
IMPACT OF LGAS MICRO-CREDIT GROUP LENDING APPROACH ON FISH VENDORS' LIVELIHOOD IMPROVEMENT IN TANZANIA, THE MODERATING EFFECT OF ENTREPRENEURIAL TRAINING

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ABSTRACT

This study explores the effects of the Local Government Authorities' (LGA) micro-credit group lending approach on the livelihood status of fish vendors in Tanzania, considering the moderating role of entrepreneurial training. Utilizing a positivist research philosophy and an explanatory research design, the research adopted proportionate and random sampling methods to select a sample of 354 fish vendors from three local government areas: Kigamboni Municipal Council (KGMC) in Dar es Salaam, Ilemela Municipal Council (IMC), and Mwanza City Council (MCC). The analysis was conducted using Partial Least Squares-Structural Equation Modelling (PLS-SEM), which revealed that the group lending approach positively and significantly impacts the livelihood status of fish vendors. Furthermore, the moderating effects indicated that entrepreneurial training significantly enhances the relationship between the group lending approach and the livelihood status. Consequently, the study advocates for policymakers and relevant government authorities, particularly LGAs, along with fish vendors, to prioritize the group lending approach and entrepreneurial training strategies. This would facilitate effective utilization of micro-credits for income-generating activities, ultimately leading to improved livelihoods for the beneficiaries.

Keywords: LGAs micro-credits, entrepreneurial training, livelihood status, and fish vendors.

1. INTRODUCTION

Poverty alleviation remains a significant global challenge, with over three billion individuals subsisting on less than two dollars per day and considerable child mortality rates in developing regions (Mushi, 2023; Magesa, 2024). The situation is particularly dire in Africa, where marginalized populations frequently experience exclusion from formal financial services, including micro-credits (Ajah et al., 2024; Jamal et al., 2021). This gap has prompted the proliferation of micro-finance initiatives worldwide. For instance, countries in Asia and Latin America, such as Pakistan, India, and Bangladesh, have successfully implemented micro-credits as essential income-generating strategies for impoverished communities (Mahmud et al., 2022). Originating in Bangladesh through the efforts of Muhammad Yunus in 1976 (Mamun, 2020), micro-finance has reached significant milestones, with over 150 million clients engaging with Micro-Finance Institutions (MFIs) by 2007 and millions in Sub-Saharan Africa accessing these services by 2010 (UN for Africa, 2011). In response, many African governments have adopted micro-credit approaches to facilitate access to small loans for the unbanked poor, particularly through Government Revolving Micro-credits (GRMs), which aim to foster entrepreneurship among marginalized groups (Abebe & Kegne, 2023; Malamsha, 2023). In this context, the fishing sector, particularly through fish vending, has emerged as a viable

livelihood option for many, contributing to improved nutrition and economic stability for urban dwellers in coastal regions (Fabinyi & Barclay, 2021). Estimates indicate that approximately 58.5 million individuals are engaged in various aspects of fish-related activities, with women representing a significant portion (FAO, 2022; Fabinyi & Barclay, 2021). The number of individuals involved in fishing in Africa has risen dramatically from 2.8 million in 1995 to 5.65 million in 2020 (Magesa et al., 2024; Jaheer et al., 2021).

The fish vending business in Tanzania has notably expanded, spurred by urban population growth, currently exceeding 61 million (Mush, 2023; Jaheer et al., 2021). However, despite the opportunities available, many fish vendors lack essential entrepreneurial knowledge and skills, which constitutes a barrier to maximizing their business potential (Mulipula, 2023; Rejula et al., 2023). This gap motivates an investigation into how Local Government Authority (LGA) micro-credits have influenced the livelihoods of fish vendors, particularly when moderated by the provision of entrepreneurial training.

Micro-credit theory posits that low-interest loans, accessible to individuals with joint liability, can significantly improve the livelihoods of those experiencing poverty (Malamsha, 2023; Mollah, 2023). Additionally, Human Capital Theory (HCT) suggests that training enhances the capacity of micro-entrepreneurs, leading to improved economic outcomes (Rejula et al., 2023). Previous studies have largely focused on broader relationships between micro-credits and various socio-economic parameters, often overlooking the specific context of fish vendors in Tanzania (Boateng et al., 2024; Ghosh et al., 2023; Kariuki, 2023).

The Tanzanian government has implemented strategies since 1994 to alleviate poverty, including GRMs funded by local government collections. By 2024, approximately 65 billion Tanzanian Shillings were allocated to support entrepreneurial activities among marginalized populations (CAG, 2024). The fish vending sector is a significant component of this initiative, benefiting over 30% of low-income urban residents (Magesa, 2024; Mushi, 2023). However, gaps remain in understanding the extent to which these micro-credit schemes effectively enhance the livelihoods of fish vendors.

This study aims to examine the impact of the LGA micro-credits on the livelihoods of fish vendors within Tanzania and to assess the moderating effect of entrepreneurial training on this relationship. By focusing on this underexplored area, the research seeks to contribute to essential knowledge that can inform policy initiatives, thereby enabling more effective poverty alleviation strategies tailored to the unique challenges faced by informal sectors such as fish vending in Tanzania. approaches to enable the poor that haven't collateral to access small loans at minimal interest rates (Ngige & Njuguna 2023, Malamsha 2023). Moreover, free interest rate micro-credits (seed money) have been offered in the name of Government Revolving Microcredits (GRMs) aimed at enabling entrepreneurship activities for unemployed and marginalized poor populations (Abebe & Kegne, 2023; Mangstie, 2022; and Stephanie et al., 2021). By the 1990s, the majority of African countries, such as Tunisia, Morocco, Kenya, Botswana, Zambia, Zimbabwe, Ethiopia, and Tanzania, had introduced GRMs (Hassan et al. 2022; Mzingula 2020).

The vending business, including fish vending, is believed to contribute to the improvement of many poor livelihoods in terms of the number of meals, house improvement, and household consumption of poor urban residents in coastal and water-bodied areas (Fabinyi & Barclay, 2021). It is estimated that 58.5 million engage in full-time, part-time, occasional, or unspecified fisheries, and 21% are women (FAO, 2022; Fabinyi & Barclay, 2021). In Africa, the number of people

dealing with fishing has tremendously risen from 2.8 million in 1995 to 5.65 million in 2020 as a livelihood strategy (Magesa et al. 2024; Jaheer et al. 2021).

The fish vending business in Tanzania has immensely risen due to the ready market as the urban population has increased to 61,741,120 urban dwellers (Mush, 2023; Jaheer et al., 2021). Fabinyi & Barclay (2021) and Anosike (2029), fish vendors contribute to families' survival, assets, rent payments, and income increase. Lack of entrepreneurship knowledge and skill hinders micro-entrepreneurs like fish vendors (Mulipula 2023; Rejula et al. 2023). This motivates to study on how LGA micro-credits have impacted the livelihood of fish vendors using entrepreneurial training as a moderating construct.

