

A Comprehensive Assessment of Community Health Workers' Cooperatives

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Abstract: *Community health workers are on the first line of health delivery in Rwanda since 1995. We conducted a cross-sectional mixed method study to the Southern Kayonza district CHWs' cooperatives. Findings show that among cooperative members with no other formal role, most of them are not informed about what is happening in the cooperatives. On the side of the perception of leaders, members expect leaders to be more innovative in what activities will lead to the cooperatives' profitability. The use of accounting and finance tools is still low as well the awareness of taxes compliance. Additionally, cooperatives do not carry out business planning before investing. The highest return on investment recorded was 20% and 75% of the cooperatives have had a positive return on investment over the past four years. Significant associations were found between cooperative activities, being registered in the national gazette, having at least one full-time employee, tax payment and the outcome variable of having a positive return on investment at $p < 0.2$. This study recommends to the cooperatives a proper market and business analysis, proper use of accounting and finance tools and involvement of members in knowing the financial status of the cooperative through frequent meetings.*

Keywords: Community health worker, cooperatives, leadership, governance, financial management

1. Introduction

1.1 Background of the study

Rwanda has established a robust health system that allows patients to access good quality healthcare. Rwanda is the home of several success stories in health such as a huge drop in maternal and infant mortality, reduced prevalence of HIV and TB and several other achievements. Behind these success stories, lie strategies such as Community Health Workers (CHWs).

The CHWs' system started in the mid-1950s with the barefoot doctors who were being used as auxiliaries for healthcare by providing the basic treatment to patients [1]. Despite the establishment of barefoot doctors, the gap remained in community health system because of the increase of services users yet the barefoot doctors were outnumbered and with no strong healthcare skills. Countries therefore launched what was referred to as village health workers (VHWs) who were later known as CHWs, a group of community health staff who were providing healthcare and at the same time advocating for equity and social justice in the community [2]. CHWs' importance increased as they were providing healthcare and advocating for community rights. In 1978 the Alma Ata Declaration recognized CHWs as a cornerstone of comprehensive primary healthcare; the declaration stressed the importance of community involvement in ensuring primary health care gets to those in need by working as a team with physicians, nurses and auxiliaries [3].

The 1994 genocide, left Rwanda in a disaster whether it is in economic sector or in health sector; the health system had completely collapsed. In the process of rebuilding the health

system, the Rwanda CHWs' program was established in 1995 with the primary objective of increasing the women and children health services utilization [4].

Since then, the CHWs' program has been growing; in 2004 the village was referred to as the lowest administrative level to promote community ownership of development, where the CHWs started to work from as first line of health service delivery. Currently, the estimated number of CHWs in Rwanda is around 45,000 [4,5]. Three CHWs are in each village: a male and female CHW pair is referred to as binômes and provides basic health services and integrated community case management of childhood illness, and a CHW in charge of maternal health, referred to as an Agent de Santé Maternelle (ASM).

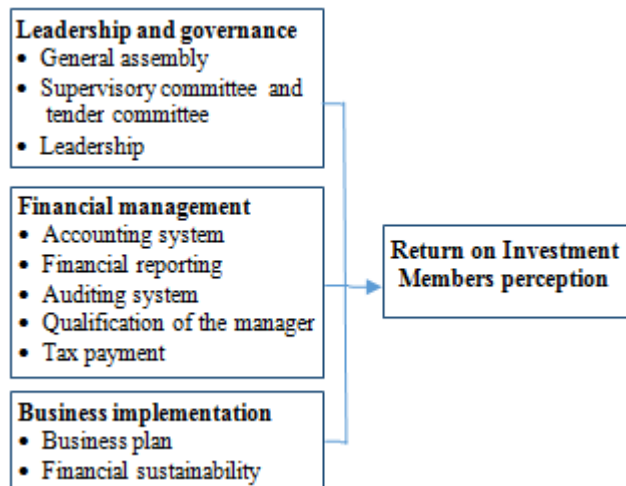
1.2 Statement of the problem

In order to keep the CHWs system running, CHWs were therefore grouped into cooperatives through which the MOH was funding them. Of the funding that the CHWs cooperatives receive from the MOH, 70% is meant to run the cooperatives, and 30% to be shared among members [6]. Given that majority of CHWs' compensation goes into the cooperatives, it is crucial to ensure that these cooperatives are well functioning and giving returns to the CHWs, however, research has not been conducted to carry out a comprehensive assessment of these cooperatives. This study assessed the functioning of CHWs cooperatives on four main pillars of cooperatives that are leadership and governance, financial management, business implementation and return on investment.

