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Determinants for Sustainability of Microfinance Institutions in North "A" District in Zanzibar

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Abstract

Sustainability of microfinance institutions has been at the centre of many studies in the microfinance industry because it provides a promising direction for improved access to financial services. This paper examines the determinants for sustainability of microfinance institutions in North "A" district in Zanzibar. The specific objectives of the study were to establish operational self-sufficiency of MFIs, establish financial self-sufficiency of microfinance institutions, and determine factors influencing operational and financial self-sufficiency. Primary data were collected from 150 randomly selected members and 50 purposively selected leaders of microfinance institutions using questionnaires and checklists. Quantitative data were analyzed for descriptive statistics, one-way analysis of variance (ANOVA) and multiple linear regression. It was found that microfinance institutions expended high administrative expenses compared to operating and financial expenses which are likely to affect their operational self-sufficiency, thus, generating low profit. Microfinance institutions had low capital base compared to their operating time, which jeopardized their sustainability. Return on assets contributed more to microfinance institutions' revenue compared to return on equity and deposit mobilization. Number of active borrowers and loan portfolio were found to have significant influence on operational self-sufficiency of microfinance institutions in the study area. Loan portfolio had negative significant influence ($p = 0.057$) on financial self-sufficiency whereas interest rate on loan charged to borrowers was significantly ($p = 0.069$) associated with financial self-sufficiency of microfinance institutions. It was recommended that microfinance institutions should minimize operating and administrative expenses in order to ensure that their profits are not affected by high operational expenses. Microfinance institutions should also diversify other profitability businesses in order to increase revenue and capital base.

1. Introduction

Sustainability of Microfinance Institutions (MFIs) refers to the ability of the MFI to cover all its costs from its own generated income from operations without depending on external support (such as subsidies) (Tehulu, 2013). Microfinance institutions are said to have reached sustainability when their operating income from the loan is sufficient to cover all the operating costs (Walde et al., 2022). Sustainability allows the continued operation of the microfinance provider and the ongoing provision of financial services to the poor (CGAP, 2004). It is argued that sustainability is the only way for MFIs to have an impact on their target population in the long run on their own independent of subsidies. Consequently, sustainability has been at the centre of many studies in the microfinance industry and most of them are mainly aimed at understanding and giving insights into its importance and on how to achieve it (Mlowasa et al., 2014).

Sustainability in microfinance actually goes beyond the financial perspective to address different aspects like the institutional, market, legal policy environment, and impact aspects (Gatimu & Kalui, 2014). In addition, sustainability of MFI provides a promising direction for improved access to financial services; promotes investment, spurs asset accumulation and economic activities at grass root level; and helps the poor uplift from poverty. As a result, desired economic growth may be achieved by enabling poor and low-income people to use financial services to take advantage of economic opportunities, invest in their future and protect against economic shocks to their households and enterprises (Malik, et al., 2020). Institutions providing microfinance services need to attain sustainability in order to sustain themselves and reach a significant scale of outreach towards poverty reduction. Microfinance institutions also need to be sustainable in order to provide sustainable microfinance services and contribute to poverty reduction (Ngo, 2015).

While the relationship between sustainability and targeting poor clients maintains its importance in microfinance literature, institutional efficiency has recently come into the spotlight (Annim, 2012). It is argued that MFIs should strive to achieve financial sustainability by reducing operational costs and charging market rates of interest. The higher the degree of self-sufficiency, the greater the extent to which an MFI can leverage donor and government funds to expand outreach (Ndegwa et al., 2016). Hence, for microfinance institutions to attain sustainability, they should be aware of the factors which are likely to affect their sustainability (Malamsha & Zakaria, 2016).

Literature shows that sustainability of MFIs can be considered at several levels of institutional, group and individual, and can relate to organizational, managerial and financial aspects (Kushoka, 2013). However, lately, scholars converge to identify two levels of sustainability from the initial three or four: Operational Self-Sufficiency (OSS) and Financial Self-Sufficiency (FSS) (Tehulu, 2013). On the one hand, operational sustainability refers to the ability of the MFI to cover its operational costs from its operating income regardless of whether it is subsidized or not. Operational self-sufficiency is an indicator which shows how microfinance institution is approaching to attain financial sustainability. Operational self-sufficiency ratio is measured as financial income divided by operating expenses (Melkamu, 2012).