Since Micro-credit theory emphasizes group lending so as improve the livelihood of people experiencing poverty (Malamsha 2023 and Mollah 2023). Thus, human capital theory (HCT) with the training construct will be used as a moderating variable (Rejula et al., 2023). Most studies, such as Boateng et al. (2024), Ghosh et al. (2023), Kariuki (2023), Adarsh et al. (2023), Nnamani & Iwezor (2022), Khan & Bedi (2021), to mention a few, have focused on the relationship between micro-credits and SMEs' performance, socio-economic conditions, and livelihood of beneficiaries. The government of Tanzania has introduced GRMs since 1994 via LGAs' 10% own-source annual collections, and up to 2024, about 65 billion has been used as micro-credits to influence entrepreneurial income-generating activities for unemployed women, youth, and PWDs (CAG, 2024). Taking the fish vending business as one among the income generation activities involved in the program and which benefits more than 30% of poor urban dwellers (Magesa 2024; Mushi 2023). The issue is the fish vendors' lack of entrepreneurship skills and whether initiatives have impacted the livelihood of the targeted population. Understanding the LGA micro-credits' impact on the livelihood of fish vendors as a government program to alleviate poverty could enable the formulation of friendly strategies to include vital informal sectors in the government's strategies for poverty alleviation.

Moreover, studies in Tanzania, such as Magesa (2024), Mkama (2024), and Mush (2023), have mostly not studied the livelihood of fish vendors and LGAs' micro-credits in Tanzania. Therefore, this study focused on filling the gap between local government micro-credits and fish vendors' livelihoods by examining the impact of the group lending approach of LGA micro-credits on the livelihood of fish vendors in Tanzania and the moderating effect of entrepreneurial training on the relationship between LGA micro-credits' group lending approach and the livelihood of fish vendors in Tanzania

2. LITERATURE REVIEW

Micro-Credit Theory, originally formulated by Dr. Muhammad Yunus in 1976, posits that individuals living in poverty can be considered bankable through the provision of low-interest microloans, enhanced accessibility, and a joint liability framework. This theory primarily aims to facilitate poverty alleviation by enabling disadvantaged individuals to initiate or expand business ventures, particularly in communities lacking access to traditional credit and collateral requirements (Bateman et al., 2019; Malamsha, 2023). The focus on fish vendors within the context of Local Government Authority (LGA) micro-loans emphasizes the provision of interest-free loans, accessibility, and joint liability as central tenets of the model.

Despite its contributions to financial inclusion, the micro-credit model faces critiques, notably

regarding issues such as potential market displacement of existing micro-enterprises, concerns about competitive disclosure, and the assumption that impoverished individuals inherently possess entrepreneurial potential awaiting external support (Tshishonga, 2024; Malamsha, 2023). Numerous studies have examined various applications of micro-credit theory in contexts such as the impact on small and medium-sized enterprises (SMEs) performance (Russian et al., 2020), women's entrepreneurial empowerment (Mukhtar et al., 2023), and overall welfare improvements in rural households (Data et al., 2023).

Recent investigations, including the work by Domanban (2024) on determinants of micro-loan sizes in Ghana, and Tshishonga (2024) focusing on micro-credit processes in women's groups in Mozambique, underscore the widespread relevance of micro-credit systems. Specifically, Malamsha (2023) analyzed the role of micro-credit in women's development in Tanga City, while Magali (2022) studied the influence of VICOBA micro-credits on women's empowerment in Tanzania. These studies align with the overarching framework of low-interest rates, loan accessibility, and group lending as independent variables influencing the livelihood status—a dependent variable aimed at measuring improvements in the lives of low-income individuals through micro-credit access.

Recognizing inherent limitations in micro-credit theory, particularly its inadequacy in fully explaining variances in the conceptual model, this research adopted Human Capital Theory (HCT) to elucidate the moderating role of entrepreneurial training in the relationship between micro-credits and livelihood status. First articulated by Adam Smith and later advanced by economists such as Gary Becker and Theodore Schultz in the late 20th century, HCT posits that education, training, and experiential learning are critical determinants of worker productivity (Blundell et al., 1999). Initially conceived during a period of physical capital accumulation, HCT underscores the significance of human attributes—such as education, training, intelligence, and experience—in fostering business success (Ahmed et al., 2023).

The application of HCT within this study involves analyzing how entrepreneurial training serves as a moderating variable in the relationship between LGA micro-credits and the livelihood status of fish vendors. However, critiques of HCT highlight its potential shortcomings, particularly its focus on individual talent and training as the primary sources of productivity without adequately addressing broader contextual factors (Braunerhjelm & Lappi, 2023; Marginson, 2017). Nevertheless, the theory's emphasis on a positive correlation between entrepreneurial education, training, and business performance substantiates its use in this study to investigate the moderating effects of entrepreneurial training on the livelihood status of fish vendors in association with LGA micro-credits.

In conclusion, this academic discourse highlights the critical interplay between micro-credit theory and human capital theory in understanding the dynamics of financial inclusion and livelihood enhancement among marginalized communities. By synthesizing these theories, the research aims to offer deeper insights into the mechanisms through which micro-credit and entrepreneurial training collaboratively foster sustainable livelihood improvements.

Group Lending and Livelihood Status

The relationship between group lending and the livelihood status of beneficiaries has been a focal point for many scholars, each contributing unique insights through varied methodologies, analytical techniques, and geographic contexts. Borthakur and Boruah (2023) investigated the impact of micro-finance on rural women's empowerment in Bangladesh, utilizing Self Help Groups (SHGs). Employing descriptive analysis methods, including simple tables, chi-square tests, and secondary data, their study, which involved a sample of 85 respondents, concluded that micro-credit via SHGs significantly contributes to women's empowerment.

In a different context, Ario (2020) examined the sustainability of lending methodologies and the outreach depth of micro-finance institutions in Indonesia. This mixed-methods study encompassed 20 MFIs and applied probit models alongside multiple linear regression analyses. The findings underscored that group lending was notably connected to informal borrowers, with group size, diversity, and joint liability functioning as essential facilitators for enforcing repayment. Notably, individual loans were also backed by collateral. However, this research concentrated on informal borrowers, diverging from the focus on fish vending businesses explored in this current study.

Ghosh et al. (2023) evaluated the impact of SHG interventions alongside entrepreneurial traits on the socio-economic empowerment of rural women. Utilizing a purposeful sampling technique, their study comprised 344 women engaged in income-generating activities and employed regression analysis for data interpretation. The findings indicated that SHGs positively influenced rural women's income, asset ownership, and savings. Nonetheless, the primary focus remained on urban fish vendors, which may limit the generalizability of the results across different contexts.

Rai et al. (2024) conducted a qualitative study on the contributions of Women's Self-Help Groups (WSHGs) to societal and rural development. Their analysis utilized percentages, means, standard deviations, operationalized logistic (OSL) models, and Z-tests, revealing significant positive correlations between age, income, education, and socio-economic status.

Lastly, Niyitegeka and Mulyungu (2018) explored the contributions of the group lending approach to the socio-economic status of small and medium-sized enterprises (SMEs) in Rwanda. Analyzing primary data through mean, frequency, and correlation assessments, their research indicated a significant association between group lending and factors such as savings, expenditure, and household consumption control among SME members. However, this study too was centered on SME members, neglecting the specific context of fish vending businesses. Overall, these studies collectively highlight the diverse impacts of group lending mechanisms across different demographics and industries, yet underscore the need for targeted research addressing specific sectors such as fish vending to derive more nuanced insights.

