

The Impact of Microcredit on Livelihood Improvement of Women in Muhanga District, Rwanda

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Abstract

This study aimed to examine the contribution of Microfinance to improving the livelihoods of women in rural Rwanda. The study area was Muhanga District, where this research seeks to address through the lens of microfinance. An explanatory design was employed to assess the extent to which women's livelihoods changed as a result of microcredit. A deductive approach was adopted to compare arguments from previous studies, collect data, analyse results, and interpret findings. Data were collected from a sample size of 309 respondents systematically selected from a population of 1,349 women beneficiaries of a local microfinance institution. Structured questionnaires were used to gather data, which were entered into SPSS version 20 and analysed using descriptive statistics and bivariate Correlation techniques. The findings reveal a strong positive correlation between access to microloans and improvements in key livelihood dimensions, although not all areas experienced uniform growth. Importantly, participants reported increased financial stability and greater access to essential services. The study concludes that microcredit significantly enhances women's livelihoods and supports poverty reduction efforts. The study recommends that lending institutions, policymakers, and nations strengthen access to credit by providing favourable loan conditions and coordinating with governmental and non-governmental stakeholders to enhance long-term impact.

Keywords: *Impact of Microcredit; Livelihood Improvement*

INTRODUCTION

Microfinance Institutions (MFIs) have emerged as vital tools for poverty alleviation and access to finance by offering microcredits to marginalised people. In Europe and America there were numerous studies like Quibria (2015) in Maryland, Baumert (2012) in German, and Bildirici and Özaksoy (2017) in Turkey investigated the effect of microloans on women income, Muharremi and Madani (2021) in Albania stressed the relationship between microloans and women asset possession, Ziolo and Luty (2020) in Poland revealed that one of the target groups for microloans is women, Banto and Monsia (2020) aligned that women use their loans for consumption rather than investment in developing countries, Basto et al. (2020) in Portugal found

the impact on health and education, Feldhoff et al. (2019) concluded that microfinance has a significant positive effect on school and food expenditure in America but it was not the same in Mexico. Furthermore, Martin et al. (2019) investigated the effects of a housing boom on credit to non-housing firms in Europe.

In Asia, to mention a few, Maaitah (2019) in Jordan revealed that the level of education, social status and the whole dimension of social empowerment have not been affected by profitability policy, while Razith and Nihara (2022) in Sri Lanka supported the relationship and strength between microcredit and women's livelihood, namely poverty, education, saving, family size. Other related studies were Datta and Sahu (2021) in India, Alshami et al. (2021) in Yemen, and Haque et al. (2021) in Malaysia.

In Africa, to mention a few, studies include Zelu et al. (2022) in Ghana, which integrated microcredit into women's income, and Chitema and Chitongo (2020) in Zimbabwe, which focused on the role of Internal Savings and Lending Schemes. The studies in East Africa were Muhwezi (2021) and Isoto and Kraybill (2019) in Uganda, with the objectives of assessing the impact of microloans on women's empowerment. In Tanzania, Kevela and Magali (2022) found that education moderated the impact of SACCOS microcredit on women-headed households. Namayengo (2023) in Uganda assessed the impact of microcredits on agriculture and food security. Furthermore, Johnson (2015) in Kenya and Mukhooli (2015) in East Africa established the effect of microcredit interventions on women's empowerment in Uganda, Kenya and Tanzania.

In Rwanda, Igihozo (2017) focused on rural women's empowerment and highlighted the role of education loans, but she didn't measure the impact on livelihoods. Moreover, Habimana and Haughton (2022) assessed how microcredit programmes enhance agricultural productivity and incomes.

Women constitute a significant share of the informal economy in Rwanda and continue to face challenges in accessing financial services. MFIs have been promoted as a means of fostering women's empowerment and improving livelihoods. For instance, there remains limited empirical evidence on how microcredit influences the multifaceted aspects of women's livelihoods at the household level, particularly in rural settings such as Muhanga District (NISR, 2022).