On the other hand, microfinance institutions are financially self-sufficient when they are able to cover from their own generated income, both operating and financing costs and other forms of subsidy valued at market prices. The objective of FSS is to measure whether an institution earns enough revenue from loans to cover for operating expenses, financing costs, provision for loan losses and costs of capital which is excluded from the OSS (Marwa & Aziakpono, 2015). Financial sustainability is necessary to reach significant number of the poor population because it allows the continued operation of the MFI (Thabit & Mardini, 2015). Microfinance institutions that are truly financially sustainable tend to target poor clients because they can benefit from economies of scale by extending their loans to marginally poor and non-poor clients (Zainuddin, 2020). FSS ratio can be measured as financial income divided by sum of operating expenses, financial costs and loan loss provision expenses. The ratio shows how microfinance institution's earnings are enough to cover total costs and maintain its equity value. Moreover, measures related to profitability such as Return on Equity (RoE) and Return on Assets (RoA) should also be considered as its indicators (Gatuhu, 2013). Following the mix market definition of sustainability, describes a microfinance institution as being operationally sustainable when OSS reaches 100% and financially sustainable when FSS reaches 110% (Saad et al., 2018).

However, provision of microfinance services that can have a sustainable impact on client's well-being and reduced vulnerability is not an easy endeavor. Microfinance institutions face many risks that can adversely affect their long-term growth, operational and financial sustainability (Shahriar & Garg, 2017). In Tanzania, various studies have shown that most of MFIs have not attained operational and financial sustainability (Kipesha, 2013a; Kawiche, 2013; Malua, 2013; Chundu, 2014), partly because most of them operate at high costs and low productivity, which in turn results in low outreach and high losses. For example, a study on the determinants for sustainability of MFIs using debt ratio, portfolio to assets ratio and operating expenses ratio as measures of performance found that financial performance of the MFIs reviewed was low due to the low profit margin (Kawiche, 2013). Another study by Kipesha (2013a) on the impact of Information and Communication Technology (ICT) on efficiency and financial sus-

tainability of microfinance institution in Tanzania using operating self-sufficiency as a measure of sustainability in microfinance institutions concluded that institutions which invest more on ICT, experience improved efficiency and sustainability compared to those with low ICT investment.

However, little is known on the determinants for sustainability of microfinance institutions in Zanzibar where about two in five households (41.6%) run a business (OCGS, 2015) and MFIs are expected to finance them. Therefore, this study examined the determinants for sustainability of microfinance institutions using the case of North "A" District in Zanzibar. The specific objectives of the study were threefold: 1) to establish operational self-sufficiency of MFIs, 2) to establish financial self-sufficiency of MFIs and, 3) to determine factors influencing operational and financial self-sufficiency of MFIs in the study area. The paper contributes to microfinance academic and policy literature by focusing specifically on sustainability of MFIs which is critical for their continued operations and their broader contribution to poverty reduction.

The remainder of the paper is structured as follows. Following this introductory section, Section 2 describes the materials and methods adopted in this study, including the study area, research design, data collection methods and analysis. Section 3 presents and discusses the study findings and Section 4 draws the main conclusions and recommendations emerging the study.

2. Materials and Methods

The present paper draws on an empirical study that was conducted in North "A" District of Zanzibar, one of the seven districts of Unguja Island. The area was selected due to the fact it is among the areas where microfinance institutions have concentrated their operations. In 2020, the district had 78 recognized private microfinance institutions including SACCOS, VICOBA and ROSCAs. The study focused on several *shehias* in the study district in which microfinance institutions have concentrated their efforts and where the people are in need of microfinance services.

The study adopted a cross-sectional research design which involved data collection at a single point in time. The study used mixed methods approach of data collection and analysis combining quantitative and qualitative approaches to ensure complementarily of the collected data, and enhance validity and reliability of the findings (Abro et al., 2015). Multistage sampling using random and purposive sampling techniques was used to obtain the study MFIs and respondents. The first stage entailed systematic random sampling of 50 MFIs from a list of 78 MFIs in the district. The second stage involved purposive sampling of one leader from each of the 50 selected MFIs. In the third stage, three members were selected from each of the 50 MFIs using simple random sampling technique, making a sample of 150 members, which was about five percent of the total membership of 2872 in the 50 MFIs. Overall, the selected sample was representative of the entire study population, which helped to avoid bias and obtain valid

and reliable data.