Ha1: There is a positive significant relationship between the group lending approach and the livelihood status of fish vendors.

Entrepreneurial Training (ET) on Micro-credits and Livelihood

Entrepreneurial Training (ET) plays a crucial role in equipping individuals with the knowledge

and skills necessary to initiate, operate, and scale enterprises. Targeting potential entrepreneurs, particularly those who are vulnerable, unemployed, or engaged in micro, small, and medium enterprises (MSMEs), ET is recognized as an effective mechanism for fostering entrepreneurial practices (Al-Awlagi et al., 2021; Weers et al., 2020).

Recent research conducted by Zhuang and Sun (2023) explored the moderating role of entrepreneurial ecosystems (EE) within the context of institutional environments and entrepreneurial intent (EI). Utilizing a sample of 601 entrepreneurs and employing the Partial Least Squares Structural Equation Modelling (PLS-SEM) for data analysis, the findings indicated that EE did not moderate the relationship between institutional environment and entrepreneurial intent. Notably, this study concentrated on EE rather than ET.

In a complementary study, Horvath (2019) investigated the moderating effect of ET on the interplay between financial bootstrapping and the performance of small and medium enterprises (SMEs) in Hungary. With a sample of 70 Hungarian SMEs, the study employed bootstrap techniques to validate its hypotheses, revealing that ET positively moderates the relationship between employment growth and financial bootstrapping, although it did not address the impact of government micro-credits on venture performance. Al-Momani et al. (2023) focused on the pharmaceutical sector in Jordan to assess the moderating role of ET in the relationship between motivation and SME performance within that industry. Analyses conducted on data from 162 respondents revealed that ET significantly enhances the impact of innovation on the performance of pharmaceutical SMEs, despite the study's limitations regarding its applicability to other sectors, like fish vending.

Additionally, research by Toumi et al. (2023) evaluated the effects of entrepreneurship development programs on the economic and political empowerment of individuals in Tunisia. Employing a quantitative methodology with a stratified random sample of 343 participants, the findings indicated that entrepreneurship training reinforces individual empowerment in economic and political realms, but again did not examine the specific context of fish vendors.

A meta-analytical study by Weers et al. (2020) underscored that ET contributes to both short-term and long-term entrepreneurial outcomes by cultivating essential business skills. However, this study did not utilize ET as a moderating variable, despite recommending systematic training tailored to the needs of participants. Furthermore, Mkama (2024) investigated the influence of entrepreneurial training on the performance of food vendors, utilizing an explanatory design with PLS-SEM and a sample of 302 female food vendors. The results indicated significant positive effects of ET on product and service innovation, although it did not delve into the implications of government micro-credits. The divergent findings and the gaps identified in existing literature underscore the necessity for the current study, which aims to focus specifically on fish vendors, an area that remains underexplored in the context of ET and its moderating effects.

Ha2: Entrepreneurial training positively moderates the relationship between the group lending approach and the livelihood status of fish vendors

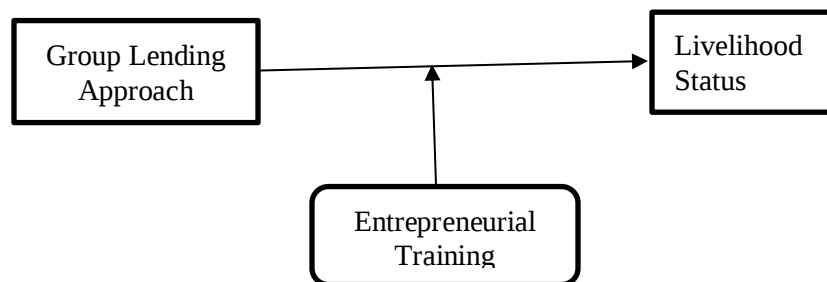


Fig 1. The Conceptual Framework of the Study

3. MATERIALS AND METHODS

Study Philosophy

Research philosophy, as described by Saunders et al. (2019), involves the systematic collection and analysis of data to uncover specific truths. This concept encompasses a metaphysical stance in which researchers reflect upon the social world they seek to understand. Within this domain, several major paradigms exist, including interpretivism, positivism, post-positivism, and realism (Mitchell, 2018).

Positivism, a philosophical approach advanced by Auguste Comte in the 18th century, asserts that knowledge must be objective, devoid of researcher bias, and quantifiable (Maretha, 2023). In the present study, positivism was selected as the guiding philosophy due to its deductive nature, which enables researchers to test hypotheses independently of the facts themselves, thereby ensuring that personal biases do not influence the findings. This approach facilitates the generation of explanatory relationships, which can further lead to predictions and effective control over various situations. Additionally, the adoption of the positivist framework is justified as it supports the process of natural generalization, allowing for conclusions and recommendations about phenomena to be derived from quantitative methods (Zukauskas et al., 2018; Mitchell, 2018).

Study Approach

In their frameworks, Saunders et al. (2019) and Cresswell (2007) articulate a research approach as a systematic plan encompassing a sequence of procedures essential for transitioning from overarching assumptions to thorough data analysis and interpretation methods. The judicious implementation of research methodologies is crucial for yielding valid and reliable outcomes, thereby facilitating informed decision-making (Santor et al. 2011). This study employed a deductive approach, characterized by its emphasis on deriving insights from general principles to specific data, thereby illustrating the relationships among variables. Afoakwah (2024) and Meisa et al. (2024) highlight that the deductive method fosters a structured framework for knowledge acquisition and hypothesis testing, which is advantageous for quantitative assessments of concepts and the broader contextualization of research findings. Consequently, employing a deductive approach to explore the impact of LGA micro-credits on the livelihood status of fish vendors—especially in light of the moderating role of entrepreneurial training—proved to be an appropriate

strategy for quantitatively measuring key concepts.

Study Design and Strategy

The study design plays a crucial role in establishing a structured approach to address specific research questions or hypotheses, as articulated by Saunders et al. (2019) and Sass & Smith (2011). In this context, an explanatory research design was deemed appropriate for the study, as it focuses on assessing causal relationships and the effects of various variables (Hossi & Berk, 2023). This design effectively accommodates the complexity of interconnected variables relevant to the research, which include loan accessibility, zero-interest rates, group lending approaches, and entrepreneurship training. These factors collectively moderate the impact on the livelihoods of fish vendors who are beneficiaries of local government authority (LGA) micro-credits, as noted by Cooper & Schindler (2014).

Additionally, the implementation of a cross-sectional survey strategy proved beneficial, as it facilitates the cost-effective collection of quantitative data from a sizable population. Data were gathered once from a sample population representing the target demographics. This methodological approach enriches the ability to analyze quantitative data, enabling researchers to forecast, depict, and examine causal relationships effectively through a deductive lens (Saunders et al. 2019). Furthermore, it supports the collection, maintenance, and analysis of primary data (Lestari et al., 2020). The use of a cross-sectional survey aligns with the positivism paradigm, accommodating the timeline of the study while offering flexibility in data collection and analysis pertinent to the study's objectives and the application of inferential statistics.