While international studies have highlighted the benefits of microcredit in enhancing income, business development, and access to basic services, most

have generalized across broad populations or focused on urban areas. For example, research by Alshammari (2021) explored how microcredit improves business productivity (Alshammari, 2021), while Wondimu (2023) examined the social development implications of microfinance (Wondimu, 2023). However, these studies did not address localized impacts in Rwanda or offer detailed insights into specific livelihood indicators such as food security, housing quality, or educational access for dependents.

Moreover, microfinance programs in Rwanda have expanded rapidly in recent years, yet questions remain about their effectiveness in supporting sustainable, long-term improvements in women's well-being (BNR, 2023). Existing literature provides insufficient analysis of how microcredit influences income generation, asset accumulation, food security, and access to health and education services in rural Rwandan districts. Furthermore, few studies have examined how borrower demographics, such as age, education, and family size, shape the outcomes of microcredit use. Research from nearby countries, such as Magali (2023) in Tanzania, found that demographic variables significantly affected loan repayment behavior within Savings and Credit Cooperative Societies (SACCOS) during the COVID-19 pandemic (Magali, 2023). However, that study did not explore whether such behaviors translated into tangible improvements in livelihood indicators. Thus, there was a significant knowledge gap regarding the actual household-level impact of microcredit for women in rural Rwanda, particularly in Muhanga District.

This study examined the multidimensional effects of microcredit on economic and social aspects of women's lives, including income generation, asset accumulation, productivity, access to business capital, health and education, food security, and housing conditions. Grounded in recent empirical literature, the study was guided by a general hypothesis that microcredit positively affects women's livelihoods, supported by specific assumptions regarding various dimensions of livelihoods. This study tested seven specific hypotheses to evaluate the impact of microcredits on various aspects of women's livelihoods in Muhanga District. These included H01 (impact on income), H02 (impact on assets), H03 (impact on production), H04 (impact on business capital), H05 (impact on health and education), H06 (impact on food intake), and H07 (impact on housing). Each hypothesis posited that microcredit had no significant effect on the corresponding variable. These were analyzed using descriptive statistics and correlation tests from 309 women beneficiaries of CLECAM EJO HEZA Plc. Drawing from relevant research (Mengstie, 2020); (Haque, 2021); (Sawalu, 2023); (Fayyaz, 2016); (Kapoor, 2019) and (Wondimu, 2023), the study applied a quantitative approach to measure how microcredit contributes to financial independence

and improved household welfare. By focusing on a rural Rwandan context, the research contributes nuanced insights to ongoing discussions on microfinance and women's empowerment and provides evidence-based recommendations for policy and practice.

The theoretical foundation of this study integrates the Theory of Change (ToC) and the Quantitative Impact Assessment Model (QIAM) to evaluate the effects of microcredit on women's livelihood outcomes in Muhanga District, Rwanda. The Theory of Change, originally proposed by Weiss and widely used in development planning, serves as a conceptual roadmap for linking microcredit interventions to social and economic outcomes through clearly defined assumptions and causal pathways (Weiss, 2019). This approach is particularly relevant in tracing how microcredit can lead to changes in income, education, health, and housing, as illustrated in development-focused studies such as Faki et al. (2024), who emphasized the role of stakeholder engagement in improving program effectiveness through logical planning frameworks (Faki, 2024). Meanwhile, the QIAM offers a complementary lens by quantifying intervention effects, enabling this study to capture the tangible impact of microcredit through statistically measurable indicators. Though not often explicitly named, QIAM's methodology aligns with empirical models used in financial development research, such as Kapaya (2023), who assessed the impact of public investment on sectoral outcomes using rigorous statistical tools (Kapaya, 2023). Together, ToC and QIAM provide a robust analytical model that captures both the causal logic and quantifiable outcomes of microcredit programs, thereby enhancing the validity and policy relevance of this study's findings.

