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RURAL MICROFINANCE AND BUSINESS OWNERSHIP OUTCOMES
A CASE OF TANZANIA EDUCATIONAL AND MICRO BUSINESS OPPORTUNITY
(TEMBO) LOAN AND NON-LOAN RECIPIENTS IN LONGIDO DISTRICT, TANZANIA

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List of Abbreviations

| | |
|-------|---|
| FGM | Female Genital Mutilation |
| GGI | Gender Gap Index |
| MFI | Microfinance Institution |
| TEMBO | Tanzania Education and Micro-Business Opportunity |
| USD | United States Dollar |

Abstract

The study takes place in a rural area of Tanzania with gender barriers that are extremely difficult to overcome on a cultural level. This research examines outcomes for women in Longido District, Tanzania along the lines of MFI participation, education levels, financial variables, and empowerment variables. This study intends to elaborate this theory by examining the role that education plays in the success of Microfinance Institutions (MFI's). It was found that MFI participation is correlated with increased financial and overall independence. Higher levels of education are found to be correlated with increased income, financial independence, personal empowerment, and overall independence. Additionally, it was found that access to banking, access to credit, owning multiple assets, family decision making, and the business being operated out of a physical store location were strong indicators of increased income. In conclusion, it is recommended that MFI's ensure loan groups are composed of those from various levels of education and they teach about proven skills and business strategies that are studied and correlated with earning higher incomes.

Chapter I

1.0 Introduction

1.1 Background Information

Finance and economics have more substantial implications on people's lives worldwide than many believe, and as our global economic climate changes, individuals now shoulder an increased personal financial responsibility (Hastings, Madrian & Skimmyhorn, 2013). To navigate this change, well-informed personal finance and business decisions are now more critical than before (Lusardi & Mitchell, 2011). Regardless of an individual's economic status, basic financial literacy and decision-making skills can improve one's quality of life. However, one of the biggest obstacles to spreading financial knowledge is education.

Additionally, even with widespread financial knowledge, business activity is limited when financial resources are scarce. Businesses depend on capital for operations, yet access to financial resources has received far less attention in sociological research than factors such as education, work, and wages (Dwyer, 2018). Resource access is multifaceted, and inequalities persist due to various socioeconomic and cultural barriers that we will explore in this study. In the case of finance, research points to persistent international sex differences in financial literacy: in most cases, women are less financially knowledgeable than men (Lusardi & Mitchell, 2011). With a good understanding of global education access across gender, this is not surprising. Currently, 771 million adults worldwide do not have basic literacy skills, and two-thirds of this population are women (UNESCO, 2022).

Cultural practices and belief systems carry significant weight in the severity of this inequality. Female Genital Mutilation (FGM) is a prime example of this. The right of passage ritual is most commonly performed in Africa, Asia, and the Middle East and is a tradition that roughly 100-130 million currently living females have undergone (Banchoff & Wuthnow, 2011). The painful practice involves a ceremony of genital cutting and is an issue of fundamental human rights, proper healthcare, and psychological trauma (Gamble, 2018).

This practice is common among groups in sub-Saharan Africa, especially in remote Maasai tribal villages in Kenya and Tanzania. Research with Maasai village members in rural Kenya found a statistically significant relationship between FGM and early marriages (Rotich, Rono, & Mutisya, 2014). Because of early marriage, few Maasai girls make it to secondary school. Secondary school typically starts for Tanzanian youth at thirteen or fourteen years old (Oscar Paschal, personal communication, 2022). Without adequate education, the path for women to participate in economic activities is much more challenging. Thus, creating a generational cycle of uneducated and economically disadvantaged women in Maasai communities.

Overcoming barriers requires effort from researchers, decision-makers, and donor agencies; research in developing countries should be enabled and encouraged by donor agencies, as its findings put them in a more beneficial position to be successful (Stephenson, Baschieri, Clements, Hennick & Madise, 2006). In recent decades, microfinance loans have become a strategy to enable sustainable economic development. Evidence from the millions of microfinance clients worldwide demonstrates that access to financial services enables impoverished individuals to increase their household incomes, build assets, and reduce their vulnerability to the crises that are so much a part of their daily lives (Littlefield, Murdugh & Hashemi, 2003). Sociological findings point to microfinance loans being a catalyst for social change and women's empowerment (Lamichhane, 2022), providing a basis for poor women to come together regularly while promoting new ideas, opportunities, and social relations with the potential to address strategic gender interests (Kabeer, 2005). Substantial evidence shows that microfinance is an effective avenue to empower women. (Addai, 2017; Kato & Kratzer, 2013; Lakwo, 2007). However, many recognize that microfinance loan programs have the potential to be more effective (Lakwo, 2007; Ngo & Wahhaj, 2012; Littlefield, Murdugh & Hashemi, 2003; Mukhooli, 2015).

East African NGOs have used microfinance loans as a method of women's empowerment and poverty alleviation. Research has found that programs in East Africa have found microfinance to be successful in economically empowering women (Fwamba, Matete, Nasimiyu & Sungwacha, 2015). Additionally, in East Africa, they have found a need for increased sustainability and training among MFIs (Kipesha & Zhang, 2013; Mukhooli, 2015). Tanzania Education and Micro-Business Opportunity (TEMBO) is an organization that uses microfinance loans to empower the women

who live in Longido, Tanzania. They focus on using education to empower women in Longido, and their business workshops are a requirement for anyone receiving microfinance loans.

This research aims to understand the impact of business education and workshops on the success of microfinance loans and women's social empowerment. Additionally, it will compare positive and negative empowerment outcomes for women in the Tanzanian Maasai cultural context, where gender barriers are some of the strongest in the world (Ward & Kiruswa, 2013).

1.2 Problem Statement

Despite consistent economic growth in recent decades, Tanzania remains one of the poorest countries in the world. Tanzania's gross national income (GNI) per capita is 1,140 USD (World Bank, 2022). Within Tanzania, certain districts face a harsher economic climate than others. In particular, northern Tanzania is home to some of the country's poorest people, and poverty is most pervasive in Longido, which is in the Arusha region to the north (TEMBO, 2022).

In Longido, traditional Maasai cultural ideals dominate the area, and education has not historically been a priority, especially for women (Raymond, 2020). The area is dominated by a pastoralist lifestyle and lacks the benefits of tourism that are seen in other areas of Tanzania. Longido does not naturally have access to income-generating resources, and life in this arid region is difficult while opportunities remain scarce (Homewood, 2009). Due to factors such as these, Longido is an area with difficult cultures to spark economic growth and social change.

1.3 Main Objective

To examine rural microfinance, education, and business ownership outcomes of Tanzania Educational and Micro Business Opportunity (TEMBO) loan and non-loan recipients in Longido District, Tanzania.

1.4 Specific Objectives

- i. To compare socioeconomic outcomes among microfinance loan recipients vs. non-recipient business owners.
- ii. To compare the role of education level and TEMBO business education as indicators of successful business ownership.
- iii. To determine variables that result in higher income.