Target Population

Cooper and Schindler (2014), along with Saunders et al. (2019), define a survey population as a collection of units from which data is obtained or the entirety of the population unit that survey data represents. In the context of this study, the term "population" refers to a specific group of individuals from whom samples are drawn, with the findings intended to reflect the broader group's realities. The population for this investigation consists of beneficiaries of interest-free microloans provided under the amendment of the LGF Act Cap 290, section 37A, enacted in 2018, which followed the parliamentary introduction in Tanzania in 1993. The focus of the study is on three Local Government Authorities (LGAs) that are associated with micro-loan beneficiaries. Specifically, the target population includes 624 fish vendors from three areas: the Kigamboni Municipal Council (KGMC) in Dar es Salaam, Ilemela Municipal Council (IMC), and Mwanza City Council (MCCA) in Mwanza.

Study Area

Saunders et al. (2019) articulate that the survey area represents a specific geographical locality where research aims to conduct an inquiry to uncover truths regarding an event. In this study, the investigation site is confined to Local Government Authorities (LGAs) that identify fish vending as one of their principal economic activities. Specifically, the study focuses on Kigamboni District (KGMC) in Dar es Salaam, and Ilemela Municipal Council (IMC) and Nyamagana Municipal Council (MCC) in Mwanza. These LGAs have been selected due to their proximity to significant water bodies, namely the Indian Ocean and Lake Victoria, respectively. It is posited that residents

in these areas are more inclined to engage in fishing activities compared to those residing further inland, away from such resources.

Furthermore, the choice of these LGAs is further justified by the existence of substantial fish markets, including the Feri Fish Market in Dar es Salaam and the Mukuyuni and Kirumba fish markets in Mwanza, which incentivize local populations to participate in fishing endeavors. Additionally, the selected LGAs boast a considerable number of fish vendors who have benefited from government-provided, interest-free micro-credits available through local authorities. To ensure a relevant sample, the researcher incorporated groups of fish vendors who had secured loans at least one year before the study, thereby allowing for a nuanced analysis of the impacts of financial support on their fishing activities and livelihoods.

Sampling Design and Procedures

Broadly, sampling designs can be classified as either probability or non-probability. Given the positivist nature of the study, two sampling techniques were employed: proportionate sampling and stratified random sampling design (Creswell, 2007). The Daniel sampling formula was used to obtain a proportionate sample from each of the three selected Local Government Areas (LGAs). Subsequently, the stratified random sampling method, a refined version of probability sampling, was applied. This approach involved grouping the sample frame into strata, allowing the researcher to precisely extract multiple samples from each ward containing fish vendors who had secured loans within the selected LGAs (Thomas, 2020; Saunders et al., 2019).

All wards within the three selected LGAs with micro-credit beneficiaries were identified, and respondents were sampled proportionately and randomly from each group in every ward to ensure a balanced total sample (see Table, Appendix 1). These designs were implemented to provide equal opportunities for members of the population to participate, thereby minimizing researcher bias and reducing the likelihood of systematic errors (Santor et al., 2011; Visser et al., 2000).

Sample Size of the Study

Sample size refers to a selected subset of the study population from which researchers gather responses (Saunders et al. 2019). In this study, the target population comprised 624 fish vendors, broken down into 297 from IMC, 244 from MCC, and 83 from KGMC. A total of 337 respondents were included in the analysis, with 82 from IMC, 82 from MCC, and 42 from KGMC. The Daniel formula was employed to determine the proportionate distribution of samples across the three chosen local government areas (LGAs). This methodological approach ensures a representative sample that reflects the broader population of fish vendors.

The formula Daniel (1999) for sample size states that:

$$n = \frac{z^2 \times p \times (1-p) / e^2}{1 + (z^2 \times p \times (1-p) / (e^2 \times N))}$$

Where: $z = 1.96$ for a confidence level (α) of 95% (0.05), $p =$ proportion 30% (expressed as a decimal 0.3), $N =$ population size, $e =$ margin of error.

Fish vendors from KGMC were 82.

$$n = \frac{[1.96]^2 \times 0.3 \times (1-0.3) / [0.05]^2}{1 + ([1.96]^2 \times 0.3 \times (1-0.3) / ([0.05]^2 \times 83))}$$

$$322.6944/4.88788 = 66.019 \approx 66$$

Fish vendors from MCC were 244.

$$n = \frac{[1.96]^2 \times 0.3 \times (1-0.3) / [0.05]^2}{1 + ([1.96]^2 \times 0.3 \times (1-0.3) / ([0.05]^2 \times 244))} \\ 196.843584 / 1.416736 = 138.9416 \approx 139$$

Fish vendors from IMC were 297.

$$n = \frac{[1.96]^2 \times 0.3 \times (1-0.3) / [0.05]^2}{1 + ([0.05]^2 \times 0.3 \times (1-p) / ([0.05]^2 \times 297))} \\ 322.694 / 2.0865 = 154.657 \approx 154$$

Therefore, the sample size was 66+139+154 from KGMC, MCC, and IMC, respectively, making a total sample of 359 fish vendors who benefited from the LGAs' micro-credits offered via LGAs' 10% own source annual revenues from the respective councils.

4. RESULTS AND DISCUSSIONS

Data preparation encompasses two critical components: data cleaning and coding. Data cleaning involves a comprehensive process of identifying and rectifying errors, removing duplicate entries, and detecting missing data that could potentially compromise the accuracy of the dataset (Tabachnick & Fidell, 2013). Throughout the data preparation phase, the researcher meticulously assessed the dataset for any incompleteness or inconsistencies to ensure its integrity. Kumar (2011) highlighted the necessity of cleaning raw data to mitigate issues such as incompleteness, gaps, misclassification, and errors. Following the cleaning process, the data was coded and subsequently entered into IBM SPSS version 27. This software was employed to further refine the dataset before it was imported into SmartPLS 4, which was used for model measurement and structural model assessments.

Missing Data

Missing data is defined as instances where respondents fail to provide answers to one or more questions, resulting in unavailable values that may adversely affect the outcomes of data analysis (Hair et al., 2010). Generally, missing values comprising no more than 1% of the total dataset do not present significant issues; values around 5% pose a manageable risk, while those exceeding 15% indicate a severe challenge that can compromise the integrity of the research findings (Acuna & Rodrigues, 2004). Consequently, it is essential to address missing values either through pre-replacement strategies or by utilizing the Expected Maximization (EM) approach (Adebambo et al., 2014).

In the current study, a pre-replacement strategy was implemented, whereby an additional 40 questionnaires (10% of the sample) were incorporated prior to the actual data collection (Ogbolu, 2021). A face-to-face, self-administered questionnaire method was utilized, wherein respondents were instructed to complete the questionnaires individually. The researcher trained two assistants from each surveyed ward to facilitate this process. A total of 399 questionnaires, including the 40 replacement questionnaires, were distributed. All questionnaires were returned and subsequently screened for missing data. After a thorough inspection, it was determined that 28 questionnaires (7%) contained missing values, which were addressed through listwise deletion, as the pattern of missing data was found to be completely at random (MCAR).