1.3 Objectives of the study

The general objective of this study was to assess the performance of the CHWs' cooperatives in Southern Kayonza district. The specific objectives were: (i) To assess the functioning of leadership and governance, (ii) to assess the functioning of financial management, (iii) to assess the functioning of business implementation, (iv) to assess the return on investment of cooperatives and (v) to assess the influence of difference factors on cooperatives' return on investment.

1.4 Conceptual framework



Primary source: Researcher, 2020

2. Literature Review

2.1 Empirical research

The literature on CHWs cooperatives management and profitability is sparse. A qualitative study conducted on CHWs perceptive from Bugesera and Kicukiro district to understand the CHWs cooperatives management, noted that the MOH is actively involved in ensuring the cooperatives get skilled staff for management and accounting. The study also noted that these staff are continuously trained to improve their skills [7]. Other previous written articles revealed that the CHWs cooperatives are coming up with income generating activities such as building commercial houses intended to be rent and yield revenues to the cooperatives [8, 9]. Despite these projects, members of the cooperatives do not get dividends from the investment. This qualitative study also noted that there is a lack of ownership from the CHWs for their cooperatives, mostly to the fact the management is done by external staff [7].

2.2 Research gaps

Fewer literature provides insight on the management of CHWs cooperatives mostly in how the president and the accountant are assigned the role and how their skills are continuously improved. However, literature does no go further to assess

what tools and strategies are being used in the management of the cooperatives. Literature also talks about the investments done by the cooperatives from the funding they receive from the ministry, but no further assessment of what profits are being generated from these investments. Literature did assess the perception of CHWs on the profitability and sustainability but did not support it with financial data from the cooperatives accounting books. This study intends to bridge this gap by assessing the utilization of different leadership and governance strategies, utilization of finance tools and business implementation. This study also assessed the return on investment using financial records from the accounting books of the cooperatives.

3. Methods

3.1 Setting

The assessment took place in Southern Kayonza district, a district located in the Eastern province of Rwanda. The Southern Kayonza district has a population of more than 210,000 people and has eight sectors. About 960 community health workers are in the Southern Kayonza district and three CHWs are allocated to each sector. Two groups of CHWs are on field; ASM and Binome. The CHWs on field are supervised by a coordinator at cell level who also receive and aggregate data from the CHWs. All these CHWs are grouped into cooperatives at sector level. All the CHWs report to an in-charge of community health at health center level, who in return reports to the in charge of community health at hospital level and at district level. The reports from the district and hospital are received by a community health supervisor at MOH office. At all the above levels, exchange of data and data quality checking happen.

3.2 Research design and target population

The study was a cross-sectional mixed method study collecting information on CHWs' cooperatives and was conducted in 2018. The study questions were answered by 49 study participants from 8 CHWs' cooperatives. All CHWs' cooperatives in Southern Kayonza district were included in the study and within the cooperatives five to seven individuals were chosen to participate in the study.

3.3 Sampling procedure

This study used a probability sampling procedure to select participants

3.4 Sampling technique

Simple random sampling was the technique used whereby each cooperative member who had been part of the cooperative for at least 12 months preceding the survey had equal chance of being selected.

3.5 Sample size

The sample size used was 49 respondents.

3.6 Data collection instrument

A questionnaire was used to collect data on cooperatives. The questionnaire was designed in English and translated in Kinyarwanda to ease communication between the data collector and the study participants. Interviews were conducted at each cooperative meeting day, and five to seven participants were interviewed by cooperative. Participants were included in the study if they had been a member of the cooperative for a period of at least 12 months prior the data collection date.