In this study, primary data were collected through structured interviews and observations using a structured questionnaire and checklists. Structured questionnaires with both closed and open-ended questions were prepared in English and administered by the researchers in Kiswahili to MFIs leaders and members. The questionnaires aimed to solicit information on a number variables measured in this study such as age of MFIs, number of clients, number of active borrowers, loan portfolio, loan default rate, loan repayment rate, interest rate, operating expenses, administration expenses, and financing expenses. Other variables gathered through the questionnaires were capital of MFIs, return on asset, return on equity and client's outreach. The questionnaires were first pre-tested with ten respondents in the study area to ensure that were clear and unambiguous. Secondary data were collected through documentary review of different documents particularly from the MFIs, including record books, financial statements, cash flow statements, quarterly and annual reports, and other relevant documents kept by the MFIs.

Data analysis involved the use of Statistical Package for Social Sciences (IBM SPSS Version 20). Descriptive statistics such frequencies, percentages, mean, minimum, maximum and standard deviation were computed to obtain the pattern of variables. Inferential statistics such as multiple linear regression analysis and one-way analysis of variance (ANOVA) were used to analyze the data. The multiple linear regression model was presented as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \mu$$

where:

Y = Sustainability of microfinance institutions;

β_0 = Constant coefficient;

β_1 - β_5 = Regression coefficient;

X_1 = Number of clients;

X_2 = Number of active borrowers;

X_3 = Loan portfolio;

X_4 = Loan repayment rate (%);

X_5 = Interest rate (%).

The dependent variables (Y) for measuring the sustainability of microfinance institutions were operational self-sufficiency (OSS) and financial self-sufficiency (FSS) which were computed as shown in Equations (1) and (2), respectively:

$$OSS = \frac{\text{Total financial revenue}}{\text{Financial expenses} + \text{operating expenses} + \text{loan loss provision expenses}} \quad (1)$$

$$FSS = \frac{\text{Adjusted financial revenue}}{\text{Adjusted financial expenses} + \text{adjusted operating expenses} + \text{adjusted loan loss provision expenses}} \quad (2)$$

The next section presents and discusses the study findings focusing on the three specific objectives outlined earlier. However, this study was carried out in

only one district which limits generalization of the findings to MFIs in other areas. Partly because of this, the findings of this study should be interpreted and understood as context specific.

3. Results and Discussion

3.1. Socio-Demographic Characteristics of Respondents

Respondents' socio-demographic characteristics have important implications on microfinance development (Nawai & Shariff, 2012). Thus, it was important to describe the characteristics of MFI leaders and members in terms of gender, age, marital status, and education level. The study findings in Table 1 show that over half of the respondents were women (57.9%), including 28.7% from SACCOS, 17.4% from VICOBA and 11.8% from ROSCAs. Similarly, more than half of the respondents were aged between 30 - 60 years. Majority of respondents were married (83.1%) and had tertiary education (62.6%). This shows that the study involved respondents with diverse socio-demographic characteristics, which was useful in exploring the issues investigated in this study.

Table 1. Respondents' characteristics (n = 195).

Variables	SACCOS	VICOBA	ROSCAs	Total
Gender of respondents				
Male	38 (19.5)	28 (14.4)	16 (8.2)	82 (42.1)
Female	56 (28.7)	34 (17.4)	23 (11.8)	113 (57.9)
Age of respondents				
Below 30 years	26 (13.3)	12 (6.2)	15 (7.7)	53 (27.2)
Between 30 - 60 years	55 (28.2)	40 (20.5)	16 (8.2)	111 (56.9)
Above 60 years	13 (6.7)	10 (5.1)	8 (4.1)	15 (15.9)
Marital status of respondents				
Married	76 (39.0)	52 (26.7)	34 (17.4)	162 (83.1)
Single	9 (4.6)	3 (1.5)	0 (0.0)	12 (6.2)
Separate	0 (0.0)	3 (1.5)	3 (1.5)	6 (3.1)
Widow	9 (4.6)	4 (2.1)	2 (1.0)	15 (7.7)
Education of respondents				
No formal education	1 (0.5)	1 (0.5)	0 (0.0)	2 (1.0)
Primary education	4 (2.1)	1 (0.5)	2 (1.0)	7 (3.6)
Secondary education	33 (16.9)	19 (9.7)	12 (6.2)	64 (32.8)
Tertiary education	56 (28.7)	41 (21.0)	25 (12.8)	122 (62.6)

Figures in brackets are percents.