Empirical analysis of relevant studies

Globally, microcredit has been empirically examined as a tool for poverty reduction and livelihood enhancement, especially among women in low-income communities (Al-Shami, et al., 2021). Numerous studies have shown that access to microfinance can increase women's income and business opportunities, although the extent of impact varies (Rahman, et al., 2022). For instance, Rahman and Akter (2022) found that women in rural Bangladesh who accessed microcredit demonstrated significant improvements in business activity, asset ownership, and household food security. However, they also noted inconsistencies in outcomes related to education and health, suggesting that financial inclusion alone does not guarantee broad-based welfare improvements (Rahman, et al., 2022). Similarly, in Nepal, Adhikari and Shrestha (2021) conducted a cross-sectional survey of 150 women microfinance clients and observed that, although microcredit recipients reported improved consumption patterns and

higher incomes, challenges such as over-indebtedness and limited training services hindered long-term gains. These findings reflect the importance of assessing both the financial and non-financial dimensions of livelihood improvement, as well as the role of contextual factors in shaping outcomes (Adhikari, et al., 2021).

Across Africa, studies have yielded mixed empirical evidence on the efficacy of microcredit in transforming women's livelihoods. (Amoako, et al., 2023). In Ghana, Amoako and Baah (2023) demonstrated that microfinance improved women's financial autonomy and income generation, particularly when complemented by institutional support and entrepreneurial training. However, they cautioned that the lack of follow-up services limited bigger changes in areas such as housing and children's education (Amoako, et al., 2023). In Nigeria, Eze and Okonkwo (2021) conducted a comparative analysis of women-led households, showing that those with access to microloans had higher rates of asset acquisition and meal frequency, though the improvements were often modest and not sustained without additional social safety mechanisms (Eze, et al., 2021). These African studies suggest that while microfinance holds promise, its success depends on design, delivery, and support systems, especially in rural and underserved communities.

In East Africa, empirical studies have focused heavily on access, repayment behavior, and financial inclusion, yet often fall short of linking microcredit to comprehensive livelihood metrics. (Magali, 2023). Magali (2023), analyzing loan repayment behaviors in Tanzanian SACCOS during the COVID-19 pandemic, found that education, financial literacy, and strategic business planning were key to repayment success. However, the study did not explore how these repayments translated into broader livelihood outcomes such as improved housing, healthcare, or educational attainment. In Kenya, Omondi and Muturi (2022) reported that microcredit improved the performance of small businesses among rural women, contributing to moderate income growth and increased food security (Omondi, et al., 2022). Nevertheless, they emphasized that long-term welfare impacts remained dependent on loan size, repayment period, and borrower training. Overall, East African literature emphasizes operational aspects of microcredit while still lacking a detailed analysis of its multidimensional impact on women's lives.

A relevant case study that offers additional insight comes from Uganda, where Namukasa and Kibirige (2023) used a mixed-methods approach to evaluate how microcredit affected rural women's welfare in Mpigi District (Namukasa, et al., 2023). Their results showed that while most beneficiaries

reported increased income and small-scale business growth, improvements in social welfare, such as access to healthcare and education, were achieved only when non-financial support services, such as training and Community-based monitoring, accompanied loans. This case highlights the importance of integrating financial services with broader development initiatives to ensure meaningful, sustained improvements in livelihoods.

In the Rwandan context, the empirical literature is relatively limited, particularly with respect to localized studies that evaluate household-level livelihood indicators. Nkundabanyanga and Tuyisenge (2021) assessed the impact of microfinance institutions on women's economic empowerment in rural Rwanda and found positive results related to income generation and savings behavior (Nkundabanyanga, et al., 2021). However, they acknowledged that improvements in health, education, and housing were less visible and often dependent on external factors such as government programs or NGO support. Another study by Mukamana and Habimana (2022) examined the role of microloans in women's entrepreneurship in the Southern Province and concluded that while access to finance boosted business activity, gaps remained in financial literacy and the use of credit for non-productive purposes (Mukamana, et al., 2022). These findings reveal a persistent gap in Rwandan research, particularly in assessing how microcredit affects the full spectrum of livelihood indicators, including nutrition, education, and housing quality.

In summary, empirical evidence from global to local levels suggests that microcredit can positively influence women's livelihoods, particularly with respect to income, asset ownership, and small-scale entrepreneurship. However, its impact on broader social indicators such as education, housing, health, and food security is often inconsistent or underexplored, particularly in rural African settings. In Rwanda, and specifically Muhanga District, such localized empirical data remains scarce. This underscores the value of the present study, which was conducted to fill this gap by providing a comprehensive, evidence-based assessment of how microcredit contributes to multidimensional livelihood outcomes for women in a rural Rwandan context.