1.5 Study Questions

- i. How do socioeconomic outcomes differ between loan recipients and non-loan recipient business owners?
- ii. How do education level and TEMBO business education impact successful business ownership?
- iii. What variables result in higher incomes?

1.6 Scope of the Study

One limitation of this study is that it only covers one organization, Project TEMBO. TEMBO gives out microfinance business loans to women in one of the poorest districts in Tanzania, Longido. The program runs with a specific and very challenging goal of empowering Maasai women. The independent variables include outcomes such as personal income generation, financial literacy, control over savings and income, ownership of assets, mobility and activities outside the home, participation in financial decision-making, self-esteem, and self-efficacy. This study's dependent variables are business education and microfinance program structure. The study will take place in the Longido District of Tanzania with the help of the partner organization, TEMBO. The study data collection period will last for two weeks.

1.7 Significance and Justification

There is currently a need for microfinance application research in Maasai land, Tanzania. As has been discussed, the Maasai areas of Tanzania have some of the world's most substantial sociocultural, economic, and educational barriers. There is no better place to study the impact of microfinance as a strategy for alleviating the impacts of poverty and breaking down gender barriers. The study will help inform action that donor agencies operating in rural Tanzania can take to improve the lives of women there. In addition, donor agencies in other areas of the world struggling with complex sociocultural and gender barriers will benefit from the findings of this research.

Chapter II

2.0 Literature review

2.1 Microfinance Origin

Microfinance is a practice adopted by donor agencies to provide economic opportunity to impoverished people worldwide. The concept began with an experiment conducted in 1976; Dr. Muhammad Yunus lent small sums of money to rural women in Bangladesh to start micro businesses. After a few trials, he came up with a model that worked; the one donor agencies widely use today. Two critical elements to success were that loans went to women, who are statistically more reliable in properly using funds; additionally, recipients were organized into groups of five women (all responsible for one repayment) to create social collateral. The program also required proof of financial discipline in the form of required micro-savings, transaction recordings, and set group meetings. Lastly, Dr. Yunus used a higher interest rate than government and NGO loans, where funds would create future opportunities for others (Hulme, 2008).

The program had great success and led to the creation of Grameen Bank, which labels itself as the "Bank for the Poor." It has since spread over almost all of Bangladesh (Khan & Rahaman, 2007). Currently, Grameen Bank employs 20,994 people, reaching 81,678 villages and serving 10.22 million borrowers (Grameen Bank, 2022). Astoundingly, Grameen Bank's collateral-free loans have a credit recovery rate of 97.22%. For his efforts to create social and economic change from below, the Nobel Peace Prize was awarded to Dr. Muhammad Yunus and the Grameen Bank in 2006 (Sengupta & Aubuchon, 2008). Moreover, due to its success in alleviating the effects of poverty among Bangladeshians, donor agencies have employed the framework in other developing areas of the world.

2.2 Microfinance and Women's Empowerment

As discussed in the background of this study, women experience economic disadvantages worldwide that are more significant than men. For example, in sub-Saharan Africa, the gender gap

index (GGI) is .68, Meaning that females are 32 percent less likely to experience the same opportunities as men. Comparatively, Tanzania is slightly better, with a GGI of 0.72; however, females are significantly disadvantaged in the country when it comes to the four dimensions of the GGI, which are economic participation and opportunity, educational attainment, health and survival, and political empowerment (Statista, 2022).

A previous study of business ownership in Maasailand Tanzania finds that women's business ownership - either cooperatively or independently - is linked to positive outcomes, specifically that women are increasingly involved in their families' financial decision-making (Dutt, Grabe & Castro, 2016). Although a good indicator of business ownership, this study does not examine microfinance's role in business ownership and socioeconomic outcomes.

Additional evidence from Tanzania suggests that women's participation in microfinance services increases empowerment. Additionally, it finds a significant relationship between participation in microfinance institutions (MFIs) and control of savings and income generated from business activities (Kato & Kratzer, 2013).

2.3 Opposition to MFIs

Despite its proven success and widely praised foundation, some refuse MFIs as a sustainable path to alleviating poverty. For example, World Economic Review researchers claim microfinance creates an illusion of development while instead constituting powerful institutional and political barriers to sustainable economic development and poverty reduction. Instead, they argue that MFIs enable success for a few lucky individuals and create a poverty trap for developing economies (Bateman & Chang, 2012). Additionally, in the case of some microfinance pilot programs, it has been found that husbands become uneasy with the increased mobility of their wives and their absence from the home (Leach & Sitaram, 2010). Although this evidence does not speak to the effectiveness of microfinance in empowering women, it is a factor to be considered when considering strategies around the cultures that are resistant to change.

2.4 Lack of Business Education as a focus for MFIs

Currently, many banks and MFIs provide microfinance loans to rural populations worldwide. However, findings argue that access to credit alone may not improve a woman's decision-making authority within the household if she has limited skills to engage in economically generating activity (Ngo & Wahhaj, 2011). Concurring research argues that business education awakens an entrepreneurial spirit that can foster positive attitudes towards independence, resulting in a boost for other females in communities of developing countries (Achakpa & Radovic-Markovic, 2018). This research finds that education and business education should be factored into the MFI protocol.

3.2 Methods

3.2.1 Key Informant Interview

Key informant interviews are appropriate when searching for general information about organizations, when looking to understand the underlying attitudes of a target population, and when the primary purpose of a study is to provide recommendations and suggestions (Kumar, 1989). The study results are enhanced due to primary data from *key informant interviews* with TEMBO staff regarding matters such as program structure, loan amounts, group formations, and current plans and trials.

3.2.2 Structured In-depth Interviews

Research regarding women's empowerment argues that key informant interviews should not be used alone and that in-depth interviews with "ordinary" women in the community are necessary to gain a more holistic view (Lokot, 2021). By intentionally providing opportunities for these ordinary women to participate in research, more opportunities emerge for differing perspectives in the world (Harding, 1991). Interviews are structured by the recommended rapport formation, warm-up questions, the main body of the interview, cool-off questions, and closure (T. Lwoga, *personal communication, September 2022*).

3.3 Study Design

This is a case study that uses qualitative and statistical analysis in the process of an in-depth examination of a group of people. To enhance the quality of results, the study focused on the meaning of individual experiences and how they contribute to answering the proposed research questions (T. Lwoga, *personal communication, September 2022*). The reason for using a case study in this research is to elaborate on a theory, a widely utilized and accepted reason for using a case study design (Gammelgaard, 2017; T. Lwoga, *personal communication, September 2022*; Head & Noar, 2014). The theory being modified in this research is microfinance is a successful strategy for women's empowerment and poverty reduction, focusing on the impact of education and other factors that can be measurables of success.