3.7 Data analysis

After collection, the data was entered into a Microsoft Office 2013 Access database and exported to Excel for cleaning and analysis. The quantitative descriptive statistics was performed using Stata version 14. Tests of association were also conducted using Chi-Square and Fisher's exact tests to assess for associations between different variables and the outcome variable of a positive return on investment. All variables that were significant in the bivariate analysis at $p\text{-value} < 0.2$ were to be considered in multivariable logistic model, however some variables were ignored due to collinearity. Any variable that was significant in the multivariable logistic regression at $p\text{-value} < 0.05$ was retained in the reduced model.

Return on Investment was calculated using the following equation:

$$\text{Return On Investment} = \frac{\text{Income}}{\text{Cost of investment}}$$

Qualitative data were analyzed using an inductive approach by reading through the respondents' narratives and drawing themes. All themes were put together into a single table grouped into main themes (Annex 3).

3.8 Ethics

Study participants were consented for free participation and were informed about the right to withdraw from the study any time before the report is compiled. Furthermore, names of the respondents did not appear anyway in this study findings. After data entry, all questionnaires were kept safe in the office of the Community Health program at PIH. Even though the authors work for PIH, there are no conflicts of interest that are associated with this study.

4. Results and discussion

4.1 Quantitative findings

Eight cooperatives were included in this assessment. At least 5 and at most 7 members per cooperative were interviewed. A total of 49 people participated in the assessment, where 59% were just members with no other formal duties in the

cooperatives. The activities that the cooperative carry out were grouped into five activities, where Livestock was seen as the activity that is carried out by most of the cooperatives. The median number of cooperative members was 120, while the cooperative with the lowest and highest number of members had 28 and 185 members respectively. The median proportion of females among cooperative members was 64%. All the eight cooperatives have offices. Only one (13%) of the cooperatives is not registered in the national gazette. Five of the eight (63%) of the cooperatives have at least one full time employee (FTE), while 38% of the cooperatives have all their full time employees educated (Table 1).

Table 1: Description of the respondents, cooperative members and cooperatives

| About respondents | | |
|--------------------|--------|-----------|
| Position | N | % |
| Member | 29 | 59% |
| President | 9 | 18% |
| Accountant | 7 | 14% |
| Auditor | 4 | 8% |
| About members | | |
| | Median | Range |
| Number of Members | 120 | 28 - 185 |
| Gender of members | | |
| Male | 36% | 29% - 64% |
| Female | 64% | 36% - 71% |
| About cooperatives | | |
| Cooperatives with: | N | % |
| An office | 8 | 100% |
| One or more FTE | 5 | 63% |
| All FTEs educated | 3 | 38% |

4.1.1 Leadership and governance

Respondents rated high most of the criteria of assessing the general assembly, where almost on each criterion all respondents chose "Definitely Yes" or "Yes". However, supervisory and tender committee as well as leadership criteria were rated as "No" at 13% of the cooperatives. None of the respondents rated "Definitely No" any of the "Supervisory Committee and tender committee" criteria; however, three criteria that were rate as "No". Though generally across all "Leadership" assessment criterias "Yes" was the predominant likert scale, there are a number of criterias that were rated poorly (Chart 1).