MATERIALS AND METHODS

This study applied a quantitative research methodology rooted in a positivist philosophy and a deductive approach, aimed at measuring the extent to which microcredits affect women's livelihood improvement in Muhanga District, Rwanda (Jansen, 2023). The research employed an explanatory design, which enabled the researcher to investigate causal relationships between microcredit access and women's livelihoods, including income, asset acquisition or

increases, productivity, business capital, health and education, the number and quality of meals, and house building or maintenance.

The study focused on women who accessed microloans in the Muhanga district. The sample size was determined using systematic sampling. The sampling interval ensured fair representation across the district's rural areas. Based on the study objectives, 1,349 women beneficiaries of the CLECAM EJO-HEZA Plc loan in Muhanga district were qualified as the target population. Because the population was large, a 5% level of significance was used to determine the sample size, where $n = N/(1 + N * e^2)$. Thus, the sample size was $1,349/(1+1,349*(0.05)^2) = 308.519153802173$, equivalent to 309 women beneficiaries of CLECAM EJO-HEZA Plc in Muhanga district.

Data were collected exclusively from primary sources using structured questionnaires that incorporated both open-ended and closed-ended questions to generate both quantifiable and nuanced insights. The use of both open- and closed-ended questionnaires in this study enhanced data quality by combining the strengths of these approaches. Closed-ended questions provided structured, quantifiable data that could be easily analysed statistically, ensuring consistency and reliability across responses (Saunders et al., 2019). On the other hand, open-ended questions allowed respondents to provide detailed answers, capturing insights and perspectives that may not be anticipated by pre-set questions. This combination offered a balanced approach, enabling the researcher to gather both measurable data and rich qualitative insights, improving the depth and comprehensiveness of the findings.

The questionnaires were distributed in person to women at their homes or workplaces. Questionnaires were distributed in hard copy to all respondents, who completed them directly; the researcher collected all completed questionnaires automatically, and none were left. This technique reduced some possible response bias. The study emphasised a structured data processing approach, involving editing, coding, and tabulation to prepare the responses for statistical analysis. The quantitative data were entered into SPSS Version 20 and analyzed using descriptive statistics (frequencies, percentages, means, and standard deviations) and bivariate correlation analysis to test relationships between independent and dependent variables. Variables included microcredit (loan amount) as the independent variable, and seven indicators of livelihood improvement (income, assets, productivity, business capital, health and education, meal frequency, and housing). Results were interpreted using Descriptive statistics and Bivariate Correlation

techniques to determine whether statistically significant associations existed between the variables.

Conceptual framework of the study

The variables used in the conceptual framework are indeed aligned with the theoretical foundations guiding this study, specifically the Theory of Change (ToC) and the Quantitative Impact Assessment Model (QIAM). Within the ToC approach, microcredit was conceptualized as the key intervention (independent variable), while the livelihood indicators (income, assets, productivity, business capital, health and education, meal frequency, and housing) represented the expected outcomes along the causal pathway. Similarly, QIAM supported the use of measurable, multidimensional livelihood indicators as dependent variables for assessing intervention effects.

Each type of microcredit (business loans, agriculture/livestock loans, health/education loans, and housing loans) was not treated as an individual theoretical variable but as a subcategory of the main independent variable, microcredit access. The dependent variables were assessed separately to avoid masking situations where some outcomes may improve while others decline. This refinement clarifies the causal structure and strengthens the linkage between theory and operationalization.