3.4 Sampling Techniques and Procedures

The purpose of qualitative research is to gather information-rich data by carefully selecting a sample that is representative (not statistically). The data collection period will conclude when the point of saturation is reached, meaning that information from selective samples is repetitive, and there is no need to continue collecting further data (*T. Lwoga, personal communication, September 2022*).

For this purpose, this study used critical case sampling. This sampling strategy included Longido residents in two categories, those who receive/have received TEMBO loans and those who do not receive loans from TEMBO. The results gathered from this sampling strategy will determine if better outcomes are associated with TEMBO microfinance loans program involvement.

3.5 Sample Size

The sample size was determined when the point of saturation was reached. This point was reached after 32 in depth interviews were conducted. Sixteen TEMBO loan recipients and sixteen non-loan recipients.

3.6 Data Analysis

The analysis consisted of both descriptive analysis using content analysis and statistical analysis using Mann Whitney U test.

3.6.1 Content analysis

This analysis focused on grouping interviews into themes, and concepts extracted from the qualitative data. In this way, the research quantified and analyzed the presence, meanings, and relationships of certain words, themes, or concepts (*T. Lwoga, personal communication, September 2022*). Data from open-ended questions was considered.

3.6.2 Statistical analysis of variables by Mann Whitney U test

Since the data from this survey consisted of both categorical and continuous data which did not the assumptions for the parametric test, the Mann-Whitney U Test is appropriate for this study's

data analysis (Mcknight & Najab, 2010). Also, the test is effective in comparing two independent groups that do not require large, normally distributed independent samples (Nachar, 2008). It is popularly known for testing differences between two groups on a single variable that has no specific distribution (Mann & Whitney, 1947; Wilcoxon, 1945).

Four main continuous independent variables (I.e., Average monthly income, (ii) financial independence, (iii) empowerment, and (iv) overall independence were tested to examine their relationship to TEMBO member status and education level.

The average monthly income from the business was determined based on the answers to the survey regarding personal income in a good month of business and personal income in a bad month of business for variables financial independence, empowerment, and overall independence. Indexes were created by coding responses among the following criteria; restricted, enabled, and enabled beyond the norm.

Respondents were grouped based on a breadth of dependent variables to determine if there were statistically significant differences in income, financial independence, empowerment, and overall independence.

Economic outcome: Financial Independence

The financial independence index examines seven key factors that contribute to one's financial independence (Table 1). These seven factors were summed into an index, and coded (Table 1)

Table 1: Financial Independence Index Coding Breakdown

| Financial Independence Coding | 0 = restricted | 1 = enabled | 2 = enabled beyond the norm | |
|--------------------------------------|---------------------------------|------------------------------|-----------------------------------|------------|
| (1) Asset Ownership | no assets owned | singular asset owned | multiple assets owned | /2 |
| (2) Business Ownership | no business ownership | sole business ownership | family business ownership | /2 |
| (3) Access to Capital | no capital access | one line of capital | multiple lines of capital | /2 |
| (4) Access to financial institutions | no bank access | bank access | bank access and online bank usage | /2 |
| (5) Access to business education | no business education access | access to business education | | /1 |
| (6) Family status | single mother | married or fully independent | | /1 |
| (7) Autonomy over personal spending | no control over income spending | control over income spending | | /1 |
| Highest Possible Score | /0 | /7 | /4 | /11 |

Social outcome: Empowerment Index

The empowerment index examines seven key factors contributing to one's personal empowerment and freedom (Table 2). These seven factors were summed into an index and coded (Table 2).

Table 2: Empowerment Index Coding Breakdown

| Empowerment Index Coding | 0 = restricted | 1 = enabled | 2 = enabled beyond the norm | |
|---|-----------------|----------------------|-----------------------------|-------------|
| (1) Support from husband/family in economic participation | no support | support | | /1 |
| (2) Household expenses contribution | no contribution | contribution | | /1 |
| (3) Household principal decision making | husband | herself | | /1 |
| (4) Childbearing decision making | husband | herself | | /1 |
| (5) Child education decision making | husband | herself | | /1 |
| (6) Marriage of children decision-making | husband | *herself = 0.5 | *child decides = 1 | /1 |
| (7) Degree of mobility outside the home (determined by daily time of coming home) | before 5PM | *between 5-7PM = 0.5 | *after 7PM = 1 | /1 |
| Highest Possible Score | /0 | /6 | /2 | /7.5 |

Socioeconomic outcome: Overall Independence Index

The overall independence index combines all of the above variables, seven from the financial independence index and seven from the empowerment index, into one score. This index gives a more holistic view of total independence by combining factors that contribute to women's independence, empowerment, and financial independence. The highest possible score of this index is **18.5**.

The main method of data analysis was the use of non-parametric testing. The method chosen was the *Mann-Whitney U Test*. Respondents were grouped based on a breadth of dependent variables used to determine if there were statistically significant differences in income, financial independence, empowerment, and overall independence. The test was chosen due to its effectiveness in comparing two independent groups that do not require large, normally distributed independent samples (Nachar, 2008). It is popularly known for testing differences between two groups on a single variable that has no specific distribution (Mann & Whitney, 1947; Wilcoxon, 1945). Since the data from this survey do not meet the parametric assumptions for the t-test, the Mann-Whitney U Test is more appropriate for this study's data analysis (Mcknight & Najab, 2010).

3.8 Ethical Considerations

Participants were made aware of the nature of the study and that there were potentially personal and difficult questions to answer. Respondents understood their right not to answer any and all questions in the survey. Participant responses were kept anonymous, and respondents were made aware of this anonymity. Participants were rewarded with asante for their time and willingness to participate however, they were not made aware of it prior to the interview to avoid bias in their responses. The translator who works for TEMBO who is does a lot of good work in the community and helped to build trust between the researcher and the respondents.

Chapter IV

4.0 Results

The results provide a brief overview of demographics and business types owned before going over the objectives. This information will help to better understand the population being studied.

4.1 Demographic characteristics of the respondents and business categories

4.1.1 Demographic information of the respondents

The in-depth interview was administered to 32 respondents from the Longido District. Of the respondents, all of them were female (Table 3). The majority were married (69% (n=32)), mothers (97% (n=32)), and few had their husbands deceased (13%, Table 3). The respondents had varying levels of education, with majority having no education or a primary school education (Table 3).