3.2. Operational Self-Sufficiency of MFIs

In this study, operational self-sufficiency of microfinance institutions was measured using the following indicators: time of operation of microfinance institutions (age), operating expenses, administrative expenses, financing expenses and loan default rate. The results in Table 2 show that the time of operation (age) of SACCOS, VICOBA and ROSCAs varied from 5 to 17 years, 5 to 21 and 5 to 11 years, with averages of 9.6, 9.0 and 7.7 years, respectively. Although not statistically significant ($p = 0.377$), these results indicate that SACCOS were comparatively older than VICOBA and ROSCAs. Other studies show that age of the MFI has a positive impact on efficiency, sustainability and financial revenue levels, but has negative impact on the profitability of microfinance institutions. When an institution lasts longer, it leads to the maturity stage of the firm to generate revenue to cover their costs and risks (Kipesha, 2013b; Heng, 2015). However, Wijesiri et al. (2017) argues that age is negatively associated with efficiency. This may be due to the fact that younger MFIs are less able to respond to new challenges.

It was found that operating expenses of SACCOS and VICOBA varied from TZS 3,000,000 to 10,500,000 and from TZS 4,000,000 to 10,200,000, with averages of TZS 6,670,000.83 and 6,475,000.00, respectively (Table 3). Comparatively, SACOSS had significantly ($p = 0.000$) higher operating expenses than VICOBA. ROSCAs had no operating expenses, because of the nature of their activities which not need to incur such expenses. One of the challenges microfinance institutions face is to lower their operating costs in order to make financial services to the poor more affordable. This involves among others, cost minimization at a given level of operation. Microfinance institutions can reduce their total expenses at a given level of operations or increase income at the same level of operation or both (Roberts, 2013).

Table 2. One-way ANOVA results for time of operation (In years).

Type of MFI	N	Minimum	Maximum	Mean	Standard deviation
SACCOS	24	5.0	17.0	9.6	3.54858
VICOBA	16	5.0	21.0	9.0	4.43424
ROSCAs	10	5.0	11.0	7.7	1.88856
Total	50	5.0	21.0	9.1	3.62199

$F_{(26.157, 2)} = 0.997$, $p = 0.377$.

Table 3. One-way ANOVA results for operating expenses (In TZS '000).

Type of MFI	N	Minimum	Maximum	Mean	Standard deviation
SACCOS	24	3000	10,500	6670.8	2311.3
VICOBA	16	4000	10,200	6475.0	1957.04
ROSCAs	10	0.00	0.00	0.0	0.00
Total	50	0.00	10,500	5274.0	3283.78

$F_{(348056616.68, 2)} = 45.360$, $p = 0.000$.

In this study, administrative expenses of SACCOS and VICOBA ranged from TZS 1,200,000 to 18,500,000 and from TZS 9,500,000 to 15,800,000, respectively. The average was TZS 12,366,000.7 and 12,743,000.8, respectively (Table 4). The p value of 0.000 shows that there was statistically significant variation between SACCOS and VICOBA on administrative expenses with VICOBA having higher administrative expenses than SACCOS. As was the case with operational expenses, there were no any administrative expenses in ROSCAs. The results imply that SACCOS and VICOBA had higher administrative expenses compared to operating expenses. Mohsin et al. (2018) shows that the lower the administrative expenses, the higher the MFI efficiency because increased administrative expenses can affect the profitability of microfinance institution. High administrative expenses increase operating costs of the MFI, thus, affect operational self-sufficiency.

The results in Table 5 show that the financing expenses of SACCOS and VICOBA ranged from TZS 550,000 to 3,000,000 and from TZS 500,000 to 2,400,000, respectively. The average was TZS 1,356,000.25 and 1,096,000 for SACCOS and VICOBA, respectively. There were no any financing expenses for ROSCAs. VICOBA had significantly ($p = 0.000$) lower financing expenses than SACCOS. The results imply that SACCOS and VICOBA in study area had lower financial expenses compared to operating and administrative expenses, which could be an indication of efficiency. As noted by Zamore et al. (2021), an efficient microfinance institution will operate at reduced financing and overall MFI expenses. The same will also increase profitability and, therefore, lead to its financial sustainability. However, for microfinance institutions to be operational self-sufficient, other expenses (operating expenses and administrative expenses) should be lower.