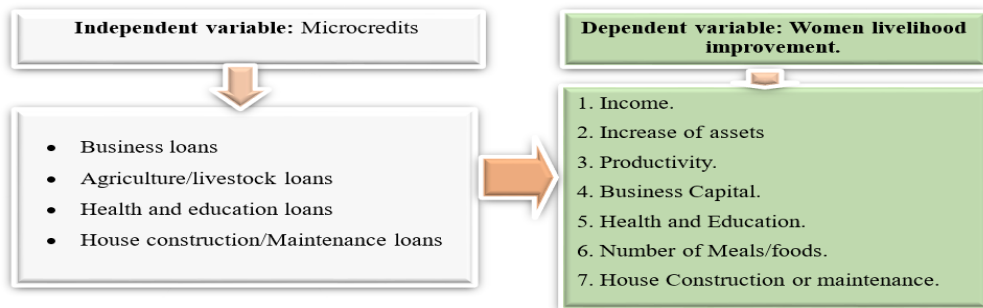


Figure 1: *Conceptual framework of the study*
Source: Compiled by the Researcher

To ensure the validity and reliability of the data collection instruments, a pre-test was conducted with 10 women from a comparable loan program (Bank of Kigali) in Muhanga Town. The questionnaire was validated by peers and approved by the academic supervisor. Cronbach's Alpha values for all tested variables ranged from 0.7024 to 0.9738, indicating high reliability. Ethical standards were strictly observed: respondents were informed of the study's purpose, assured of confidentiality, and participation was voluntary with no signed consent required. Approval for the study was granted by the

CLECAM EJO HEZA Plc main branch in Muhanga, and all collected data remains secure, accessible only to the researcher and supervisor.

RESULTS AND DISCUSSION

Loan size and loan activities of women in Muhanga district

Tables 2, 3, 4, 5, and 6 present a detailed cross-tabulation of the types of activities for which women in Muhanga District borrow microcredit, by loan size. By disaggregating the data, the analysis highlights how different loan sizes are allocated across key livelihood activities such as animal husbandry, business, crop growing, house construction, and other purposes, including education, health, and asset acquisition. This breakdown provides insights into borrowing patterns, financial needs, and priorities among women microcredit beneficiaries, offering a clearer understanding of how microloans are utilised to support both economic ventures and household welfare improvements.

Table 1:

Loan Size for Women in Muhanga District

Loan Size (Rwf)	Count	% of Total
25,000–500,000	142	46.00%
500,001–1,000,000	61	19.70%
1,000,001–5,000,000	91	29.40%
5,000,001–15,000,000	15	4.90%
Total	309	100.00%

The overall loan-size distribution indicates that a substantial majority of women borrowers (46%) were in the smallest loan bracket (Rwf 25,000–500,000), whereas only 4.9% received more than Rwf 5 million. This distribution suggests that while microcredit is accessible to a broad base of women in Muhanga District, the extent of financial empowerment may be modest for most women. Nonetheless, the presence of mid-sized loans (29.4% in the Rwf 1–5 million range) indicates growing confidence in women’s ability to manage larger financial responsibilities for livelihood enhancement.

Table 2:

Animal Husbandry vs Loan Size

Loan Size (Rwf)	Count	% within Activity	% within Loan Size	% of Total
25,000–500,000	27	69.20%	19.00%	8.70%
500,001–1,000,000	6	15.40%	9.80%	1.90%
1,000,001–5,000,000	6	15.40%	6.60%	1.90%
5,000,001–15,000,000	0	0.00%	0.00%	0.00%
Total	39	100.00%		12.60%

In Muhanga District, a significant proportion of women (69.2%) who borrowed for animal husbandry received small loans ranging from RWF 25,000 to RWF 500,000. This suggests that animal husbandry is a popular entry-level economic activity for women with limited capital requirements. However, the absence of higher loan allocations (e.g., Rwf 5 million and above) for this activity highlights a potential constraint in scaling such ventures, possibly due to perceived risk or limited business expansion plans among borrowers in this category.

Table 3:
Business vs Loan Size

Loan Size (Rwf)	Count	% within Activity	% within Loan Size	% of Total
25,000–500,000	9	15.30%	6.30%	2.90%
500,001–1,000,000	15	25.40%	24.60%	4.90%
1,000,001–5,000,000	35	59.30%	38.50%	11.30%
5,000,001–15,000,000	0	0.00%	0.00%	0.00%
Total	59	100.00%		19.10%

Women's loans for business activities show a clear pattern of higher capital investment, with nearly 60% of women borrowers receiving between RWF 1,000,001 and RWF 5,000,000. This indicates that women engaged in business ventures in Muhanga District are more likely to demand and access medium-sized loans compared to other activities. The data also implies that microfinance institutions may view business projects as more viable for larger credit disbursement, potentially due to higher expected returns or better repayment prospects.