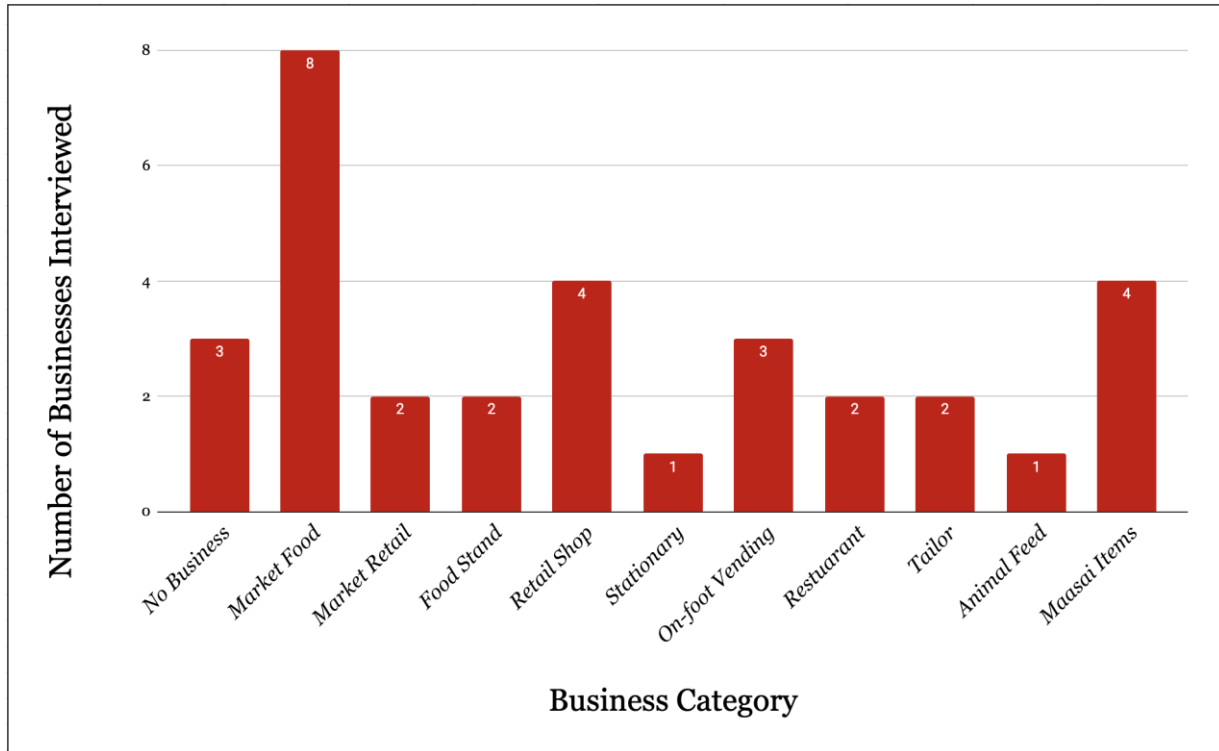
Table 3: Demographic characteristics of respondents (n=32)

| | | | | | | |
|----------------------------|---------|----------------------------|---------------------|-------------------|------------|---------|
| Age: | Unknown | 18-35 | 36-50 | 51-65 | 65+ | Total |
| Percentage (%) | 19 | 44 | 22 | 13 | 3 | 100 |
| | | | | | | |
| Gender: | Male | Female | | | | |
| Percentage (%) | 0 | 100 | | | | 100 |
| | | | | | | |
| Education Level (%) | None | Primary School | Secondary School | Technical College | University | Total % |
| Percentage (%) | 31 | 31 | 13 | 25 | 0 | 100 |
| | | | | | | |
| Marital Status | Married | Divorced/ single mother | Deceased Husband | No Dependants | | |
| Percentage (%) | 69 | 16 | 13 | 3 | | 100 |

4.1.2 Demographic information of the business respondents

The business respondents were categorized into 11 major categories, including no business ownership, which was done to help give a more accurate representation of the population (Figure 2).

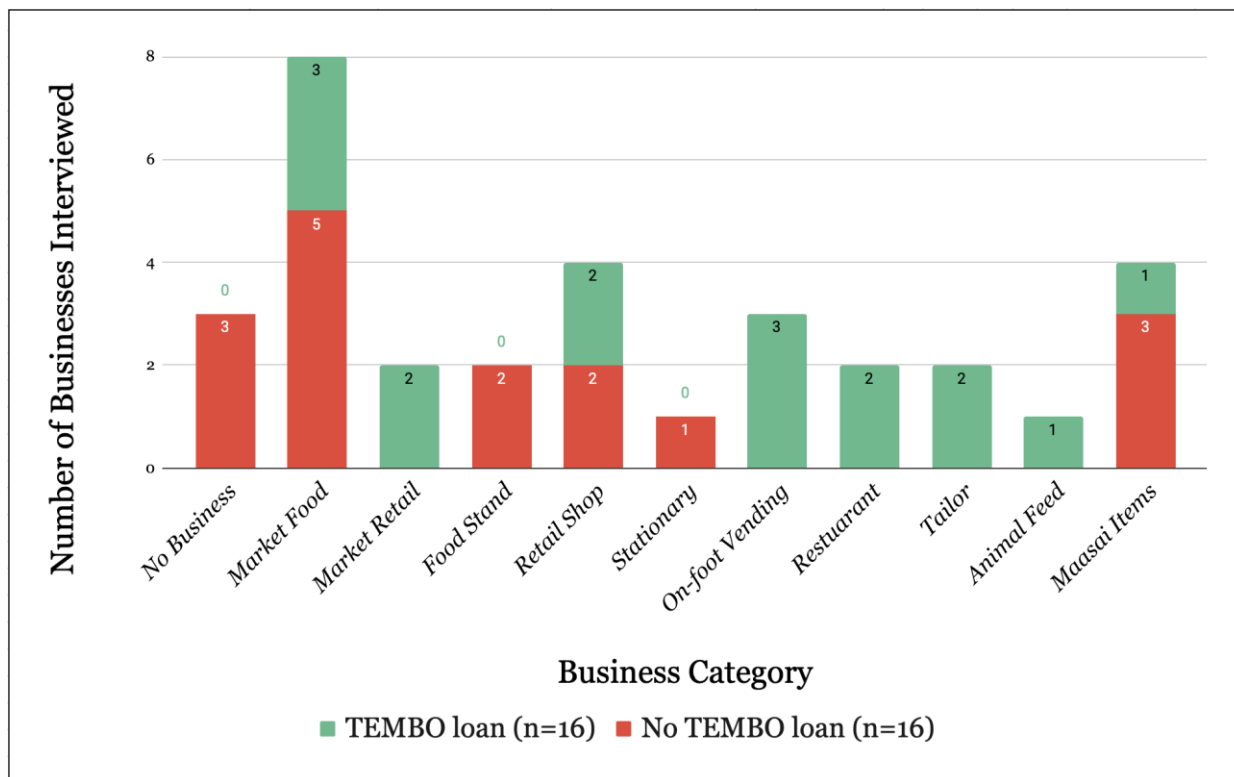
Figure 2: Total number of businesses interviewed across the 11 business categories included in the study



4.1.3 Demographic information of the business respondents

The business respondents of the 11 major categories, was further grouped into *TEMBO loan receiving and non-receiving participants* (Figure 3).