Table 4. One-way ANOVA results for administrative expenses (In TZS '000).

Type of MFI	N	Minimum	Maximum	Mean	Standard deviation
SACCOS	24	1200	18,500	12,366.7	3774.94
VICOBA	16	9500	15,800	12,743.8	2244.69
ROSCAs	10	0.0	0.0	0.0	0.00
Total	50	0.0	18,500	10,014.0	5817.29

$F_{(1254867491.66, 2)} = 73.114$, $p = 0.000$.

Table 5. One-way ANOVA results for financing expenses (In TZS '000).

Type of MFI	N	Minimum	Maximum	Mean	Standard deviation
SACCOS	24	550	3000	1356.25	516.53
VICOBA	16	500	2400	1096.88	470.63
ROSCAs	10	0.0	0.0	0.0	0.0
Total	50	0.0	3000	1002.0	1002.0

$F_{(13195893.75, 2)} = 32.784$, $p = 0.000$.

Loan default occurs when a borrower cannot or will not repay the loan and the microfinance institution no longer expects to receive payment. The results in Table 6 show that the loan default rate of SACCOS and VICOBA ranged from 0.0% to 3.0%, and from 0.0% to 2.0%, respectively. The average was 0.46% and 0.34%, for SACCOS and VICOBA, respectively. The results also show that there was no loan default in the ROSCAs. This implies that there is less loan default rate in the study area. Lower default rate shows the efficiency of microfinance institution to collect borrowed money from borrowers. This study found that monitoring and borrowers enforcement helped to increase repayment rate. As noted by Poot (2020), an efficient microfinance institution should collect largely loans from its borrowers in order to generate more funds.

3.3. Financial Self-Sufficiency of MFIs

Financial self-sufficiency was measured in terms of capital, return on asset, return on equity, and clients' outreach. The results in Table 7 show that capital of SACCOS and VICOBA varied from TZS 20,000,000 to 85,000,000 and from TZS 15,000,000 to 92,000,000, respectively, while ROSCAs varied from TZS 0 to 15,000,000. SACCOS had significantly ($p = 0.000$) higher average current capital (TZS 40,708,000.33) than VICOBA (TZS 34,868,000.75) and ROSCAs (TZS 4,000,000). This implies that SACCOS, VICOBA and ROSCAs in the study area had no strong capital base.

The Zanzibar Cooperative Society Act 2018 requires cooperative societies which provide financial services to have a minimum of TZS 15,000,000 as starting capital. However, it was reported by district cooperative officer that most of microfinance institutions in North "A" district had low capital, which was found to be one of the reasons which affected sustainability of MFIs in study area. Tehulu (2013) found that the volume of capital, that is, the amount of capital of an MFI, the combination of various components of capital could affect profitability and, therefore, sustainability of microfinance institutions. MFIs with higher capital are expected to have more clients than those with less capital. While there is an undeniable need for MFIs to access capital that would enable them to make a greater contribution towards poverty reduction, commercial lenders and equity investors have difficulties in identifying viable microfinance investments.

Table 6. One-way ANOVA results for loan default rate (In % TZS).

Type of MFI	N	Minimum	Maximum	Mean	Standard deviation
SACCOS	24	0.0	3.0	0.4583	0.81982
VICOBA	16	0.0	2.0	0.3438	0.67623
ROSCAs	10	0.0	0.0	0.0	0.0
Total	50	0.0	3.0	0.3300	0.69701

$F_{(1.487, 2)} = 1.566$, $p = 0.220$.

Table 7. One-way ANOVA results for current capital (In TZS '000).

Type of MFI	N	Minimum	Maximum	Mean	Standard deviation
SACCOS	24	20,000	85,000	40,708.3333	16,931.88186
VICOBA	16	15,000	92,000	34,868.7500	19,509.88531
ROSCAs	10	0.0	15,000	4000.0000	5676.46212
Total	50	0.0	92,000	31,498.000	21,367.76602

$F_{(9779117091.67, 2)} = 18.248$, $p = 0.000$.