Table 4:
Crops Growing vs Loan Size

Loan Size (Rwf)	Count	% within Activity	% within Loan Size	% of Total
25,000–500,000	98	64.90%	69.00%	31.70%
500,001–1,000,000	20	13.20%	32.80%	6.50%
1,000,001–5,000,000	27	17.90%	29.70%	8.70%
5,000,001–15,000,000	6	4.00%	40.00%	1.90%
Total	151	100.00%		48.90%

Crops growing emerged as the most funded activity, comprising nearly half of all loan usage among women (48.9%). Notably, the majority of these loans (64.9%) fell within the smallest bracket, Rwf 25,000–500,000, indicating that many women rely on small-scale farming as their primary livelihood. However, the presence of higher-value loans, including up to RWF 15 million, suggests that crop farming has both subsistence and commercial

dimensions in the district, albeit with limited penetration into the commercial sector.

Table 5:
House Construction vs Loan Size

Loan Size (Rwf)	Count	% within Activity	% within Loan Size	% of Total
25,000–500,000	0	0.00%	0.00%	0.00%
500,001–1,000,000	5	45.50%	8.20%	1.60%
1,000,001–5,000,000	3	27.30%	3.30%	1.00%
5,000,001–15,000,000	3	27.30%	20.00%	1.00%
Total	11	100.00%		3.60%

House construction loans showed a balanced distribution across mid- and high-value brackets, with approximately 45.5% of women accessing loans between Rwf 500,001 and 1,000,000, and another 27.3% each in the 1–5 million and 5–15 million ranges. This pattern indicates that women are using microcredit not only for income-generating activities but also for improving long-term living conditions. It reflects how access to microfinance supports household asset formation and infrastructure development in both urban and rural segments of Muhanga District.

Table 6:
Other Activities vs Loan Size

Activity	25,000–500,000	500,001–1,000,000	1,000,001–5,000,000	5,000,001–15,000,000	Total	% of Total
Buy a Car	0	0	3	3	6	1.90%
Buy a House	0	0	3	0	3	1.00%
Buy Plot of Land	0	0	5	0	5	1.60%
Carpentry	0	0	3	0	3	1.00%
Tailoring	0	3	0	0	3	1.00%
Health	0	3	3	0	6	1.90%
House maintenance	2	6	3	0	11	3.60%
Livestock	3	0	0	0	3	1.00%
Mining	0	0	0	3	3	1.00%
Studying	3	3	0	0	6	1.90%

A variety of other loan uses were observed, though in smaller proportions. Activities like buying cars, land, or constructing houses attracted mid to high loan sizes, signalling a shift toward asset accumulation. Educational loans and those for health or tailoring remained modest in volume but represent essential aspects of women's socio-economic advancement. These diverse uses of microcredit underscore that, beyond core income generation, loans

are increasingly leveraged to meet household welfare, asset acquisition, and personal development needs.

Table 7:
Significance of loan activity and loan size

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	237.137 ^a	39	0
Likelihood Ratio	188.165	39	0
N of Valid Cases	309		
Loan size analysis		Value (Rwf)	
Range	14,975,000		
Minimum	25,000		
Maximum	15,000,000		
Mean	1,550,825		
Std. Deviation	2,562,002		

a. 44 cells (78.6%) have expected count less than 5. The minimum expected count is .15.

Source: Primary data, 2024

Analysis of loan size vis-à-vis the activity for which the loan was used was conducted after evaluating all 309 women beneficiaries of CLECAM EJO HEZA Plc microcredits in Muhanga District. The results indicate a Pearson chi-square statistic of 237.137 with 39 degrees of freedom, at the 95% significance level (p -value = 0.05); thus, the critical value for X-squared is $55.76 < 237.137$. This means there is evidence to reject the null hypothesis, stating that “there is no significant association between loan size change and loan activity”. A descriptive analysis of loan sizes shows that the average loan taken by women beneficiaries of CLECAM EJO HEZA Plc microcredits in Muhanga District is approximately 1,550,825 Rwandan francs; the minimum loan was 25,000 RWF, and the maximum observed was 15,000,000 RWF. The loan was proportional to the activity for which it was used; the principal activities were mining, for which a 15,000,000 RWF loan was taken, followed by the purchase of cars, land, a house, and crop cultivation.