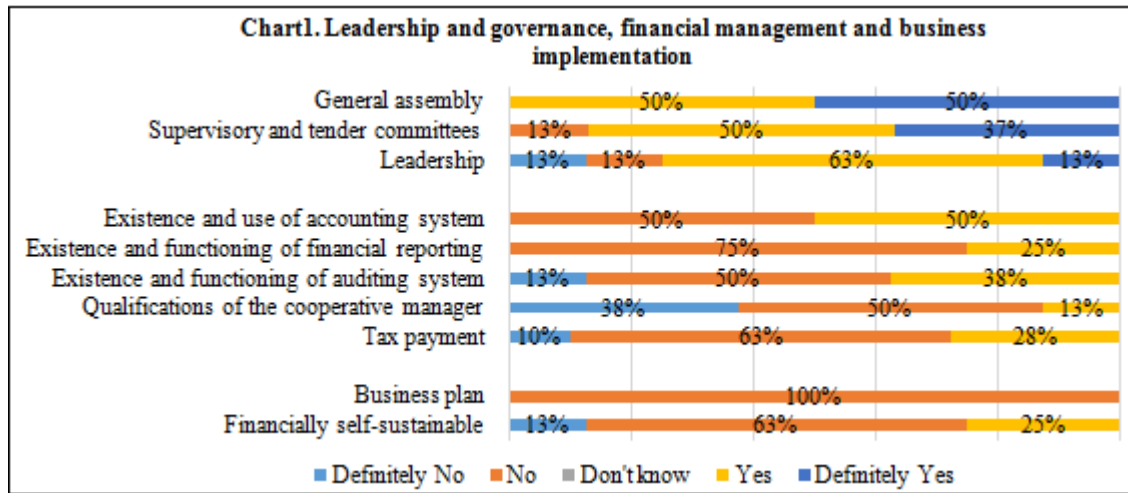
4.1.2 Financial management

The overall average shows that 63% of the cooperatives rated as "No" the "Financial management" assessment criteria. The remaining percentage was distributed equally between "Yes" and "Definitely No". The question asking if "The cooperative manager is professionally and academically qualified in Accounting/Finance" was the one rated least on the "Qualification of the cooperative manager" criteria. The question asking if "The cooperative is engaged in undeclared activities" was the least rated on the "Tax payment" criteria (Chart 1).

4.1.3 Business implementation

The average responses on business plan show that 100% of the respondents rated as “No” the business plan criteria, while on

the financial sustainability criteria respondents rated it as “Yes” 25% and as “No” 63% (Chart 1).



4.1.4 Return on investment: The Return on Investment (ROI) per year across all cooperatives has been fluctuating over the four years; the highest ROI recorded occurred in 2016 (20%). On average of the three years from 2014 to 2016, 6 cooperatives (75%) were able to make a positive ROI. The Capital invested in the activities of the cooperatives also changed over time; cooperatives started up high and gradually reduced. The capital invested has been proportional to the income that the cooperatives received (Table 2).

Table 2: Return on Investment, average capital and average income per year

| Year | Average Capital | Average Income | ROI |
|-----------|-----------------|----------------|-----|
| Year 2013 | 7,102,576 | 893,758 | 13% |
| Year 2014 | 3,947,690 | 672,033 | 17% |
| Year 2015 | 4,788,745 | 622,629 | 13% |
| Year 2016 | 7,745,283 | 1,567,283 | 20% |

While assessing if there is any variable that predicts the return on investment of the cooperatives, only the cooperative activities ($p=0.001$), being registered in the national gazette ($p=0.002$), having one or more FTE ($p=0.110$) and tax payment for the cooperative ($p=0.062$) were statistically significant at $p<0.2$ (Annex 1). However, cooperative activities and tax payment were removed from the multivariable logistic regression due to collinearity, and none of the other variables were statistically significant at $p<0.05$ (Annex 2).

4.2 Qualitative findings

Narratives from respondents were grouped into main themes and sub themes (Annex 3).

4.2.1 Leadership and governance

Q: What can you tell us about the cooperative’s leaders?

Seven main themes were identified from the responses: The leaders work well, The leadership team lacks other members, The leaders are challenged by the members, The leaders do not follow rules and regulations, The leadership needs more capacity building, Poor leadership skills, Poor management skills. “The leaders work well” was the most frequent theme, where it accounts for 62% of the themes identified from the respondents’ narratives. “The leaders need more capacity building” was the second most frequent theme with 26%. Example: “Our leaders work well and do their best to move the cooperative forward, and deal with that is not working well in order to satisfy members”: Respondent A

Q: What would you change about the cooperative’s leaders?

Seven main themes were identified from the responses: Communication needs to be improved, Leaders should follow rules and regulations, Nothing, all goes well, The team needs additional members, Leaders need to be innovative, Leaders need more capacity building, The leaders need to change. On this question, there was a variety of responses, however the most frequent themes were “Leaders need more capacity building”, “Nothing, all goes well”, and “Leaders need to be innovative”. Example: “If possible our leaders could get enough training so that they get the ability to do their job”: Respondent B

4.2.2 Financial management and sustainability

Q: Could you describe your financial management system to us?