Results in Table 8 show that return on assets (RoA) of SACCOS and VICOBA varied from TZS 8,000,0000 to 55,000,000 and from TZS 5,000,000 to 45,000,000, with SACOSS having significantly ($p = 0.000$) higher average RoA (TZS 19,500,000) than VICOBA (TZS 18,375,000). There was no return on assets of ROSCAs. These results imply that SACCOS and VICOBA in study area gained high contribution on revenue from their assets compared to equity. Falling on return on assets would affect much the sustainability of microfinance institutions in the study area. Efficiency MFI should generate high profit from its own investments at the same time lower cost of operations. According to Kar and Deb (2017), return on assets is indicative of MFI's ability to generate returns using the institution's total assets. Return on Assets (RoA) is an overall measure of profitability that reflects both the profit margin and the efficiency in the institution. This positive effect of RoA on financial efficiency may reflect the fact that more profitable MFIs tend to have higher financial efficiency. MFIs with a higher return on assets are likely having financial self-sufficiency and those with low return on assets are likely have financial insufficiency (Marwa & Aziakpono, 2015).

The results in Table 9 show that return on equity of SACCOS and VICOBA varied from TZS 0.0 to 10,000,000, respectively. The average return on equity of SACCOS (TZS 1,904,000.17) was significantly higher ($p = 0.039$) than that of VICOBA (TZS 656,000.25). This implies that return on equity produce low contribution on revenue of SACCOS, VICOBA and ROSCAs compared to return on assets in the study area. The study found that MFIs in the study area had not invested much on equity in order to generate additional profit. This caused MFIs to generate low return on equity and could affect financial self-sufficiency because of weak financial base.

Return on Equity (RoE) is a measure of the return on funds that are owned by the accounting entity such as microfinance institution (Nelson & Peter, 2019). The return on equity is an inevitable measure of profitability (Dissanayake, 2012). RoE measures the profitability of microfinance institutions and indicates how well the firm has used the resources of owners. There is a possibility that self-sufficient microfinance institutions with positive return on equity may be attaining those results by reducing level of services to the poorest of the poor, those with the greater needs (Dissanayake, 2012).

Table 8. One-way ANOVA results for return on assets (In TZS '000).

Type of MFI	N	Minimum	Maximum	Mean	Standard deviation
SACCOS	24	8000	55,000	19,500.0	10,737.99
VICOBA	16	5000	45,000	18,375.0	10,651.29
ROSCAs	10	0.0	0.0	0.0	0.0
Total	50	0.0	55,000	15240.0	12,179.88

$F_{(2915370000, 2)} = 15.736$, $p = 0.000$.

Table 9. One-way ANOVA results for return on equity (In TZS '000).

Type of MFI	N	Minimum	Maximum	Mean	Standard deviation
SACCOS	24	0.0	10,000	1904.17	2816.64
VICOBA	16	0.0	4000	656.25	1274.35
ROSCAs	10	0.0	0.0	0.0	0.0
Total	50	0.0	10,000	1124.0	2201.91

$F_{(30742241.667, 2)} = 3.493$, $p = 0.039$.

Results in Table 10 show that deposit mobilization of SACCOS and VICOBA varied from TZS 4,720,000 to 19,600,000 and from TZS 10,000,000, to 21,800,000, respectively. The average deposit mobilization was significantly ($p = 0.000$) higher in SACCOS (TZS 14,888.67) than in VICOBA (TZS 14,712.69). These results show that there was no deposit mobilization on ROSCAs. This implies that deposit mobilization as one of source of funds provides low contribution on financial self-sufficiency of microfinance institutions compared to return on assets. Lower deposit mobilization would lead to higher cost of capital hence lower level of financial sustainability, while higher deposit mobilization would lead to lower cost of capital hence a higher level of financial sustainability.

Deposit mobilization is a scheme intended to encourage customers to deposit more cash with MFIs and this money in turn can be used by the MFIs to disburse more loans and generate additional revenue for them (Kazi, 2012). Mobilizing saving ensures continued service to members needs and builds financial strength. Hence, saving mobilization is a vital to the local economic development and is a key for financial sustainability as it can contribute to self-sustainability by providing the MFI with lower cost funds (Duguma & Han, 2018).

Outreach is the number of clients served by microfinance institutions (Ayele, 2015). In this study, clients' outreach of SACCOS, VOCOBA and ROSCAs varied from 99% to 100% with averages of 99.96%, 99.88% and 100%, respectively (Table 11). These results imply that most of the members of SACCOS, VICOBA and ROSCAs are served in order to get microfinance services. Clients' outreach enables MFIs to collect more borrowed money from the clients, for that case, loan default rate is found to be lower. Microfinance outreach is important in

Table 10. One-way ANOVA results for deposit mobilization (In TZS '000).