Figure 3: Total number of businesses interviewed across the 11 business categories included in the study across TEMBO loan receiving and non-receiving participants



4.2 Results based on three objective variables

4.2.1 TEMBO loan recipients vs. non-TEMBO respondents

Table 4: Mann Whitney U Test Results: equality of outcome between TEMBO loan recipients and non-TEMBO loan recipients (n=16).

| Variables | p-value | Significance |
|------------------------|---------|--------------|
| Average monthly income | 0.274 | ns |
| Financial independence | 0.00004 | *** |
| Empowerment | 0.122 | ns |
| Overall independence | 0.00014 | *** |

*=p<0.05, **=p<0.01, ***=p<0.001,

Financial independence turned out to be significantly different (Table 4). Generally, both *financial independence* and *combined independence* were found, with 99% confidence, to reflect statistically significant inequality between the *TEMBO loan recipients* and *non-TEMBO loan recipients* (Table 4). This reveals that TEMBO membership is correlated with having higher levels of financial independence and overall independence. Additionally, the test demonstrates no statistically significant difference in levels of *empowerment* and *average monthly income* between the two groups.

Based on accompanying qualitative research, this data can be explained by the education that TEMBO gives its loan recipients in regard to financial and personal matters. TEMBO teaches five classes before members are able to receive loans. They receive a class on how to use loan money, record keeping, business creativity, understanding capital vs. profit, and how to handle business challenges. They include key lessons such as financial discipline, financial knowledge, how to use a bank, and how to pay taxes. Additionally, women who receive loans from TEMBO are required to pay loans back with their group, allowing for the sharing of ideas to take place. Lastly, TEMBO supports its loan recipients when they need help and support through mentorship.

4.2.2 Relationship to education level

Table 5: Overview of variables impacting equality of outcome between non-educated (N-Ed), government education (G-Ed), and technical college educated (T-Ed) (n=16).

| Variables | p-value | N-Ed vs. G-Ed | p-value | G-Ed vs. T-Ed | p-value | N-Ed vs. T-Ed |
|------------------------|---------|---------------|---------|---------------|---------|---------------|
| Average monthly income | 0.129 | ns | 0.06 | * | 0.024 | ** |
| Financial independence | 0.0357 | ** | 0.651 | ns | 0.014 | ** |
| Empowerment | 0.181 | ns | 0.222 | ns | 0.222 | ** |
| Overall independence | 0.018 | ** | 0.304 | ns | 0.002 | *** |

*=p<0.05, **=p<0.01, ***=p<0.001

Results in Table 5 regarding *to non-educated* and *governmental school-educated* respondents. Both *financial independence* and *combined independence* were found, with 95% confidence, to reflect statistically significant inequality between the two groups. However, there was no statistically significant difference in *average monthly income* and *personal empowerment independence* between the two groups. The fact that most of the “government-educated” respondents (n=14) had only attended primary school (n=11), and only three had attended secondary school (n=3). These findings suggest that even a primary school education, seven years of schooling, plays a role in a woman’s financial and overall independence later in life. However, empowerment and income are not impacted; this can be explained by the prevalence of early marriage, which often takes place in Maasai culture after primary school is completed, leaving women with fewer freedoms and dependence on their husbands at a young age.

With regards *to government school-educated* and *technical college-educated* respondents, *average monthly income* was the only variable that was found, with 90% confidence, to reflect inequality between the two groups. All of the other independent variables tested, including *financial independence*, *empowerment independence*, and *combined independence*, were all found to be equal between the two groups.

The difference in income data can be explained by the higher levels of skill and education levels demonstrated by technical college-level educated women versus someone who has only attended government schooling. Although income differed between the groups, financial independence and empowerment were observed to be relatively high among both education-level groups.

With regards *to non-educated* and *technical college-educated* respondents, all four of the tested independent variables, *average monthly income*, *financial independence*, *empowerment independence*, and *combined independence*, were found, with 95% confidence, to reflect inequality between the two groups.

These tests were run to demonstrate the level of inequality that exists between those who receive an education and learn a skill in a technical college in comparison with those who are denied an

education. The highest p-value for any of the above tests was 0.024, leading us to believe that the presence of inequality is extremely high across all four of the tested continuous variables.

4.2.3 Financial variables impact on monthly income

Table 6: Financial and business-related variables impacts on average monthly income generated from respondents businesses.

| Dependent variables | p-value | Significance |
|--|---------|--------------|
| Physical store location | 0.001 | *** |
| Access to business education workshops | 0.864 | ns |
| Access to capital | 0.013 | ** |
| Access to bank | 0.0007 | *** |
| No assets owned vs. one asset owned | 0.809 | ns |
| One asset owned vs. multiples assets owned | 0.03 | ** |

*=p<0.05, **=p<0.01, ***=p<0.001

In addition to the tests above, Mann-Whitney U Tests were conducted to examine specific variables of the survey and those that were included in the financial independence index to further examine their impact on average monthly income. The criteria used to select these variables had higher variability in responses than other variables. The high variability in responses for these specific variables created an opportunity to accurately examine the impact on income.

The above tests demonstrate the impact of certain factors on monthly earnings. Certain variables appeared to have a strong positive correlation with increased average monthly income generation from business (95% confidence). Operating a business from a physical store location, having access to capital, having access to a bank, and owning multiple assets were some of the variables that this study found to increase earnings. Additionally, factors that did not show statistical significance in increases in monthly earnings were access to business education workshops and owning one asset (as opposed to none). This can be explained by the high number of business education workshops for women in Longido; despite their high number, they do not appear to be a significant factor in increased earnings. Owning one asset can be explained by the cultural context of Longido. Many respondents in rural areas claimed to own only a house, land, goat, etc. However, in rural areas, the land is not for sale, and homes are traditionally built; there is no liquid value in these homes or land. In comparison to Longido town, land and homes must be bought

through official and governmentally approved processes. Those who owned land in town often also owned other properties, storefront locations, or land, to name a few examples, as a result of their higher income.

4.1.5 Empowerment variables impact on average monthly income

Table 7: Empowerment related variables impacts on average monthly income generated from business

| Dependent variables | p-value | Significance |
|---|---------|--------------|
| Childbearing decision-making | 0.294 | ns |
| Principal home decision making | 0.224 | ns |
| Child marriage decision making (husband vs. mother) | 0.034 | ** |
| Child marriage decision making (mother vs. child) | 0.17 | ns |
| Child marriage decision making (husband vs. child) | 0.007 | *** |
| Personal belief that men & women are equal | 0.285 | ns |
| Perception of equality of treatment | 0.897 | ns |

*=p<0.05, **=p<0.01, ***=p<0.001

The results from the above tests are logical in relation to the cultural context of Longido, Tanzania. It was found that the only statistically significant empowerment indicator related to income is who is making decisions about the marriage of children. In order for a mother or child to be the one making decisions about marriage, the family would be considered radical by the majority of Maasai families in rural areas where child marriages and little education take place. Based on my accompanying qualitative research, this variable explained to indicate income because a strong majority of those who responded that they themselves or their children would decide about marriage had an education and/or lived in town, suggesting they had experienced more exposure to ideas about marriage that contradict Maasai tradition

Chapter Five

5.0 Discussion

The results of this study point to the fact that microfinance participation is correlated to increased financial independence and overall independence. There is countless other research that agrees that microfinance is correlated with financial independence (Bansal & Singh, 2020; Noreen, 2011; Shaheen, Hussain & Mujaba, 2018).