Five main themes were identified from the responses: Accounting are properly used, Accounting books are used but there is no accountant, We only care about banks’ deposits and drawing, Poor accounting methods, Not informed. The most

frequent theme was “Accounting are properly used”, followed by “Not informed”. *Example: “We sell and keep records in different appropriate books including stock, petty cash, debts books and bank reconciliation book...all of this is done on a daily basis”*: Respondent C

4.2.3 Business implementation

Three main themes were identified from the responses: Made profits, Made losses, Don't know. The most frequent theme was “Don't know”, followed by “Made losses”. *Example: “We made profit though we did not reach the level we wanted and we can tell it from the fact that we were able to pay mutuelle insurance fees for members”*: Respondent D

5. Discussion

This study intended to conduct a comprehensive assessment of the CHWs' cooperatives by showing the status of leadership and governance, financial management, business implementation and return on investment.

5.1 Leadership and governance

On leadership and governance, the cooperatives are doing well on the general assembly especially in ensuring the general assembly exists and has regular meeting and holding the leadership election during the general assembly. Only one cooperative was poorly performing on supervisory and committee and tender committee; the cooperatives needs improvement on the criteria of having full composition per the cooperative's legislation. The cooperatives are not doing so well on leadership especially on ensuring the leadership helps the cooperative to be effective in their business and effectiveness of reporting and M&E plans (Table 6). These quantitative findings are consistent with the qualitative themes from respondents; the theme “Leaders need to be innovative” was frequently in the responses of the question “What would you change about the cooperative's leaders”. A case study of Bugesera and Kicukiro, assessing the perception of CHWs' cooperatives, found that members are happy with their leaders but think that commitment of the members is the one that sometimes leads to failure [7]. Communication between leaders of the cooperatives and members also needs some improvement. A qualitative study conducted on CHWs from other districts also noted that communication is still a challenge [10]. Regular meetings where the leaders of the cooperatives share the financial status of the cooperatives are recommended.

5.2 Financial Management

The cooperatives need improvement on all the components under the financial management. Several authors have recommended the use and updating necessary tools as one step towards the success of business [11-13]. The findings showed that the accounting and financial procedures are not respected by the cooperatives. There are no regular audits conducted in the accounting. Though tax evasion was not acknowledged by

many respondents, it looks like the awareness of taxes' procedures are not known by the cooperatives members. The qualification of the manager and other key personnel is also critical in the success of business companies [12]; however, the findings of this study shows that the qualifications of the cooperatives' managers are still low.

5.3 Business Implementation

Cooperatives are not well on ensuring business planning. Activities such as annual planning and ensuring the implementation are going according to plan, are not being done. Respondents also seemed to not what are the documents that are used in business planning. Despite a positive return on investment across years for majority of the cooperatives, a higher proportion respondents do not believe that their cooperatives are making profits and do not think that their cooperatives are financially sustainable. This could be related to the fact the leadership of the cooperative is not well communicating through regular meetings the status of the cooperative.

5.4 Return on Investment

Over the course of the four years considered in this study, the majority of the cooperatives have had a considerable return that can prove that the cooperatives are making some profits. However, digging deeper there are two main points that we can base on to suggest more improvements:

Firstly, only 75% of cooperatives are making profits and secondary the profits are not a linear trend. The cooperatives are recommended to make a thorough market and business analysis before initiating any income generating project in order to ensure they will have the maximum of customers and gain profits with lower investments. The income should be progressive over the course of the years, independent of increasing the capital investment. Previous authors have written on profits that CHWs' cooperatives are making, however these studies did not go further in assessing what proportion of the profits compared to the initial investment [5, 8, 10].