Therefore, the listwise deletion method was employed to eliminate these 28 questionnaires, including the replacements (Tabachnick and Fidell, 2013). As a result, 371 questionnaires (94%

of the total) were identified as suitable for data analysis. Hair et al. (2023) propose that missing values occurring completely at random can be disregarded in a dataset if they constitute less than 10% of the total cases, as their exclusion does not significantly diminish the sample size. In the present study, 7% of the total sample exhibited missing values, indicating an insubstantial impact on the overall analysis. Consequently, the data analysis process proceeded without impediment.

Outliers

Outliers indicate the presence of anomalous data that deviates from its normal variability (Wong, 2019). These outliers can distort the normal distribution of data, leading to potentially false findings. This is particularly important because normality is a critical assumption in structural equation modeling (SEM) (Hair et al., 2021; Ghasemy, 2020). In this study, outliers were identified and removed from the dataset prior to further analysis. This process utilized a variety of methods, including a range of questionnaires scored from 1 to 7, box plots, and standardized values (z-scores) with a threshold of ± 3.29 . Specifically, standardized values (Z-scores) for items exceeding this cut-off point were examined.

All constructs in the dataset adhered to the 1-7 scoring range (see Appendix 10). Box plots indicated a few significant outliers, represented by circles rather than stars, suggesting they would not impact the results (see Appendix 11). To ensure the integrity of the dataset, the researcher analyzed the standardized values (Z-scores) using the threshold of ± 3.29 . The findings revealed that no values exceeded this threshold, confirming the dataset was statistically sound for further analysis.

Testing Essential SEM-PLS Assumptions

The author tested the essential the essential statistical assumptions for PLS as a multivariate data analysis to confirm normality and linearity of dataset before measurement and structural assessment of the model. (Hair et al, 2021; Kline, 2023). Here is the results confirmation:

Collinearity Test

The study examined collinearity statistics to determine if the independent variables were highly or moderately correlated. Collinearity was evaluated based on the explanatory and predictive power of the independent variable indicators (Hair et al., 2021; Rademaker et al., 2020; Sarstedt & Cheah, 2019). The analysis utilized tolerance values and variance inflation factors (VIF) in a regression model to assess the collinearity among the independent variables. Tolerance values and VIF indicate how much independent variables do not explain each other. A tolerance value below or equal to 0.10 or a VIF of 5 or greater signifies the presence of multicollinearity among the independent variables (Hair et al., 2021; Ghasemy et al., 2020). As illustrated in Table 4.6, all independent variables in the model had tolerance values greater than 0.10 and VIF values less than 5. Therefore, multicollinearity is not a concern in this study.

Measurement Model Assessment

The quality of the model was assessed using model measurement via establishing the relationship between latent variables and their indicators. Thus, reliability and validity of constructs were evaluated. Therefore, reliability observed via factor loadings of each indicator, Cronbach's Alpha,

composite reliability while constructs validity assessed through convergent and discriminant validity applied to extract model quality.

Factor Loadings

The construct factor loading indicates the extent to which construct item/ indicator describes a latent construct of either dependent or independent construct. Factor loading indicates the degree to which an indicator defines a construct. According to Hair et al., (2019) individual construct factor loading from 0.70 and above to 0.95 imply a contribution of more than 50% to description of respective construct, therefore shows that reliability is attained. On the other hand, indicators with factor loading below 0.70 imply less than 50% contribution to construct hence need to be removed from the model if impact negatively on reliability value, and for indicator that have 0.4 and below factor loading need to be removed from the model.

In respect to this study, the model at first some indicators botched to attain the factors loading threshold of 0.70 or above, some indicators failed to meet the factor loadings threshold of 0.70 or above and were some removed. These included LS9 and LA4 Indicators from livelihood status and loan accessibility respectively that were removed from the study model. Indicators LS8, LS3, from livelihood status, GL2, FI2, from free interest rate, LA3, and LA5 from loan accessibility had not attained 0.70 or above but had not 0.40 or below. They were not removed from the model because their removal affected the Cronbach's Alpha and composite reliability negatively.

Reliability and Validity Assessment

Hair et al., (2021) and Saunder et al., (2019) infers reliability as Reliability as a degree to which the data collection methodologies and analytic dealings would come out with indistinguishable findings by carrying out the same study. On the other had validity try to find out whether study measurement tool measures what it is designed to measure. Estimation of reliability was performed using Cronbach's alpha and composite reliability at the required threshold of 0.70 or above while evaluation of construct validity performed using divergent and discriminant validity based on Average Variance Extracted (AVE), HTMT, Fornell-Larcker Criterion and cross loadings.

Cronbach's Alpha Reliability Result.

According to Hair et al., (2021) Cronbach's Alpha is a measure of indicators internal consistency. It measures how construct indicators relate to each other. The assumption of Cronbach's Alpha is that all indicators in a construct have factor loading 0.7 and above. Thus, a value that equates to 0.70 and above qualifies to establish construct validity (Hair et al., 2021; Civelek, 2017). Table 4.7 illustrates that all constructs have Cronbach's alpha greater than 0.70, hence all constructs are reliable.

Composite Reliability Result

According to Hair et al., (2019) Cronbach's Alpha and Composite reliability measures the internal consistency of indicators considering the varying factor loadings of the indicators of the constructs. Moreover, Cronbach's alpha is radical while composite reliability is liberal. It is recommended that a composite reliability of 0.70 or above value is suitable to establish reliability (Park et al. 2020; Hair et al., 2019). As observable via table 4.7 the composite reliability results are far above the recommended threshold. It implies that model construct's reliability of the study is highly

established. Table 4.7 displays the values for composite reliability as they were estimated by smart PLS software.

Convergent Validity Result

Park et al., (2020), Hair et al., (2019) and Saunders et al., (2019) the sum of squared loadings and it sum divided by total number of indicators make the average variance extracted (AVE). That means the measure of how much indicators are correlated to the construct the measure. It is established at the threshold of 0.5 or above. The average variance extracted (AVE) above or equal to 0.5 or above. In Table 4.7, it is demonstrated that convergent validity is established since all constructs have an AVE at value that is above 0.50.

Table for Cronbach's Alpha, Composite Reliability and Average Variance Extracted (AVE)

Construct	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
ET	0.851	0.865	0.890	0.575
GL	0.851	0.860	0.901	0.698
LS	0.881	0.888	0.906	0.548

Source: Field Data (2024)

Discriminant Validity Result

Park et al., (2020); Hair et al., (2019) defines discriminant validity as a measure of degree at which indicators of one construct differ from the indicators which measure another construct. In this study discriminant validity was assessed via Heteroit Monotrait ratio (HTMT), Fornell-Larcker Criterion, and cross loadings. HTMT was preferred to notice validity issues that might not be detected by cross loadings (Henseler, Ringle & Sarstedt, 2015). It is recommended that HTMT of value less than 0.90 for similar constructs and HTMT value less than 0.85 for different constructs imply discriminant validity (Hair et al., 2019). Table 4.8 shows that all HTMT values are less than 0.85 for each construct; hence the study had attained constructs discriminant validity.

Table for Heteroit Monotrait Ratio (HTMT)

	ET	GL	LS	ET x GL
ET				
GL	0.782			
LS	0.739	0.849		
ET x GL	0.096	0.083	0.167	

Source: Field Data (2024).