Loans and livelihoods in Muhanga District

The objective of this data analysis section was to evaluate how access to microcredit from CLECAM EJO HEZA Plc contributed to the multidimensional improvement of women’s livelihoods in Muhanga District. Through a quantitative assessment of 309 women beneficiaries, the study found that microcredit significantly improved income, productivity, business capital, access to health and education, food security, and housing. Positive correlations between loan size and key livelihood indicators were statistically significant in most areas, supporting the rejection of the null hypotheses

across multiple dimensions. While some effects, such as asset acquisition, showed weaker correlations, the overall findings align with global evidence on the transformative potential of microcredit, though context-specific factors must be considered.

The study assessed 309 women beneficiaries of CLECAM EJO HEZA Plc microcredits in Muhanga District and found that 100% reported improvements in their livelihoods due to microcredit use. These improvements included increased income, enhanced crop and animal production, greater asset accumulation, improved health, education, nutrition, and housing, and business growth. Women used the loans to start or expand income-generating activities, thereby increasing household financial stability. While global studies support these findings, some studies report that microcredit's impact may vary, sometimes increasing debt without improving livelihoods.

The study found that microcredit significantly increased women's incomes in Muhanga District. Following loans from CLECAM EJO HEZA Plc, the number of women earning income increased, and average annual income rose by 32,415 RWF. A statistically significant positive correlation ($r = 0.285$, $p < 0.01$) between loan size and income was observed, supporting rejection of the null hypothesis, consistent with findings from Egypt, India, Nigeria, and other countries. Access to microcredits led 25.2% of women to acquire assets such as land, agricultural tools, or vehicles, although the majority reinvested in production. A weak but statistically significant positive correlation ($r = 0.041$, $p = 0.022$) between loan size and asset value supports rejection of the null hypothesis, indicating that microcredit contributed to asset acquisition, albeit to a limited extent. Productivity increased significantly after loan access, with production value increasing by an average of more than 2.5 million RWF and more women engaging in productive activities. A strong, significant correlation ($r = 0.392$, $p < 0.01$) between loan size and productivity supports rejection of the null hypothesis, indicating that microcredit boosts productivity. However, crop production alone showed no significant correlation ($r = -0.155$, $p = 0.066$), as women shifted toward other higher-return activities.

Women's business capital increased significantly after receiving loans, with the average capital rising from 1.9 million to 2.9 million RWF, and more women engaged in business. A significant positive correlation ($r = 0.472$, $p < 0.01$) was observed between loan amount and business expansion, leading to rejection of the null hypothesis and supporting microcredit's impact on business investment. Health and educational access improved for all women

after receiving microcredit, with 100% able to meet their families' needs in these areas, compared with 85.4% before. The significant improvement led to rejection of the null hypothesis, confirming that microcredit positively affected women's ability to support family well-being through improved access to health care and education services.

Household food security improved post-loan, with more women able to afford three meals daily and higher meal quality. The correlation between loan size and the number of meals was positive and statistically significant ($r = 0.323$, $p < 0.01$), supporting rejection of the null hypothesis and indicating that microcredit contributed to improved nutrition and living standards. Access to microcredit enabled more women to build or maintain houses, increasing from 29.8% before loans to 42.7% after loans. A statistically significant positive correlation ($r = 0.298$, $p = 0.001$) between loan size and housing investment supported the rejection of the null hypothesis, showing that microcredits helped women improve their housing conditions.