Type of MFI	N	Minimum	Maximum	Mean	Standard deviation
SACCOS	24	4720	19,600	14,888.67	4015.21
VICOBA	16	10,000	21,800	14,712.69	4003.26
ROSCAs	10	0.0	0.0	0.0	0.0
Total	50	0.0	21,800	11,854.62	6951.94

$F_{(1756947491, 2)} = 67.553$ $p = 0.000$.

Table 11. One-way ANOVA results for clients' outreach (%).

Type of MFI	N	Minimum	Maximum	Mean	Standard deviation
SACCOS	24	99	100	99.9583	0.20412
VICOBA	16	99	100	99.8750	0.34157
ROSCAs	10	100	100	100.0000	0.00000
Total	50	99	100	99.9400	0.23990

$F_{(0.112, 2)} = 0.969$, $p = 0.387$.

attaining financial sustainability. According to Lam et al. (2020), microfinance institutions outreach and their profitability depend on each other. Outreach is often perceived under two aspects namely breadth and depth of outreach. Breath of outreach is reaching a large number of people or clients by microfinance institutions and depth of outreach is reaching the poorest of the poor (Mutua et al., 2020). For microfinance institutions to be beneficial to the poor in terms of depth and breadth of outreach, they should be financially stable, as without the required financial resources they cannot provide the services the poor need. However, without the poor (MFI clients) these microfinance institutions may not exist.

3.4. Factors Influencing Operational and Financial Self-Sufficiency of MFIs

The study determined the factors influencing operational and financial self-sufficiency of MFIs in North "A" District. Regressed independent variables were number of clients in the MFIs, number of active borrowers, loan portfolio, loan repayment rate and interest rate on loan charged to clients of MFIs. The model fit tested for the factors influencing operational self-sufficiency of MFIs using ANOVA statistics shows the F-statistic of 2.343 and R-square of 0.256 (Table 12) which means that the independent variables entered into the model explained 25.6% of the variation in dependent variable. The remaining 74.4% was explained by other factors, which are not in the model. Likewise, the model fit tested for the factors influencing financial self-sufficiency of MFIs using ANOVA statistical as shown in Table 12 show the F-statistic of 2.585 and R-square of 0.275 implying that the independent variable entered into the model explained 27.5% of the variation in dependent variable.

Table 12. ANOVA results for the variables determining operational and financial self-sufficiency of MFIs in North "A" District.

Variable	df	R-Square	F	Sig. Value
Operational self-sufficiency of MFIs	5	0.256	2.343	0.062[b]
Financial self-sufficiency of MFIs	5	0.275	2.585	0.044[b]

The results in Table 13 show the influence of each variable on the operational self-sufficiency in study area. Two independent variables, namely, number of active borrowers and loan portfolio were found to have significant influence on operational self-sufficiency of MFIs in the study area. The number of active borrowers had positive significant influence ($p = 0.012$) on operational self-sufficiency implying that one unit increase in number of active borrowers leads to positive influence on operational self-sufficiency by 18.7%. This mirrors the observation by Wadi et al. (2022) that the number of active borrowers positively affects the sustainability of microfinance institutions. The higher the number of active borrowers for an institution, the more sustainable it is. This possibly due to the fact that an increase in the number of active borrowers is likely to increase the number of services sold and, thus, an increase in operating and financial revenue. A small number of active borrowers may lead to increase in average operating costs, thus, lender inefficiency in operation.

Loan portfolio showed negative significant influence ($p = 0.058$) on operational self-sufficiency implying that one unit increase in loan portfolio leads to decrease in operational self-sufficiency of microfinance institutions by 12%. Tehulu (2013) established that loan portfolio has negative impact on MFI's sustainability. The negative relationship between loan portfolio and microfinance institution self-sufficiency means that MFIs must recover the disbursed loans since the greater the loans portfolio or high non-performing loan portfolio the lower the level of sustainability. On other hand, large loan portfolio leads to diminishing returns to scale and thus increase long run average costs.

