income-generating activities, and providing access to land. Indirect approaches involve supporting market access, offering education and training, and linking youth with creditors. These findings highlight the multifaceted benefits of cooperatives in enhancing food production and employment opportunities.

3.4 Socio-Economic Factors Influencing Youth Participation in ACS

This section examined the socio-economic factors that influenced youth participation in agricultural co-operative societies in the northern region of Burundi.

Table 5 presents the coefficients of binary logistic regression generated from potential social-economic predictors.

Table 5: *Model Fitting Information*

Omnibus Tests of Model Coefficients			
	Chi-square	Df	Sig.
Step	**21.992**	10	0.001
Block	**21.991**	10	0.001
Model	**21.992**	10	0.000
Model summary			
-2Log likelihood	Cox&Snell R Square		Nagelkerke R Square
440.080[a]	0.035		0.048
Hosmer and Lemeshow Test			
Chi-square		Df	Sig.
54.8		1	0.65

The model was statistically significant with $p<0.05$, indicating that it was able to differentiate respondents who reported socio-economic factors influencing youth participation in agricultural co-operative societies. The Omnibus Test of Model Coefficients shows that the overall model is significant as $p=0.000$ ($p<0.05$).

Results in the Table 5 show that the model explained between 0.035 (Cox&Snell R Square) and 0.048 (Negelkerke R Square) of the variances in youth participation in agricultural cooperative societies. Hosmer and Lemeshow Test results in Table 4 show the goodness of fit of the model. Therefore, since the $p>0.05(0.65)$, the model is of

good fit. While this pseudo R^2 value is relatively low, it is not uncommon in social science research, where behaviour is influenced by numerous complex and unmeasured factors. Such values are acceptable when the objective is to identify significant predictors rather than achieve high predictive power. Despite the modest explanatory strength, the model still offers meaningful insights, suggesting that the included variables contribute to the outcome.

Table 6: *Binary logistic regression results on youth participation in ACS*

Predictor variable	**B**	**S.E.**	**Wald**	**p-value**	**Exp(B)**	**Marginal Effect**
Access to market	1.280	0.490	6.824	0.009	3.597	0.032
Access to credit	0.910	0.410	4.932	0.026	2.484	0.023
Access to land	0.850	0.370	5.282	0.022	2.339	0.021
Access to fertiliser	0.270	0.300	0.810	0.368	1.310	0.007
Gender	-0.190	0.210	0.818	0.366	0.827	-0.005
Profitability	1.490	0.630	5.592	0.018	4.439	0.037
Household size	-0.120	0.125	0.922	0.337	0.887	-0.003
Secondary (EDU_1)	0.350	0.434	0.650	0.428	1.420	0.011
Bachelor (EDU_2)	-0.200	0.245	0.670	0.414	0.820	0.007
Master (EDU_3)	-1.050	0.484	4.700	0.030	0.350	0.030
PhD (EDU_4)	-1.800	0.735	6.000	0.015	0.170	0.031
Social status	-0.230	0.235	0.957	0.328	0.795	-0.006
Social capital	0.930	0.400	5.408	0.020	2.535	0.023
Constant	0.150	0.285	0.277	0.599	1.162	0.004

The results in Table 6 show that access to market is a significant predictor ($p<0.05$) of the youth participation in agricultural cooperative societies. The marginal effect suggests that a one-unit increase in access to market increase the probability of youth participation by 0.032 units. Thus, access to markets has a significant influence on youth motivation to participate in agricultural co-operative in order to gain a market. This finding is in line with Swaumu (2022) who found that without a market it discouraged youth from participating in horticulture in activities in Morogoro, Pwani Regions.

Concerning access to credit, the findings show that it is a significant predictor ($p<0.05$) of livelihood of youth participation in agricultural co-operative societies. An increase in access to credit is associated with an increase in the odds of youth participation in ACS by a factor of 2.484. The marginal effect indicates that a one-unit increase in access to credit increases the probability of youth participation by 0.023 units. These findings are in line with Nyamba and Sanga (2022) who found that access to credit is a crucial factor determining rural youth participation in agriculture-based livelihood activities.

Regarding access to land, the findings show that it is a significant predictor ($P<0.05$) of livelihood of youth participation in agricultural co-operative societies. An increase in access to land is associated with an increase in the odds of youth participation in ACS by a factor of 2.339. The marginal effect suggests that a one-unit increase in access to land increases the probability of youth participation by 0.021 units. Thus, access to land has a significant influence on youth motivation to participate in agricultural co-operative societies. Most youth said that having land means full participation in agricultural co-operative societies. This finding is supported by the study by Kimaro et al. (2015) who found that access to land for youth is a crucial factor that determines their participation in the agriculture sector. This means that as land size increases, youth may increase their involvement in agricultural co-operative societies and work as a group because most youth in Burundi join co-operative societies in order to enjoy economies of scale. This finding is supported by interview of a co-operative officer in Muyinga province who said:

> *"Access to land is an important factor for youth to participate in agricultural co-operative societies, even if it requires other factors such as availability of fertile land, water and irrigation in order to increase likelihood of youth participation in agricultural co-operative societies. He said that most households in Muyinga have a lot of land which allows youth to participate in agricultural co-operative societies." (Muyinga, 21 May, 2023)*

However, access to fertiliser is not significant predictor ($P>0.05$) of livelihood of youth participation in agricultural co-operative societies. Access to fertilizer does not appear to be a significant predictor of youth participation in ACS, as the odds ratio Exp(B) is 1.310 and the p-value is relatively high. This finding opposes the finding of Nyamba and Sanga (2022), who conducted a study on youth engagement in agricultural activities, status and prospects for agricultural sector development in Makambako Town Council, Njombe region in Tanzania. He found that access to fertiliser is positive and significant for them to participate in agricultural activities. The finding is supported by interview of government agronomist in Kiremba District who said that:

> *"In Burundi, the government provides fertiliser to everyone who is engaged in the agriculture sector, not cooperative members, only because individuals are requested to submit their order for every season. So, youth joint agricultural co-operative because they want to work together." (Kiremba, 17th May, 2023)*

Moreover, gender is a not significant predictor ($P>0.05$) of livelihood of youth participation in agricultural co-operative societies. This implies that female youth involvement in horticulture agribusiness is a challenge because females have to integrate it with their domestic responsibilities of taking care of the family, cooking and other household chores. This finding is in line with Ng'atigwa et al., (2020) who found that the variable "Gender female" is negative and significant at 5%. His findings indicated that female youth are less likely to be involved in the horticulture sub-sector by 0.52 times (odds=0.52) compared with their male counterparts.

Furthermore, profitability is a significant predictor ($P<0.05$) of livelihood of youth participation in agricultural co-operative societies. An increase in profitability is associated with an increase in the odds of youth participation in ACS by a factor of 4.439. The marginal effect suggests that a one-unit increase in profitability increases the probability of youth participation by 0.037 units.

Therefore, this variable is considered statistically significant. Thus, profitability has a significant influence on youth motivation to participate in agricultural co-operative societies. This is because most of the youth prefer to engage in business where they get high profit. The finding above is supported by Social Exchange Theory. It assumes that individuals make rational decisions based on the expected benefits and costs of a particular action. This finding is also supported by the study conducted by Damas (2023), who found that the level of profit has a positive contribution in predicting youth participation in AMCOS. He further explained that profit is an outcome of market reliability and stable but reasonable price which are highly probable to be guaranteed by AMCOS to its members. Therefore, this attracts youth to engage in AMCOS because they gain high profit.

Additionally, household size is not significant predictor (P>0.05) of livelihood of youth participation in agricultural co-operative societies. The p-value is 0.337, which is greater than 0.05 while B= -0.120 and SE = 0.125. Therefore, this variable is not considered statistically significant. Thus, profitability has no significant influence on youth motivation to participate in agricultural co-operative societies. This finding does not support the study conducted by Ng'atigwa at al. (2020) who found that household size influences youth participation in agricultural co-operative societies. Therefore, this could be explained by different reasons such as changing social dynamics which means as societies evolve, traditional family structures may have shifted and youth participation in agricultural co-operatives might not be strongly influenced by household size anymore. Additionally, due to diverse interests, youth nowadays may have diverse interests and aspirations, leading them to base their participation decisions on individual factors rather than household size. Furthermore, the economic independence of youth might have increased over time, making household size less relevant in determining their participation in agricultural co-operatives and lastly urban migration and urban lifestyles might have impacted the significance of household size in rural agricultural co-operatives.

Concerning education level, secondary education is positive but not statistically significant predictor(p>0.05) of youth participation in ACS. Furthermore, the predictor bachelor's education is negative and not statistically significant predictor (p>0.05) of livelihood of youth participation in ACS. Youth with a bachelor's degree are 18% less likely to participate in ACS compared to those with primary education. However, this effect is also not statistically significant. Moreover, the predictor Master's education is negative and statistically significant predictor (p<0.05) of livelihood of youth participation in ACS. Youth with a master's degree are 65% less likely to participate in ACS than those with primary education. This effect is statistically significant, indicating that higher education may discourage youth from joining agricultural cooperatives. Lastly, the predictor PhD's education is negative and statistically significant predictor (p<0.05) of livelihood of youth participation in ACS. Youth with a PhD are 83% less likely to participate in ACS compared to primary-educated peers. This effect is strong and statistically significant.

