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A Study of the Factors that Affect Agribusiness Financing in Zambia (A Case Study of Smallholder Farmers in Chibombo District)

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ABSTRACT
Limited access to agricultural financing is a constraint to the development of the Smallholder Farmers (SHFs) of the agriculture sector. This research aimed to address three fundamental objectives: the extent of financial inclusivity, the factors influencing access to finance, and the exploration of alternative financing models. A descriptive research design was employed which led to the adoption of a mixed-methods approach. A total of 100 out of 48,000 SHFs in Chibombo District were purposively sampled. The findings revealed that only 19% of SHFs surveyed reported having accessed credit and only 8% of rural SHFs were utilizing formal banking services. The study delved into credit access challenges, both on the demand and supply sides, results indicated that, the variables (gender, age, income) had weak statistically significant impact on the likelihood of borrowing money at the 0.05 significance level. However, it was noted that the p-values for gender and income were relatively close to the significance level indicating potential impact. In response to these challenges, the research proposed innovative financing models including mobile money lending, peer-to-peer lending, guarantee schemes, collateral substitutes and group lending. The study recommended that the Government and other stakeholders should strengthen technological infrastructure, develop and implement tailored financial education programs and encourage diversification of agriculture activities, and develop regulatory framework for mobile money lending to ensure consumer protection and fair competition.

Keywords: *agriculture financing, smallholder framers, agribusiness, gross domestic product (gdp), microfinance*

I. INTRODUCTION

In 2023, approximately Seven Hundred Million people around the world were subsisting on less than $2.15 (UN, 2023). Fundamentally, poverty is a denial of choices and opportunities, a violation of human dignity. It means lack of basic capacity to participate effectively in society). One of the Sustainable Development Goals (SDGs) of the United Nations (UN) is to eradicate extreme poverty in light of the dire and enduring effects of poverty. The UN is particularly concerned about Sub-Saharan Africa, where 42 percent of the population lives below the poverty line. A vital component of the fight against extreme poverty is agriculture. Agriculture can help reduce poverty for 75% of the world's poor, who live in rural areas and work mainly in farming (Word Bank, 2023). An estimated 500 million smallholdings are managed by SHFs in the agricultural sector; in most developing nations, especially in Southern Asia and Sub-Saharan Africa (SSA), SHFs supply a

In Zambia, agriculture remains the primary source of income for most rural residents and will continue to be the backbone of the national economy for many years to come. Only 15% of the nation's 47% total land area is under cultivation, indicating that there is room for the country to improve its agricultural production even with ideal weather, fertile soil, and an abundance of water supplies (Nawiko, 2022). The cost of financing is a major barrier to the sector's development, which is acknowledged by the Government of Zambia (GRZ). To address this, the GRZ is implementing policies to enhance the availability of credit to MSMEs (BOZ, 217).

Similar to this, the International Finance Corporation (2015) points out that having access to financial services is essential for improving post-harvest practices, facilitating household cash flow, facilitating better access to markets, and encouraging better risk management. However, it is not a means to an end in and of itself. Long-term food security can be enhanced by increasing agriculture's resilience to climate change and aiding in climate adaptation through the use of financing. The majority of farmers in developing nations are smallholders, and they face substantial obstacles in gaining access to a wide range of financial services. The main goal of this research is to disentangle the variables preventing small-holder farmers from receiving this crucial funding.

Smallholder farmers constitute a vital component of Zambia's economy, serving as key contributors to both the

nation's Gross Domestic Product (GDP) and the livelihoods of a substantial portion of rural Zambian population, estimated at 92% (1LO, 2015). However, despite their pivotal role, smallholder farmers in Zambia are grappling with a formidable challenge - substantial exclusion from accessing essential financial services (ILO, 2015). Poor access to financing was cited as a primary barrier to investment and growth in Zambia in a 2007 World Bank survey on enterprise development in Zambia. In addition, SHFs that have limited access to credit are likely to experience low production, high levels of food insecurity, and lifelong poverty. Therefore, it is imperative that a research be conducted to study the factors that affect agribusiness access to finance from both viewpoints of smallholder farmers and financial service providers and provide alternative sources of finance.