To have more assurance of on constructs discriminant validity, the study used Fornell Larcker Criterion. Fornell Larcker Criterion proposes that the square root of average value extracted (AVE) of each latent constructs have to be greater than its correlation from other latent variables. The study attained the Fornell Larcker Criterion as the square root of each latent construct had been greater than its correlation of another construct as illustrated in Table 4.9.

Table for Fornell Larcker Criterion Result

	ET	GL	LS
ET	0.759		
GL	0.670	0.835	
LS	0.652	0.792	0.740

Source: Field Data (2024).

Structural Model Assessment

Model Predictive Power (R2) and Relevance (Q2)

According to Hair jr et al., (2022) and Hair et al, (2019) Fit indices are essential for CB-SEM rather PLS-SEM. PLS-SEM require model predictive power (R2) and relevance (Q2), this is due to fact that model fit indices is less effective in detecting model misspecifications. The R2 statistics assess the explanatory power of the model, describes the extent to which single more independent constructs influence change in the dependent constructs. It is recommended that the value of R^2 be not less than 0.1 or above (Raithel, Sarstedt, Scharf, & Schwaiger, 2012). On the other hand, Q^2 measures the predictive relevance of the model i.e. whether or not the model predicts what is ought to predict. Q^2 is ought to be greater than 0 to be relevantly predicting the dependent variable (s) (Hair et al, 2019). As illustrated via table below livelihood status as principle dependent variable had R^2 value of 0.709. This R^2 values are beyond the proposed threshold therefore the study established R^2 . The study also attained Q2 as displayed in the table below, LS had Q^2 of 0.483 and 0.677 consecutively. Moreover, model effect size was assessed and reveled less than 0.02 implying small effect size.

Table for R2 and Q2 Result

	R-square	Q^2 predict	F^2 predict
LS	0.709	0.677	≥ 0.02

Source: Field Data (2024)

Total Direct Effects Result

Total effects evaluation focused at realizing effect of LGAs micro-credits policies particularly, group lending (GL) on livelihood status (LS) beneficiaries based on fish vendors. The P-values at the threshold of less than 0.05 for each variable considered significant (Hair et al., 2019). Table below group landing (GL) effects livelihood status of fish vendors' loan beneficiaries at a p-value of 0.000 and T-value of 7.897.

Table for Direct Total Effects

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
GL -> LS	0.524	0.512	0.066	7.897	0.000

Source: Field Data (2024)

Group Lending and Livelihood Status

Assessing the impact of group lending approach on livelihood status of fish vendors as

beneficiaries of LGAs micro-credits in Tanzania. The study findings affirmed that group lending positively and significantly improves livelihood status of fish vendors in Tanzania. Thus, the hypothesis was supported. This means that fish vendors as beneficiaries of LGAs micro-credits can utilize the secured loan effectively and improve their livelihood via their groups rather individually.

The study findings correspond to various previous studies such as; Borthakur & Boruah (2023) who examined impact of micro-finance on rural women economic improvement in Bangladesh when applying group lending approach. The paper found a significant contribution of micro-credit through SHGs to women's economic empowerment. Though the study shares results with current study the contextual difference and focus on women might still be a challenge. Also, Group lending methodologies found the most significant connectedness to informal borrowers and repayment enforcement by Ario (2020) in Indonesia. Though, these studies share result, differs in that other focused on informal borrowers while the current study focused of fish vending business rather, they differ in analysis techniques.

The study findings also assert with Ghosh et al. (2023) who evaluated the impact of group lending intervention and entrepreneurial traits on the socio-economic empowerment of rural women. A study used 344 sample of women with income generating activities was purposefully sampled and data analyzed via regression model. The study found significant positive association between group lending and rural women's income, asset ownership, and savings. Thus, the Ghosh et al (2023) confirms the findings of the current study though it focused at rural women owners of income generating activities rather the current study that concreted on fish vendors LGAs micro-credits beneficiaries.

Moreover, Niyitegeka & Mulyungu (2018) studied the contribution of the group lending approach to the socio-economic status of SMEs in Rwanda. The study used mean, frequencies, and correlations to analyze primary data. The study found a significant association between group lending and savings, expenditure, and household consumption control of SME members. Therefore, study findings confer that group lending improves the livelihood of poor beneficiaries based on fish vendors by assuring access to capital, fostering community solidarity, initiation of income-generating activities, group lending is accompanied by entrepreneurial education. Study findings also imply that group lending is effective for poverty reduction and financial inclusion.

Moderation Effect Analysis of Entrepreneurial Training

Discovering moderating effect was the principal study target. Moderation analysis focused at assessing whether entrepreneurial training had moderation effect on the relationship between LGAs micro-credits group lending approach and livelihood status of micro-credits beneficiaries particularly dealing fish vending business.

Moreover, the study was interested at examining the effect magnitude (F^2) of the moderation effect thus; 0.02 small effect, 0.15 medium effect and 0.35 large effect (Hair, et al., 2019). Table below illustrates that the relationship between group lending (GL) and livelihood status is moderated by entrepreneurial training (ET) at p-value of 0.008 and T-value of 2.656. This implies that, entrepreneurial training has medium moderation between LGAs micro-credit group lending approach and livelihood status of fish vendors as beneficiaries.

Table for Moderation Analysis Result

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T (O/STDEV)	statistics P values
ET x GL -> LS	-0.203	-0.190	0.076	2.656	0.008

Source: Field Data (2024)

Table for study Result summary

S/N	Hypothesis	Result revealed
1	There is a positive association between group lending approach and the livelihood of fish vendors	Accepted
2	Entrepreneurial training positively moderates the relationship between the group lending approach and the livelihood status of fish vendors	Accepted

Source; Field Data (2024)

Theoretical Implications

In this study, the implication for theory is based on the fact that the study provided macro-credit and human capital models as illustrated via conceptual framework. That all the constructs that developed into study objectives deduced from these theories. The study also, ought to be used a source of reference for different scholars that used micro-credits and human capital theories. This study anticipated and verified these theories by using their assumptions and incorporated the moderation effect of entrepreneurial training.

Therefore, theoretical implication in the study is revealed through confirmation that loan accessibility and group lending approach as microcredit elements impact livelihood status.

Practical and Policy Implications

The findings of the study are useful to policymakers, government authorities and LGAs during the formulation of plans, strategies and interventions focused at improving the successfulness of attaining the intend goals from the program (LGAs micro-credits program) in Tanzania. This study brings useful information for government via LGAs mandated to provide micro-loan to their member citizen to have insights for adjustments of policies, rules and regulations aimed at making the program of government micro-credit effective hance improve livelihood status of beneficiaries including fish vendors.

5. CONCLUSION

In respect to study findings of the study discovered that group lending impact positively livelihood status of fish vendors. Therefore, practically in order to continue improving livelihood status of fish vendors, there should be strictness of attending borrower of LGAs micro-credits in groups rather individually. Therefore, the study urges LGAs to continue providing their micro-loans to borrowers in groups rather than shifting to providing to individuals. Hence, LGAs as micro-credit providers should stick with group lending approach in providing the micro-credits based on the

required criteria of the needy as stipulated in the policy.