This implies that higher education levels may reduce interest in agricultural cooperatives, likely due to shifting career aspirations or the perception that agriculture is less prestigious or less profitable at higher education levels. The findings of this study are in line with Ng'atigwa et al. (2020) who found that "primary education" is positive and significant at 1% influencing youth involvement in horticulture agribusiness with regards to innovations. The findings are also supported the TRA, the theory assumes that a person's behaviour is governed by their intention to carry out or abstain from a behaviour and this intention is influenced by their attitude towards the behaviour and their subjective norms.

Marital status is not a significant predictor (p>0.05) of livelihood of youth participation in agricultural co-operative societies. Thus, marital status has no significant influence to motivate youth to participate in ACS. The findings of this study do not support the study conducted by Klasen at al., (2021) who found that rural youth marital status is associated with their membership participation in Agricultural Marketing Cooperative Societies, they argued that most

of youth who are married rely on agricultural for the socio-economic needs such food, clothes, education and other needs.

Lastly, the findings show that social capital is significant predictor (P>0.05) of livelihood of youth participation in agricultural co-operative societies. An increase in social capital is associated with an increase in the odds of youth participation in ACS by a factor of 2. 535.The marginal effect suggests that a one-unit increase in social capital increases the probability of youth participation by 0.023 units. Therefore, this variable is considered statistically significant. Thus, social capital has significant influence to motivate youth to participate in agricultural co-operative societies. This finding is supported by the study conducted by Damas (2023) and Ramushu (2021) who found that agricultural marketing co-operative societies are socially protecting their members through solidarity members and youth involvement in decision making. This finding can be explained by changing social dynamics where traditional social networks may be weak due to various societal changes, affecting the effectiveness of social capital in promoting livelihood opportunities for youth in agricultural co-operative societies. Furthermore, government policies and institutional arrangements might not fully support and promote youth engagement in agricultural co-operative societies, limiting the impact of social capital.

4.0 Conclusion and Recommendations

4.1 Conclusion

The conclusion is drawn based on the study's objectives and research questions. The research findings reveal a significant a lower level of awareness and understanding among youths in the Northern Region of Burundi regarding ACS. The majority of respondents demonstrated neutral or negative perceptions towards the existence and formation processes of ACS. This poor awareness suggests a crucial need for targeted awareness campaigns and educational initiatives to enhance understanding and engagement with ACS. Additionally, the findings underscore the importance of effective information dissemination and communication strategies to reach and educate farmers effectively.

Furthermore, the findings of this study shed light on the cultivation-related cooperative activities that attract youth to ACS in the Northern Region of Burundi. The results indicate that vegetable, rice, beans, maize and coffee cultivation are generally appealing to youth, with beans cultivation receiving the highest level of agreement. In contrast, banana and Irish potatoes cultivation received neutral responses, while livestock keeping showed disagreement, suggesting it is less attractive to youth. These findings underscore the importance of targeting support and resources towards activities with higher attraction levels, such as beans, rice and vegetable cultivation, to maximize youth engagement. Furthermore, addressing barriers to interest in neutral-response activities and redesigning livestock programs to better meet youth interests are recommended.

Moreover, the research underlines the benefits of youth participation in agricultural co-operative societies, encompassing both financial gains and personal development opportunities. These insights are essential for policymakers, agricultural stakeholders, and development practitioners to design targeted interventions and support mechanisms that maximize the potential of agricultural co-operative societies in enhancing youth livelihoods and fostering sustainable agricultural development in Burundi.

Lastly, factors such as access to markets, credit, profitability, land, fertiliser, gender, household size, education level, marital status and social capital have implications for youth participation in agricultural co-operative societies. Similarly, the binary logistic regression analysis indicated that access to markets, credit, land, profitability and educational level social capital significantly predict the likelihood of youth engagement in agricultural co-operative societies.

4.2 Recommendations

Based on findings obtained, the following recommendations are given in order to improve the level of youth participation in Agricultural Co-operative Societies(ACS) in the northern region of Burundi and elsewhere in the globe: There is a need to put more emphasis on increasing awareness among youth regarding agricultural co-operative societies and youth who are already part of agricultural societies should receive guidance on how to increase production, effective marketing and higher product pricing to drive revenue growth hence, improving their livelihoods. Furthermore, the study recommends to the government to establish a Ministry of Co-operative and Small and Medium Enterprises which can play a pivotal role in promoting youth participation by offering financial incentives such as grants, low-interest loans, subsidies, or tax breaks to encourage youth involvement, facilitating access to land and agricultural resources.

Moreover, the government is also recommended to develop, launch programs like mentoring initiatives and youth-led ventures to promote innovation in the agricultural sector. Concerning youth themselves, the study recommends that young people can take the initiative to form their own youth-led agricultural groups or co-operatives in order to spearhead their involvement in agricultural co-operative societies. Moreover, the government, youth and co-operatives are recommended to embrace agricultural technology, innovations and digital tools to improve farm efficiency and productivity hence, making co-operatives participation more attractive to youth.

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