This study found that microfinance has less impact on income than may be assumed. Some explanation for this is that microfinance funds can be misused by borrowers who do not have a good understanding of how to invest properly in their businesses. Additionally, funds are used by some to pay school fees and other necessities to survive instead of just investing in their businesses (Garrity & Martin, 2018; Hudon & Traca, 2011). However, TEMBO works hard to mitigate these issues by teaching their loan recipients about financial discipline and how to invest in their businesses. Many issues that were found were that women did not have enough funds for this business, wanted more education, or were facing difficulties due to the pervasive drought that has been affecting the economy of Longido and making life extremely difficult. It seemed as though these factors were impacting women's businesses extremely heavily, more so than misusing funds; it was found not to be the case with any women interviewed; this is due to the TEMBO process, which seems to be working very well among their loan recipients.

Lastly, empowerment was a variable that was not impacted by being a TEMBO loan recipient. This is most likely to be the case due to changing attitudes toward women in the Longido District. The overwhelming majority of respondents agreed that attitudes toward women were changing in their community. This created a sample of women who were increasingly empowered on a household level.

Education, regardless of microfinance participation, seemed to be the driving factor between empowerment for women on all four variables tested. Income, financial independence, empowerment, and overall independence increased as education increased. This is important to

understand for microfinance institutions, such as TEMBO, to improve the ways in which they can help the most people.

In this study, technical college-level business owners all had similar levels of success, whether they received loans or not. This is attributed to utilizing specific skills in their businesses, general education, and having increased access to modern technology such as the internet. When compared to those who were not educated and those who had no education, primary or secondary level of education, the situation was often much different depending on loan access.

Financial metrics which had the highest variability of responses were tested to determine if any were correlated with higher income. Physical store location and access to a bank were the leading variables, showing a 99% strong positive correlation to earning a higher income. This makes sense because owning a physical store location requires rent payments, financial discipline, and higher risk in the case of failure to sell products (TEMBO staff, personal communication). Knowledge about how to use and access a bank creates demonstrates better financial understanding as it is a safer way to save money. Also, having access to capital and owning multiple assets is related to earning a higher income. Many of these variables agree with prior research.

In the last Mann-Whitney U Test, empowerment variables were examined to see if any of them had a relationship to earning a higher income. Only one variable proved to demonstrate higher earnings among respondents. This was the ability to make marriage decisions about the children. The three answers provided by respondents where husband decides, they decide, or their child is the one who will decide. When the wife is the one deciding instead of the husband, there was 95% confidence in a correlation to higher income for the mother. When the child is deciding compared to the husband, there was 99% confidence in a correlation to higher income for the mother. This demonstrates that the less control a father has over decisions in the household, the more money the mother will make, which is on par with other microfinance research (Kapiga, Harvey, Mshana, Hansen, Mtolela, Madaha & Watts, 2019).

6.0 Conclusion and Recommendations

6.1 Conclusion

Microfinance and education are powerful tools for empowering rural women in Tanzania, being measured on income, financial independence, and overall independence levels. It appears that education is a stronger factor in attaining better outcomes; however, microfinance has seen proven success and should continue to be offered to those with and without education.

6.2 Recommendations

TEMBO should ensure that groups of women, applying for loans, should come from diverse group of educational backgrounds. In this way, women who have been denied education will be able to learn from those who have high levels of education. In theory, this would create higher outcomes for women with less education because they will be meeting and repaying loans with those who are statistically more likely to earn more money and have better overall outcomes. In this way, they will learn not only financially but about things that they can apply to their personal life.

TEMBO focuses on teaching about the importance of certain factors that lead to more income and increased wealth creation. This study found that they should specifically add the process of applying for a bank account, the importance of working towards running a business out of a physical store location (if they can find the funds), and the importance of working toward owning assets to build wealth to their curriculum.

6.3 Limitations

Limitations of this study include time, funding, and honesty of respondents.

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Appendix 1: Mann Whitney Statistical Outputs

Hypothesis

- H0 (null hypothesis): assumes the two populations *non-TEMBO loan recipients* and *TEMBO loan recipients* are equal.
- H1 (alternative hypothesis): assumes the two populations *non-TEMBO loan recipients* and *TEMBO loan recipients* are not equal.

Average monthly income

The resulting p-value of 0.274 means that the chance of type 1 error is too high (27.4%). U=98.5, is in the 90% region of acceptance and this test suggests we accept the null hypothesis, assuming that average monthly income between non-TEMBO loan recipients and TEMBO loan recipients are equal.

Financial independence

The resulting p-value of 0.000043 means that the chance of type 1 error is very low (0.004%). U=20, is not in the 95% region of acceptance and this test suggests we reject the null hypothesis, assuming that financial independence between non-TEMBO loan recipients and TEMBO loan recipients are not equal.

Empowerment

The resulting p-value of 0.122 means that the chance of type 1 error is too high (12.2%). U=87, is in the 95% region of acceptance and this test suggests we accept the null hypothesis, assuming that empowerment independence between non-TEMBO loan recipients and TEMBO loan recipients are equal.

Overall independence

p-value = 0.00014

The resulting p-value of 0.00014 means that the chance of type 1 error is low (0.014%). $U=26.5$, is not in the 95% region of acceptance and this test suggests we reject the null hypothesis, assuming that total independence between non-TEMBO loan recipients and TEMBO loan recipients are not equal.

Dependent Variables: No Education (n_1) = 10; Government Education (n_2) = 14

Independent Variables: Average monthly income, financial independence, empowerment, and overall independence

Hypothesis

- H_0 (null hypothesis): assumes that the two populations, *non-educated* and *governmental school educated*, are equal.
- H_1 (alternative hypothesis): assumes the two populations, *non-educated* and *governmental school educated*, are not equal.

Average monthly income

The resulting p-value of 0.129 means that the chance of type 1 error is too high (12.9%). $U=38.5$, is in the 90% region of acceptance and this test suggests we accept the null hypothesis, assuming that average monthly income between *non-educated* and *governmental school educated* are equal. This test excluded one outlier due to large loan advantage reported by one respondent over which placed her at an abnormal advantage over other respondents, especially those within her education bracket.

Financial independence

The resulting p-value of 0.036 means that the chance of type 1 error is low (3.6%). $U=34$, is not in the 95% region of acceptance and this test suggests we reject the null hypothesis and assume

that financial independence between *non-educated* and *governmental school educated* are not equal.

Empowerment

The resulting p-value of 0.181 means that the chance of type 1 error is too high (18.1%). $U=47$, is in the 95% region of acceptance and this test suggests we accept the null hypothesis, assuming that personal empowerment independence index scores between *non-educated* and *governmental school educated* are equal.