Moreover, formulation of plans, policies for administrations and implementation of study should be centered on making sure that LGAs micro-credits supply into groups this is due to fact that with group lending approach LGAs program found to improve livelihood status of beneficiaries through aiding business that in-turn used for issues such as payment of children school fees, renovating or building living houses, meeting the household consumptions and savings increase.

REFERENCES

- Abimbola, O. A. (2021). Understanding the factors influencing loan repayment performance of Nigerian microfinance banks. *Journal of Management Sciences*, 4(3).
- Adarsh, R., Sivasubramanian, K., & Kumarasamy, P. (2024). Assessment of Economic Empowerment Through Micro-finance for Sustainable Business: A Study on Woman Vegetable Vendors in Chennai. In *Intelligent Systems, Business, and Innovation Research* (pp. 203-212). Cham: Springer Nature Switzerland.
- Adero, L. A., & Kariuki, G. M. (2020). Effect of microfinance interventions on financial empowerment of women a case of Mombasa County, Kenya. *The Strategic Journal of Business & Change Management*, 7(4), 572-590.
- Ahmed, R., Ayyoub, M., Iqbal, M., & Barkat, W. (2023). Investment in Human Capital and Manufacturing Enterprise Productivity: Evidence from Pakistan. *Journal of Asian Development Studies* Vol, 12(3).
- Ajah, E. A., Etowa, E. B., Effa, E. B., Ofem, U. I., Iso, H., Ettah, O., & Asuquo, I. A. (2024). Financial Inclusion of Urban Agro-Processors: Effect of Credit On Poverty Status of Roasted Plantain Vendors in Calabar, Nigeria. *African Journal of Food, Agriculture, Nutrition and Development*, 24(1), 25468-25488.
- Al Mamun, M. A., Al Mamun, M. A., & Rahman, M. A. Role of microcredit on street vendors: Study on selected districts of Bangladesh.
- Al-shami, S. A., Al Mamun, A., Rashid, N., & Al-shami, M. (2021). Microcredit impact on socio economic development and women empowerment in low-income countries: Evidence from Yemen. *Sustainability*, 13(16), 9326.
- Anjum, M. N., Rehman, A., Khan, M. N., Saqib, R., Fayaz, M., & Javed, I. (2020). Impact of microfinance on socio-economic status of farmers in district Dera Ismail Khan. *Sarhad Journal of Agriculture*, 36(3).
- Becker, G. S. (1975). Investment in human capital: effects on earnings. In *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*, Second Edition (pp. 13-44). NBER.
- Blundell, R., Dearden, L., Meghir, C., & Sianesi, B. (1999). Human capital investment: the returns from education and training to the individual, the firm and the economy. *Fiscal studies*, 20(1), 1-23.
- Bonner, R. L., Neely, A. R., Stone, C. B., Lengnick-Hall, C. A., & Lengnick-Hall, M. L. (2023). Triaging your human capital: an integrative perspective on strategic human capital asset allocation. *Management Research Review*, 46(3), 467-482.
- Braunerhjelm, P., & Lappi, E. (2023). Employees' entrepreneurial human capital and firm performance. *Research Policy*, 52(2), 104703.
- Bwambale, K., Vargas, D., Baltazar, E., & Cuaresma, P. (2021). Effects of Microfinance

-
- Services on Clients' Socio-Economic Status: A Case of Community Development Microcredit Finance Company Limited (Cdm) in Busika, Kalagala, Luwero District, Uganda. Kalagala, Luwero District, Uganda (February 15, 2021).
- Charles, G. (2022). Effects of Interest Rate Ceiling on Sustainability of Microfinance Institutions: Lessons from Tanzania. *Business Management Review*, 25(2), 118.
- Chongela, J., Danga, M., & Katunzi, M. (2022). The Contribution of Revenue Collection Actors in OwnSource Revenue Mobilizations: A Case of Four Local Government Authorities in Tanzania Mainland. *Journal of Research Innovation and Implications in Education*, 6(3), 491-500.
- Chowdhury, M. A. M., & Che Mohd Salleh, M. (2017). The Impact of Micro Credit on Financial Condition and Socio-Economic of Women Entrepreneurs in Bangladesh. *International Journal of Accounting, Finance and Business(IJAFB)*, 2(6), 38-49.
- Daniel WW (1999). *Biostatistics: A Foundation for Analysis in the Health Sciences*. 7th edition. New York: John Wiley & Sons.
- Dayo, M. Q., Chandio, F. R., & Rahpoto, M. S. (2023). Socio–Economic Effects of the Microfinance Services on the Women in Sindh: A Case Study of the First Microfinance Bank District Larkana. *Bulletin of Business and Economics (BBE)*, 12(4), 502-509.
- Fowowe, A. S., Anifowose, O. L., Akindare, S., & Adedeji, O. A. (2022). impact of microfinance banks on business expansion capacity and performance of women food vendors in the FUTA environment. *KIU Interdisciplinary Journal of Humanities and Social Sciences*, 3(1), 303-324.
- Ghasemy, M., Teeroovengadam, V., Becker, J.-M., & Ringle, C. M. (2020). This fast car can move faster: A review of PLS-SEM application in higher education research. *Higher Education*, 80, 1121–1152
- Ghorbani, H. (2019). Mahalanobis distance and its application for detecting multivariate outliers. *Facta Universitatis, Series: Mathematics and Informatics*, 583-595.
- Gupta, T., & Singh, U. B. (2024). Does group maturity affect savings and investment behaviour of women: empirical investigation of self-help groups in Uttar Pradesh. *Journal of Asian and African Studies*, 59(6),
- Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., Ray, S., ... & Ray, S. (2021). An introduction to structural equation modeling. Partial least squares structural equation modeling (PLS-SEM) using R: a workbook, 1-29.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). [Partial least squares structural equation modeling](#): Rigorous applications, better results and higher acceptance. *Long range planning*, 46(1-2), 1-12.
- Hartono, J., Cottrell, M., Window, P., & Russell, T. (2024). Performance of key physical tests for temporomandibular disorder via telehealth: Establishing Validity and reliability. *Journal of Oral Rehabilitation*, 51(4), 648-656.
- Iqbal, M (2023), Mawardi, M. K., Sanawiri, B., Alfisyahr, R., & Syarifah, I. (2023). Strategic orientation and its role in linking human capital with the performance of small and medium enterprises in Indonesia. *Journal of Research in Marketing and Entrepreneurship*, 25(3), 514-542.
- Jamal, W. N., Hafeez, R. M. Z., Shafique, O., Razzaq, R., Asif, G., & Ashraf, M. W.(2021).
-