In the bivariate analysis, the activity that a cooperative chooses to invest in, registering the cooperative, having at least one FTE and complying with the tax payment procedures can predict the ROI of a cooperative. Few studies have assessed for predictors of ROI for cooperatives; a similar study that assessed the factors of profit performance found that the type of activities that the cooperative is invested in as well as the age of the cooperative can predict profitability [14]. We therefore suggest that CHWs cooperative plan carefully the activities they invest in.

6. Conclusion

6.1 Conclusion

It was found that among cooperative members with no other formal role, most of them are not informed about what is happening in the cooperatives. On the side of the perception of leaders, it was found that members expect leaders to be more innovative in what activities will lead to the cooperatives' profitability. Additionally, the use of accounting and finance tools is still low as well the awareness of taxes compliance. It was also that no business planning is being done and members do not think their cooperatives are yet financially sustainable. Lastly it was found that the cooperatives are making moderate returns from their investments in different projects.

6.2 Recommendations

This study recommends that the cooperatives ensure to increase their profits by doing a proper market and business analysis, proper financial management by using accounting and finance tools and involvement of members in knowing the financial status of the cooperative through frequent meetings.

6.3 Suggestions for further research

This study suggested further research to thoroughly investigate on profitability of CHWs cooperatives using additional financial measures such as return on assets and liquidity. The study also recommends similar to other cooperatives in the country, in order to find if the challenges highlighted are general of specific to the area.

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Annex 1. Bivariate analysis: Association between predictors and profit making of the CHWs cooperatives in Southern Kayonza. (N=49)

| | Neg ROI | | Pos ROI | | P value |
|--------------------------------------|---------|--------|---------|--------|---------|
| | n | % | n | % | |
| Number of cooperative members | | | | | |
| <120 | 6 | 25.00 | 18 | 75.00 | 0.935 |
| 120+ | 6 | 24.00 | 19 | 76.00 | |
| Cooperative activities | | | | | |
| Livestock | 6 | 25.00 | 18 | 75.00 | 0.001 |
| Agriculture | 4 | 100.00 | 0 | 0.00 | |
| Industry | 0 | 0.00 | 11 | 100.00 | |
| House renting | 1 | 20.00 | 4 | 80.00 | |