Overall independence

p-value = 0.018

The resulting p-value of 0.018 means that the chance of type 1 error is low (1.8%). $U=29.5$, is not in the 95% region of acceptance and this test suggests we reject the null hypothesis, assuming that overall independence between *non-educated* and *governmental school educated* are not equal.

Dependent Variables: Government Education ($n_1 = 14$); Technical College Education ($n_2 = 8$)

Independent Variables: Average monthly income, financial independence, empowerment, and overall independence

Hypothesis

- H_0 (null hypothesis): assumes that the two populations, *government school educated*, and *technical college educated*, are equal.
- H_1 (alternative hypothesis): assumes the two populations, *government school educated*, and *technical college educated*, are not equal.

Average monthly income

The resulting p-value of 0.060 means that the chance of type 1 error is low (6.0%). $U=28$, is not in the 90% region of acceptance and this test suggests we reject the null hypothesis and assume

that average monthly income between *government school educated*, and *technical college educated* are not equal.

Financial independence

The determined p-value of 0.651 means that the chance of type 1 error is too high (65.1%). $U = 49$, is in the 95% region of acceptance and this test suggests we accept the null hypothesis and assume that financial independence between *government school educated*, and *technical college educated* are equal.

Empowerment

The p-value of 0.222 means that the chance of type 1 error is too high (22.2%). $U = 38$, is in the 95% region of acceptance and this test suggests we accept the null hypothesis and assume that empowerment between *government school educated*, and *technical college educated* are equal.

Overall independence

The resulting p-value of 0.304 means that the chance of type 1 error is too high (30.4%). $U = 40.5$, is in the 95% region of acceptance and this test suggests we accept the null hypothesis and assume that overall independence between *government school educated*, and *technical college educated* are equal.

Dependent Variables: No Education (n_1) = 10; Technical School Education (n_2) = 8

Independent Variables: Average monthly income, financial independence, empowerment, and overall independence

Hypothesis

- H_0 (null hypothesis): assumes that the two populations, *non-educated* and *technical college educated*, are equal.

- H1(alternative hypothesis): assumes the two populations, *non-educated* and *technical college educated*, are not equal.

Average monthly income

The resulting p-value of 0.024 means that the chance of type 1 error is low (2.4%). U=12, is not in the 90% region of acceptance and this test suggests we reject the null hypothesis and assume that average monthly income between *non-educated* and *technical college educated* are not equal.

Financial independence

The resulting p-value of 0.014 means that the chance of type 1 error is low (1.4%). U = 12, is not in the 95% region of acceptance and this test suggests we reject the null hypothesis and assume that financial independence between *non-educated* and *technical college educated* are not equal.

Empowerment

The resulting p-value of 0.01 means that the chance of type 1 error is low (1.0%). U = 11, is not in the 95% region of acceptance and this test suggests we reject the null hypothesis and assume that empowerment independence between *non-educated* and *technical college educated* are not equal.

Overall Independence

The resulting p-value of 0.0016 means that the chance of type 1 error is low (0.16%). U = 4, is not in the 95% region of acceptance and this test suggests we reject the null hypothesis and assume that overall independence between *non-educated* and *technical college educated* are not equal.

Physical store location

Dependent Variables: Businesses with no physical store location (n1) = 18; Businesses with physical store location (n2) = 10

Independent Variable: Average monthly income

Hypothesis

- H0 (null hypothesis): assumes that the two populations, *respondents with no physical store location and respondents with physical store location*, are equal.
- H1 (alternative hypothesis): assumes the two populations, *respondents with no physical store location and respondents with physical store location*, are not equal.

The resulting p-value of this test 0.001 indicates that the chance of type 1 error is small (0.10%). $U=17.5$, is not in the 95% region of acceptance and this test suggests we reject the null hypothesis, assuming that average monthly income between *respondents with no physical store location and respondents with physical store location* are not equal. As a result, there is a strong positive correlation between a business having a storefront location and earning a higher monthly income.

Access to business education workshops

Dependent Variables: Respondents with access to business education workshops (n_1) = 24; respondents without access to business education workshops (n_2) = 8

Hypothesis

- H0 (null hypothesis): assumes that the two populations, *respondents with and without access to business education workshops*, are equal.
- H1 (alternative hypothesis): assumes the two populations, *respondents with and without access to business education workshops*, are not equal.

The resulting p-value of this test, 0.864, indicates the chance of type 1 error is very high (86.4%). $U=84.5$, is in the 95% region of acceptance and this test suggests we accept the null hypothesis, assuming that average monthly income *respondents with access to bus education workshops and no access to bus education workshops* are equal. There is no correlation between attending business education workshops and earning a higher income.

Access to Capital

Dependent Variables: Respondents with access to capital (n1) = 17; respondents without access to capital (n2) = 15

Hypothesis

- H0 (null hypothesis): assumes that the two populations, *respondents with and without access to capital*, are equal.
- H1(alternative hypothesis): assumes the two populations, *respondents with and without access to capital*, are not equal.

The resulting p-value of 0.013 indicates the chance of type 1 error is small (1.3%). U=42, is not in the 95% region of acceptance and this test suggests we reject the null hypothesis, assuming that average monthly income *respondents with access to capital and no access to capital* are not equal. Therefore, there is a strong positive relationship between access to capital and earning a higher average monthly income. Outliers were present and excluded to give a less skewed representation of income generation across the two groups.

Access to Bank

Dependent Variables: Respondents with access to a bank (n1) = 16; Respondents without access to a bank (n2) = 16

Hypothesis

- H0 (null hypothesis): assumes that the two populations, *respondents with and without access to a bank*, are equal.
- H1(alternative hypothesis): assumes the two populations, *respondents with and without access to a bank*, are not equal.

p-value = 0.0007

$U = 23.5$

The resulting p-value of this test, 0.0007, indicates that the chance of type 1 error is small (0.07%). $U=23.5$ is not in the 95% region of acceptance. This test suggests we reject the null hypothesis, assuming that average monthly income *respondents with access to a bank and no access to a bank* are not equal. As a result, there is a strong positive correlation between access to a bank and generating a higher monthly income. Outliers were present and excluded to give a less skewed representation of income generation across the two groups.

No Assets vs. One Asset

Dependent Variables: Respondents who own no assets (n_1) = 9; respondents who own one asset (n_2) = 10

Hypothesis

- H_0 (null hypothesis): assumes that the two populations, *respondents who own one asset and respondents who own no assets*, are equal.
- H_1 (alternative hypothesis): assumes the two populations, *respondents who own one asset and respondents who own no assets*, are not equal.

The test's resulting p-value of 0.809 indicates the chance of type 1 error is too high (80.9%). $U=33$ is in the 95% region of acceptance. This test suggests we accept the null hypothesis, assuming that average monthly income *respondents who own no assets and who own one asset* are equal. Therefore, we can conclude that there is no correlation between owning one asset and earning a higher average monthly income, as opposed to the ownership of no assets. Outliers were present and excluded to give a less skewed representation of income generation across the two groups.