-
- Impact of microcredit finance on the socio-economic status of the underprivileged populace of Punjab: Through the mediating effect of knowledge sharing ability and Financial and legal awareness. *Bulletin of Business and Economics (BBE)*, 10(4), 113-125.
- Kessy, A. T. (2020). The demand and supply sides of accountability in Local Government authorities in Tanzania. *Public integrity*, 22(6), 606-625.
- Khan, M., & Bedi, A. S. (2022). Returns to Interest-free Microcredit: evidence from a Randomized Experiment in Pakistan. *Journal of Development Effectiveness*, 14(2) 93-107.
- Kimaro, P. J. (2023). Role of savings and credit Cooperative societies on women socio economic empowerment: A case of brac microfinance institution in moshi municipality, kilimanjaro region, Tanzania. *Tanzania. Journal of Studies in Social Sciences and Humanities*, 9(1), 41-57.
- Kline, R. B. (2023). *Principles and practice of structural equation modeling*. Guilford publications.
- Lestari, S. D., Leon, F. M., Widyastuti, S., Brabo, N. A., & Putra, A. H. P. K. (2020). Antecedents and consequences of innovation and business strategy on performance and competitive advantage of SMEs. *The journal of Asian finance, economics and business*, 7(6), 365-378.
- ental and Energy Economics, 1-10. *English Journal (WEJ)*, 8(2), 1-13. 2011-2026.
- Luo, Y. (2021). Boundaries of Microfinance: A Case Study of Microfinance Business of CD Finance. In *Inclusive Finance in China* (pp. 27-74). Singapore: Springer Singapore.
- Magesa, R. J., Sewando, P. & Mkenda, L. D. (2024). Fish Value Addition Practices by Women Fish Vendors in Dar Es Salaam: A Case of Mackerel Fish East African *Journal of Business and Economics*, 7(1), 63-71. <https://doi.org/10.37284/eajbe.7.1.1793>
- Mahalanobis, P. C. (1936). On the generalized distance in statistics. *Proceedings of the national institute of sciences, India*, 2(1), 49 – 55.
- Mahmud, K. T., Haque, A. M., Wahid, I. S., Parvez, A., & Kabir, F. (2022). Impact of microcredit on the household income and expenditure of the fish farmers: Bangladesh perspective. *Aquaculture Economics & Management*, 26(1), 118-130.
- Malamsha, K.C.T. (2023). Effectiveness of microcredits provision by Women Development Fund on enhancing household wellbeing in Tanga City, Tanzania. *East Africa Journal of Social and Applied Sciences*, 5(1):29-40.
- Malipula, M. M. (2023). SMEs sustainability through entrepreneurship training in Tanzania. *Journal of Enterprise and Development (JED)*, 5(3), 384-397.
- Mamman, M. B., Umar, M., & Yusufu, M. (2023). Impact of Microcredit on Poverty among Women in Yola North and Yola South Local Government areas, Adamawa state. *Journal of Management Science and Career Development*.
- Marginson, S. (2017). Limitations of human capital theory. *Studies in Higher Education*, 44(2), 287–301. <https://doi.org/10.1080/03075079.2017.1359823>
- Meisa, R., Ikhsanudin, I., & Rosnija, E. (2024). The effectiveness of selected songs on spotify to continuous tenses mastery through deductive approach. *Wiralodra*.
- Mkama, S. I. The Influence of Entrepreneurial Training on Business Performance of

-
- Women Food Vendors in Ilala Municipality, Tanzania: Mediating Role of Product Innovation/Service Innovation. *RUAHA JOURNAL OF ARTS AND SOCIAL SCIENCES (RUJASS)*, 1.
- Mtunda, J. D. (2023). Accessibility of Local Government's Mandatory Free Interest Loans on Women Socio-Economic Welfare: A Case Study of Temeke Municipal Council, Tanzania. *European Business & Management*, 9(5), 85-93.
- Mushi, G. J. (2023) Informal fish Vending and Livelihood Implications among Urban based Women Vendors in Dar es Salaam, Tanzania. *East African Journal of Education and Social Sciences (EAJESS)*, 4(2), 175-183.
- Njuguna, J. M., & Njagi, G. N. (2023). Effect of Microfinance Practices on Growth of the Bodaboda Industry in Kenya; A Case of Kamukunji Sub-County. *Journal of Business Management and Economic Development*, 1(03), 540-555.
- Peng-Zhou, J., & Song, X. (2024). TESTING FOR SKEWNESS, KURTOSIS, AND NORMALITY UNDER SELF-NORMALIZATION. *KURTOSIS, AND NORMALITY UNDER SELF-NORMALIZATION* (May 01, 2024).
- Prince, S. A., Wahid, I. S., & Khan, H. T. (2022). The mediating influence of motivation on microcredit training and capital creation. *Journal of Poverty*, 26(2), 93–121.
- Raaijmakers, Q. A. W. (1999). Effectiveness of Different Missing Data Treatments in Surveys with Likert-Type Data: Introducing the Relative Mean Substitution Approach. *Educational and Psychological Measurement*, 59(5), 725–748. <https://doi.org/10.1177/0013164499595001>
- Rademaker, M. E., Schuberth, F., Schamberger, T., Klesel, M., Dijkstra, T. K., & Henseler, J. (2020). R package cSEM: Composite-based structural equation modeling version 0.3.0 [computer software]. Retrieved from: <https://cran.r-project.org/web/packages/cSEM/>
- Rahman, M. M. (2023). Sample size determination for survey research and non-probability sampling techniques: A review and set of recommendations. *Journal of Entrepreneurship, Business and Economics*, 11(1), 42-62.
- Rejula, K., Ashaletha, S., Suresh, A., Gopal, N., & Mohanty, A. K. (2023). Women fish vendors in Kerala, India: an analytical study of access to inputs and services. *Gender, Technology and Development*, 27(3), 387-399.
- Samreth, S., Aiba, D., Oeur, S., & Vat, V. (2023). Impact of the interest rate ceiling on credit cost, loan size, and informal credit in the microfinance sector: evidence from a household survey in Cambodia. *Empirical Economics*, 65(6), 2627–2667.
- Santor, D. A., Haggerty, J. L., Levesque, J., Burge, F., Beaulieu, M., Gass, D. and Pineault, R. (2011). An overview of confirmatory factor analysis and item response analysis applied to Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research methods for business students* (8th ed.) Pearson Education
- Sarstedt, M., & Cheah, J. H. (2019). Partial least squares structural equation modeling using SmartPLS: A software review. *Journal of Marketing Analytics*, 7(3), 196–202.
- Sarstedt, M., Hair, J. F., & Ringle, C. M. (2022). Partial least squares structural equation modeling. In C. Homburg, M. Klarmann, & A. Vomberg (Eds.), *Handbook of Market Research*. Cham: Springer.
-

-
- Shafique, O., & Khan, R. M. N. (2020). An Empirical Study on the Impact of Micro Credit Financing on the Socio-Economic Status of Small Agriculturists.
- Stephanie, M. M. E., Herna, F. M. E., Monah, N. L., & Eyong, J. A. (2021). Economic Analysis of Fish Traders Access to Formal Finance in Cameroon. *Review of Socio-Economic Perspectives*, 6(202183), 67-78.
- Thomas, L. (2020). How to use stratified sampling. Retrieved online on 23rd March, 202 from <https://www.scribbr.com/methodology/stratified-sampling/>
- Tshishonga F, N. S. (2024). Advancing Economic Participation Through Student Entrepreneurship in Higher Education in Select South African Universities. In *Advancing Student Employability Through Higher Education* (pp. 311-326). IGI Global.
- Wondirad, H. A. (2022). Interest rates in microfinance: what is a fair interest rate when we lend to the poor? *Quality & Quantity*, 56(6), 4537-4548.