1.1 Theoretical and Conceptual Framework

1.1.1 Conceptual Framework

This study's independent variable (collateral, character, capacity, capital, condition, loan size, agribusiness ability, sales contract, membership) is assumed to have an impact on access to financing that boosts agribusiness productivity by increasing output volumes (from increased production in various value chains). These are the explanations for the study's variables and dimensions. The above-mentioned variable agricultural financing requirements, if favorable, will permit simple access to agricultural financial products, which will increase productivity and boost returns from sales of both raw and/or processed agricultural products, potentially improving the incomes of agribusiness owners and managers. This conceptual framework dwells on the fact that agricultural financing requirements by agribusinesses are intrinsically linked to the general increment in the productivity of agribusinesses. The relationship between agricultural financing requirements and Smallholder famers' knowledge of financing in Zambia.

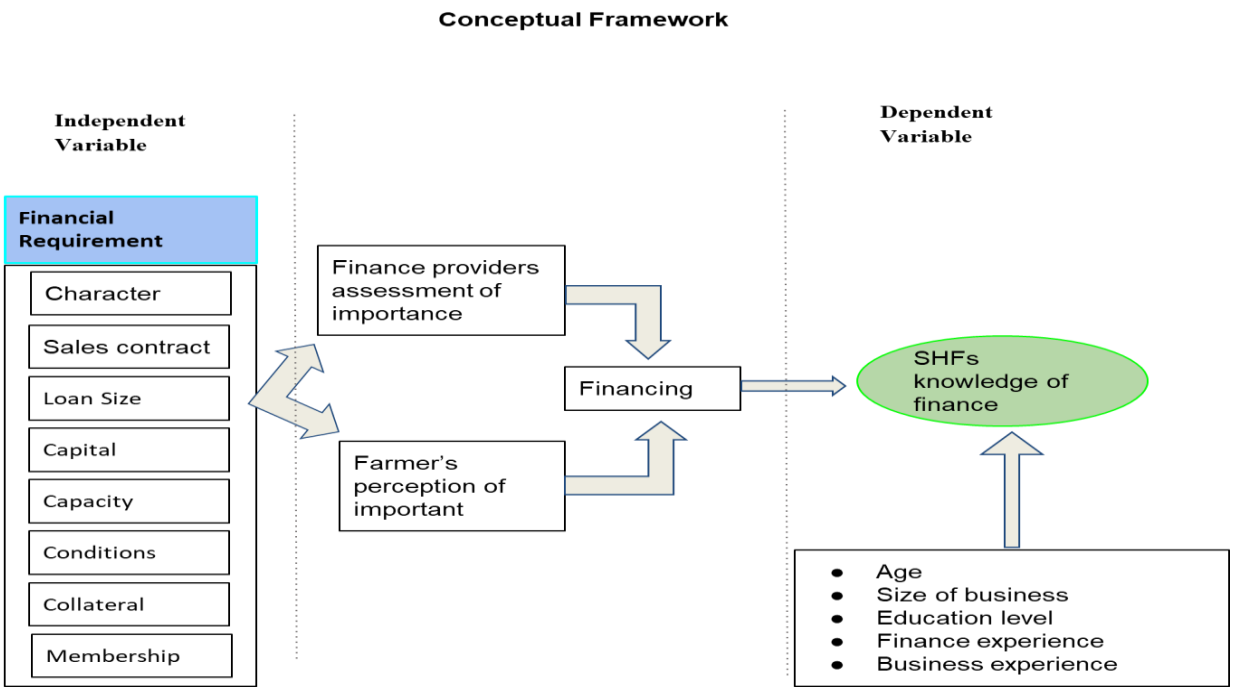


Figure 1.1: Conceptual Framework

1.1.2 Theoretical Framework

The theoretical frameworks and models offered to serve as the foundation and guidelines for this study's examination. On the factors that influence how a lender and borrower interact, several hypotheses have been put forth. These stylized ideas have served as a foundation for the identification of qualified borrowers, alignment with lender requirements, and understanding what factors influence the decisions made by borrowers, such as SHFs, regarding the most effective use of available financial resources. This study will concentrate on a few ideas, such as Credit Rationing Theory, and Joint Liability Theory, from among the different theoretical frameworks in the world of finance.