Although not statistically significant ($p = 0.087$), the number of clients had a positive regression coefficient implying that an increase in number of clients by one unit leads to increase operational self-sufficiency by 12.5%. This concurs with Murithi (2017) who concluded that number of clients has positive influence on financial sustainability of microfinance institutions Microfinance institutions with large number of clients enjoy wide coverage of market and financial resources through mobilizing savings and high revenue resulting from interest rate charged to burrowers and investment. Ibrahim (2017) argued that the number of clients have positive impact on sustainability of microfinance institutions because they create bigger loans which might increase operating revenues, thus increase sustainability.

Table 14 shows the influence of each independent variable on financial self-sufficiency. Two independent variables were found to have significant influence on financial self-sufficiency of MFIs in the study area. Loan portfolio had negative

Table 13. Regression analysis of operational self-sufficiency (n = 50).

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Number of clients in MFI	0.125	0.071	0.352	1.765	0.087
Number of active borrowers	0.187	0.070	0.416	2.664	0.012**
Loan portfolio	−0.120	0.061	−0.355	−1.959	0.058*
Loan repayment rate	−1.167	1.420	−0.126	−0.822	0.417
Interest rate of on loan	−0.516	0.338	−0.297	−1.525	0.137

a. Dependent Variable: Operational sufficiency. *Significant at 10%, **Significant at 5%.

Table 14. Regression analysis of financial self-sufficiency (n = 50).

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Number of clients in MFI	−0.004	0.012	−0.076	−0.386	0.702
Number of active borrowers	0.007	0.011	0.093	0.604	0.550
Loan portfolio	−0.020	0.010	−0.353	−1.974	0.057*
Loan repayment rate	0.267	0.232	0.174	1.154	0.257
Interest rate of on loan	0.104	0.055	0.360	1.878	0.069*

a. Dependent Variable: Financial self-sufficiency. *Significant at 10%.

significant influence ($p = 0.057$) with regression coefficient of −0.020 implying that one unit increase in loan portfolio decreased financial self-sufficiency of the MFI by 2%. A study by Tehulu (2013) found that loan portfolio has negative impact on MFI's sustainability. The negative relationship between loan portfolio and self-sufficiency means that MFIs must recover the disbursed loans because the greater the loans portfolio or high non-performing loan portfolio, the lower the level of sustainability.

Interest rate on loan charged to borrowers was also a significant ($p = 0.069$) factor with regression coefficient of 0.104 implying that when the MFIs interest rate increased by one unit, the financial self-sufficiency of MFIs increased by 10.4%. The effect of other variables such as number of clients, number of active borrowers and loan repayment rate was not significant. According to Ndegwa et al. (2016), interest rates charged by MFIs positively influence their financial self-sufficiency. This implies that an increase of an interest rate results into an increase in liquidity for the microfinance institutions.

4. Conclusion and Recommendations

Based on the findings of the study, it was concluded that microfinance institutions in study area had high administrative expenses compared to operating and

financing expenses which are likely to affect their operational self-sufficiency, thus, generating low profit. The study revealed that microfinance institutions in the study area had low capital base considering their operating time, which endangers their sustainability. Assets contribute high revenue to the MFIs compared to return on equity and deposit mobilization. There was efficiency in clients outreach demonstrated by the high number of clients served. The number of clients and number of active borrowers positively influenced operational self-sufficiency of MFIs while loan portfolio negatively influenced both operational and financial self-sufficiency of MFIs. Interest rate positively influenced financial self-sufficiency of MFIs.

It is recommended that microfinance institutions should minimize operating and administrative expenses in order to ensure that their profits are not affected by high operational expenses. High operational expenses lead to operational insufficiency of MFIs. MFIs should increase supervision and monitoring of the borrowers in order to maintain lower loan default rate. Sensitization should introduce to members in order to increase loan repayment rate. Apart from return on assets, microfinance institutions should diversify investment in order to increase MFIs' revenue. MFIs should also use available opportunities such as land and water streams so as to expand sources of funds in order to increase loans to clients and level of capital of microfinance institutions without discrimination against poor clients. Deposit mobilization strategy should be introduced in order to influence members to deposit money on their MFIs so as to increase more funds and strengthen capital base. Strategies should be implemented to increase loan portfolio of MFIs. High loan portfolio shows microfinance institution's financial performance. MFIs should strengthen their sources of funds in order to increase revenue and achieve sustainability. The government should support North "A" District MFIs by providing training, entrepreneur skills and advice to members and leaders of microfinance institutions so as to increase their operational and financial efficiency.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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