Discussions

In this study, the researcher tested seven specific hypotheses. These included H01: impact on income; H02: impact on assets; H03: impact on production; H04: impact on business capital; H05: impact on health and education; H06: impact on food intake; and H07: impact on housing. All seven null hypotheses were rejected due to significant positive changes observed after loan access. Specifically, income increased by 28.5%, asset ownership by 4.1%, and business productivity by 39.2%, supporting the rejection of H01, H02, and H03. Business capital increased from 1.9M to 2.9M RWF, with a strong correlation with loan size ($r = 0.472$, $p < 0.01$), thereby rejecting H04. For H05, access to health and education services increased from 85.4% to 100% following the loan, indicating a significant effect. Meal frequency (H06) improved from 5.5% to 17.2% having three meals, and quality from 28.2% to 60.5% reporting good meals, with a moderate correlation to loan size ($r = 0.323$, $p < 0.01$). Housing improvements (H07) were also noted, with an increase in women building or maintaining homes (from 29.8% to 42.7%) and a significant correlation with loan size ($r = 0.298$, $p = 0.001$).

Hypothesis testing findings align with empirical evidence from other developing regions. For instance, Hushmat and Basri (2023) found that microcredits significantly enhanced income, asset acquisition, and housing in Pakistan (Hushmat, et al., 2023). Similarly, Wondimu et al. (2023) in Ethiopia and Kevela and Magali (2022) in Tanzania emphasized microfinance's role in increasing productivity and access to education and healthcare. The improvement in food access mirrors findings from the

Women Global Empowerment Fund (2023), which linked financial stability to better nutrition (WGEF, 2023). However, the 15.5% decline in crop production observed suggests a shift in women's investment preferences from agriculture to faster-return business ventures, echoing trends noted by Namayengo et al. (2023) in Uganda (Namayengo, 2023).

Theoretically, these outcomes support models of women's empowerment and livelihood improvement, which posit that access to credit increases women's agency in economic and social domains. The significant statistical relationships found reinforce microfinance theories that stress access to capital as a catalyst for self-reliance and household welfare (Alshammari, 2021). Additionally, the empowerment effect is consistent with Sawalu (2023), who emphasized that microloans enhance women's decision-making power in both family and business contexts. (Sawalu, 2023). Therefore, this study demonstrates that microcredit is not merely a financial tool but a foundational instrument for holistic development and empowerment in rural communities such as Muhanga.

CONCLUSION AND RECOMMENDATIONS

This study examined the impact of microcredit on women's livelihoods in Muhanga District and found significant improvements in income, assets, productivity, business capital, food security, housing, and access to health and education. Beyond reaffirming existing evidence, the study provides new, context-specific insights by offering localized empirical data from rural Rwanda, a setting in which such comprehensive analyses are scarce. The findings indicate a distinct shift from agriculture toward small-business ventures. The research revealed a negative correlation between loan size and crop production, despite high loan repayment compliance, and documented underutilization of higher loan ceilings due to fear, limited information, or low financial literacy. These context-driven patterns add nuance to the broader microfinance literature and demonstrate how microcredit influences livelihood pathways differently within rural communities.

The theoretical and academic contribution involves applying change theory to the marginalized community in the Muhanga District of Rwanda. The empirical results further validate the role of microfinance in poverty alleviation and women's empowerment. However, this research also highlights the role of change theory by indicating a shift from agriculture to small-business ventures, revealing a potential trade-off between short-term economic returns and long-term agricultural productivity. This nuance is important for policymakers and practitioners to consider when designing inclusive financial programs that balance diverse livelihood strategies,

including food security in rural economies. Previous studies have failed to integrate microfinance and its impacts in Rwanda, whereas this study focuses on diverse impact variables.

While the study provides strong evidence of positive outcomes, some limitations emerged. A small number of women used the loans for non-productive purposes, such as personal vehicle purchases, which could threaten repayment capacity. Additionally, although CLECAM EJO HEZA Plc offers loans up to 25 million RWF, none of the 309 women accessed more than 15 million RWF, despite a 99% repayment compliance rate. This suggests potential underutilization of available credit due to fear, lack of information, or limited financial literacy, which warrants further attention.

In closing, this study provides valuable empirical insights into the transformative role of microcredit in improving women's livelihoods in Rwanda. It is demonstrating that microfinance not only uplifts individuals but also promotes broader socioeconomic development. To achieve sustainable impact, financial institutions should increase lending ceilings, provide targeted training, and ensure effective monitoring of loan utilisation. Ultimately, empowering women through microcredit is not just a financial investment; it is a strategic step toward inclusive growth and long-term community resilience.

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