One Asset vs. Multiple Assets

Dependent Variables: Respondents who own one asset (n_1) = 10; respondents who own multiple assets (n_2) = 13

Hypothesis

- H0 (null hypothesis): assumes that the two populations, *respondents who own one asset and respondents who own multiple assets*, are equal.
- H1 (alternative hypothesis): assumes the two populations, *respondents who own one asset and respondents who own multiple assets*, are not equal.

The resulting p-value of 0.030 indicates the chance of type 1 error is low (3.0%). U=23 is not in the 95% region of acceptance. This test suggests we reject the null hypothesis, assuming that average monthly income *respondents who own one asset and who own multiple assets* are not equal. There appears to be a strong positive correlation between owning multiple assets and earning a higher average monthly income. Outliers were present and excluded to give a less skewed representation of income generation across the two groups.

Childbearing Decision Making

Dependent Variables: Respondents who had control over decision to have children (n1) = 17; respondents who did not have control over decision to have children (n2) = 15

Hypothesis

- H0 (null hypothesis): assumes that the two populations, *respondents who did and did not have the ability to make childbearing decisions*, are equal.
- H1 (alternative hypothesis): assumes the two populations, *respondents who did and did not have the ability to make childbearing decisions*, are not equal.

The resulting p-value of 0.294 indicates the chance of type 1 error too high (29.4%). U=68 is in the 95% region of acceptance. This test suggests we accept the null hypothesis, assuming that average monthly income *respondents who did and did not have the ability to make childbearing decisions* are equal in terms of income. There appears to be no statistically significant correlation between owning childbearing decision-making control and earning a higher average monthly

income. Outliers were present and excluded to give a less skewed representation of income generation across the two groups.

Principle decision-making in the home

Dependent Variables: Respondents who were not the principal decision maker in the home (n1) = 18; respondents who were the principal decision maker or shared decision making responsibility (n2) = 14

Hypothesis

- H0 (null hypothesis): assumes that the two populations, *respondents who were and were not principal decision maker in the home*, are equal.
- H1 (alternative hypothesis): assumes the two populations, *respondents who were and were not principal decision maker in the home*, are not equal.

The resulting p-value of 0.224 indicates the chance of type 1 error too high (22.4%). U=93.5 is in the 95% region of acceptance. This test suggests we accept the null hypothesis, assuming that average monthly income between *respondents who were and were not principal decision maker in the home* are equal in terms of income. There appears to be no statistically significant correlation between being a principal decision maker and earning a higher average monthly income.

Child marriage decision making (husband vs. mother)

Dependent Variables: Respondents who's husband's decide above the marriage of their children (n1) = 15; respondents who decide about the marriage of their children themselves (n2) = 12

Hypothesis

- H0 (null hypothesis): assumes that the two populations, *respondents who's husband's decided and respondents who decided themselves*, are equal.
- H1 (alternative hypothesis): assumes the two populations, *respondents who's husband's decided and respondents who decided themselves*, are not equal.

The resulting p-value of 0.034 indicates the chance of type 1 error low (3.4%). $U=46$ is not in the 95% region of acceptance. This test suggests we reject the null hypothesis, assuming that average monthly income between *respondents who's husband's decided and respondents who decided themselves (about the marriage of their children)* are not equal in terms of income. There appears to be a statistically strong positive correlation between being the mother deciding about the marriage of her children, and the mother earning a higher income.

Child marriage decision making (mother vs. children deciding)

Dependent Variables: Respondents who decide about the marriage of their children themselves ($n_1 = 12$); respondents who allow their children to decide ($n_2 = 5$)

Hypothesis

- H_0 (null hypothesis): assumes that the two populations, *respondents who decide themselves and allow their children to decide*, are equal.
- H_1 (alternative hypothesis): assumes the two populations, *respondents who decide themselves and allow their children to decide*, are not equal.

The resulting p-value of 0.17 indicates the chance of type 1 is too high (17%). $U=11$ is in the 95% region of acceptance. This test suggests we accept the null hypothesis, assuming that average monthly income between *respondents who decide themselves and allow their children to decide (about marriage)* are equal in terms of income. There appears to be no statistical correlation between being mothers who decide about the marriage of children themselves and mothers who allow their children to decide about marriage, and average monthly income earned.

Child marriage decision making (husband vs. children deciding)

Dependent Variables: Respondents whose husband's decided above the marriage of their children ($n_1 = 15$); respondents who allow their children to decide ($n_2 = 5$)

Hypothesis

- H0 (null hypothesis): assumes that the two populations, *respondents whose husband's decide and respondents who allow their children to decide*, are equal.
- H1(alternative hypothesis): assumes the two populations, *respondents whose husband's decide and respondents who allow their children to decide*, are not equal.

The resulting p-value of 0.0077 indicates the chance of type 1 error low (0.77%). $U=2.5$ is not in the 95% region of acceptance. This test suggests we reject the null hypothesis, assuming that average monthly income between *respondents whose husband's decide and respondents who allow their children to decide (about the marriage of their children)* are not equal in terms of income. There appears to be a higher correlation between the mother allowing her child to decide about marriage, when compared to the mother deciding for herself who her child will marry

Personal belief that men and woman are equal

Dependent Variables: Respondents who believe men and women are equal (n_1) = 19; respondents who believe men and women are not equal (n_2) = 13

Hypothesis

- H0 (null hypothesis): assumes that the two populations, *respondents who believe men and women are equal and those who do not*, are equal.
- H1(alternative hypothesis): assumes the two populations, *respondents who believe men and women are equal and those who do not*, are not equal.

The resulting p-value of 0.285 indicates the chance of type 1 is too high (28.5%). $U=136.5$ is in the 95% region of acceptance. This test suggests we accept the null hypothesis, assuming that average monthly income between *respondents who believe men and women are equal and those who do not* are equal in terms of income. There appears to be no statistical correlation between believing men and women are equal and earning a higher income.

Perception of equality of treatment between men and women in respective communities

Dependent Variables: Respondents who believe women are treated equally ($n_1 = 21$); respondents who believe women are treated unequally ($n_2 = 11$)

Hypothesis

- H_0 (null hypothesis): assumes that the two populations, *respondents who believe women are treated equally vs. unequally*, are equal.
- H_1 (alternative hypothesis): assumes the two populations, *respondents who believe women are treated equally vs. unequally*, are not equal.

The resulting p-value of 0.897 indicates the chance of type 1 is too high (89.7%). $U=101$ is in the 95% region of acceptance. This test suggests we accept the null hypothesis, assuming that average monthly income between *respondents who believe women are treated equally vs. unequally in their community* are equal in terms of income. There appears to be no statistical correlation between belief of equality of women and men in the community and earning a higher income.