| | | | | | |
|---|---|--------|----|--------|-------|
| Other | 0 | 0.00 | 4 | 100.00 | |
| Not specified | 1 | 100.00 | 0 | 0.00 | |
| Registered in the national gazette | | | | | |
| Yes | 8 | 17.78 | 37 | 82.22 | 0.002 |
| No | 4 | 100.00 | 0 | 0.00 | |
| Initial members share in Rwf | | | | | |
| <=5000 | 0 | 0.00 | 5 | 100.00 | 0.571 |
| >5000 and <=10000 | 6 | 26.09 | 17 | 73.91 | |
| >=10000 | 6 | 28.57 | 15 | 71.43 | |
| Location of the cooperation to access clients | | | | | |
| Highly appropriate | 3 | 15.00 | 17 | 85.00 | 0.516 |
| Moderately appropriate | 7 | 30.43 | 16 | 69.57 | |
| Inappropriate | 2 | 33.33 | 4 | 66.67 | |
| Having at least one full-time employee | | | | | |
| Yes | 5 | 16.67 | 25 | 83.33 | 0.110 |
| No | 7 | 36.84 | 12 | 63.16 | |
| Having all the full-time employees educated | | | | | |
| Yes | 7 | 33.33 | 14 | 66.67 | 0.213 |
| No | 5 | 17.86 | 23 | 82.14 | |
| General assembly | | | | | |
| I don't know | 0 | 0.00 | 0 | 0.00 | 0.701 |
| Definitely No | 0 | 0.00 | 1 | 100.00 | |
| No | 1 | 50.00 | 1 | 50.00 | |
| Yes | 4 | 25.00 | 12 | 75.00 | |
| Definitely Yes | 7 | 33.33 | 23 | 76.67 | |
| Supervisory committee and tender committee | | | | | |
| I don't know | 1 | 25.000 | 3 | 75.00 | 0.967 |
| Definitely No | 0 | 0.00 | 2 | 100.00 | |
| No | 1 | 20.00 | 4 | 80.00 | |
| Yes | 3 | 33.33 | 6 | 66.67 | |
| Definitely Yes | 7 | 24.14 | 22 | 75.51 | |
| Leader | | | | | |
| I don't know | 0 | 0.00 | 2 | 100.00 | 0.369 |
| Definitely No | 0 | 0.00 | 3 | 100.00 | |
| No | 3 | 60.00 | 2 | 40.00 | |
| Yes | 4 | 23.53 | 13 | 76.46 | |
| Definitely Yes | 5 | 22.73 | 17 | 77.27 | |
| Existence and use of Accounting system | | | | | |
| I don't know | 0 | 0.00 | 3 | 100.00 | 0.456 |
| Definitely No | 1 | 12.50 | 7 | 87.50 | |
| No | 3 | 50.00 | 3 | 50.00 | |
| Yes | 6 | 30.00 | 14 | 70.00 | |
| Definitely Yes | 2 | 16.67 | 10 | 83.33 | |
| Existence and functioning of financial reporting | | | | | |
| I don't know | 0 | 0.00 | 4 | 100.00 | 0.908 |
| Definitely No | 2 | 22.22 | 7 | 77.78 | |
| No | 3 | 27.27 | 8 | 72.73 | |
| Yes | 5 | 29.41 | 12 | 70.59 | |
| Definitely Yes | 2 | 25.000 | 6 | 75.00 | |
| Existence of functioning auditing reporting | | | | | |
| I don't know | 0 | 0.00 | 4 | 100.00 | 0.638 |
| Definitely No | 2 | 22.22 | 7 | 77.78 | |
| No | 3 | 37.50 | 5 | 62.50 | |
| Yes | 7 | 28.00 | 18 | 72.00 | |
| Definitely Yes | 0 | 0.00 | 5 | 100.00 | |
| Qualification of the cooperative manager | | | | | |
| I don't know | 0 | 0.00 | 5 | 100.00 | 0.554 |
| Definitely No | 4 | 30.77 | 9 | 69.23 | |
| No | 1 | 16.67 | 5 | 83.33 | |
| Yes | 3 | 30.00 | 7 | 70.00 | |
| Definitely Yes | 0 | 0.00 | 5 | 100.00 | |
| Tax payment | | | | | |

| | | | | | |
|---|----|-------|----|--------|-------|
| I don't know | 2 | 15.38 | 11 | 84.62 | 0.062 |
| Definitely No | 5 | 29.41 | 12 | 70.59 | |
| No | 5 | 50.00 | 5 | 50.00 | |
| Yes | 0 | 0.00 | 9 | 100.00 | |
| Definitely Yes | 0 | 0.00 | 0 | 0.00 | |
| Business plan | | | | | |
| I don't know | 0 | 0.00 | 0 | 0.00 | 0.638 |
| Definitely No | 0 | 0.00 | 1 | 100.00 | |
| No | 1 | 16.67 | 5 | 83.33 | |
| Yes | 10 | 30.30 | 23 | 69.70 | |
| Definitely Yes | 1 | 11.11 | 8 | 88.89 | |
| Capacity for cooperatives to be financially self-sustainable | | | | | |
| I don't know | 0 | 0.00 | 0 | 0.00 | 0.555 |
| Definitely No | 4 | 30.77 | 9 | 69.23 | |
| No | 6 | 27.27 | 16 | 72.73 | |
| Yes | 2 | 25.00 | 6 | 75.00 | |
| Definitely Yes | 0 | 0.00 | 6 | 100.00 | |

Annex 2. Multivariable logistic regression presenting model with odds ratios, P-values and confidence intervals for CHWs cooperatives in Southern Kayonza

| | Full model | | | Reduced model | | |
|---|------------|-------|--------------|---------------|-------|--------------|
| | OR | P | 95% CI | OR | P | 95% CI |
| Cooperative activities | 2.02 | 0.060 | 0.97 - 4.19 | | | |
| Having at least one full-time employee | | | | | | |
| Yes | 1 | | | 1 | | |
| No | 10.11 | 0.019 | 1.46 - 69.87 | 2.92 | 0.117 | 0.77 - 11.12 |