1.1.2.1 Credit Rationing Theory

According to Stiglitz and Weiss (1981), the theory describes the behavior of lenders and borrowers in a market which is characterized in a credit market with excess demand and restricted supply of credit facilities, like what is experienced by most agribusinesses. There are three main items which banks mainly consider with respect to extension of credit to potential

borrowers; interest rates, the amount of the loan, collateral required or the "stake" which a bank demands from a potential borrower to invest some "skin in the game". Depending on what rate is set for loans, it can have an adverse selection effect on potential borrowers. Interest rates can be used as a screening mechanism which differs depending on the risk level of a potential borrower. It is common practice amongst banks to request collateral to secure most loans. However, increasing the amount of security required for a loan can have the effect of discouraging less riskier borrowers or can entice borrowers to invest in riskier projects which could result in a bank's profits decreasing. To mitigate the moral hazard risk which may arise a borrower behaving irresponsibly with servicing of a loan, it is not uncommon for a bank to request a potential borrower to have an equity investment in a project for which a loan is required. This would enforce prudent management of the project and loan servicing. Therefore, though there may not necessarily be a shortage of funds to lend to potential borrowers, the due diligence conducted by banks when considering potential borrowers may cause the lenders to ration credit despite the existence of excess demand for loans

1.1.2.2 Joint Liability Theory

This theory was put forward by Ghatak and Guinnane (1999). Joint liability denotes the obligation of two or more partners to pay back a debt or be responsible for satisfying a liability. A joint liability allows parties to share the risks associated with taking on debt and to protect themselves in the event of lawsuits, however, the theory states the challenges of extending credit to the poor and denotes the four main problems faced by lenders as follows:

Adverse Selection: Adverse Selection, which results from incomplete or no information that the lenders may have about the borrowers, is the first issue discovered by joint liability lending. The lender might not be aware of a borrower's traits, or they might not even be evident. Lenders typically perform due research on borrowers. However, because the lending industry involves several risk variables, lenders may ask for collateral in an effort to reduce those risks. The problem with this mitigating strategy is that many low-income borrowers would not have adequate collateral to receive a loan from a bank. However, because the impoverished in a community are familiar with one another's traits, they can vouch for each other as they know who can take on a higher risk. Therefore, the safe borrowers can subscribe for higher the risk, additionally joint liability contracts can restore full efficiency.

***Moral Hazard*:** The second problem is called Moral Hazard which builds its premise on the work of Ross (1973) and Jensen and Meckling (1976). The Moral Hazard problem is based on the principal-agency dilemma which describes the challenges from conditions of asymmetric information when a principal hires an agent. When the agent's interests' conflict with those of the principal, a dilemma arises. The principal-agent problem theory is applied to moral hazard problems. The lender might not be aware of the borrower's intentions. For instance, the borrower's goal might be to obtain credit, but they might end up using it for something else that they wouldn't have told the lender about. As a result, joint responsibility lending offers a framework for peer or collective monitoring to guarantee that the funds are used for the intended purpose and promotes prudent management of credit facilities (Stiglitz, 1990 and Besley and Coate, 1995).

***Costly State Verification*:** The Cost of State Verification is the third issue raised by the theory. Verifying the information provided by unreliable borrowers can be highly expensive. Physical access to the borrowers' locations can be difficult as well because most borrowers would be based in remote areas with difficult access. Once more, joint liability can serve as a mitigating element to lower anticipated audit costs and boost effectiveness.

***Enforcement*:** The enforcement issue is the final and fourth issue. According to the notion, it is simpler to enforce loan terms against a group of borrowers with joint culpability than it is against a single borrower with limited liability. However, this alternative can turn out to be a difficult and expensive task. With joint liability borrowing, a bank and the community can penalize borrowers as a preventative measure against credit obligations default.

1.2 Factors Influencing Access to Finance for Agricultural Growth

Only 27.5% of Zambian businesses had access to credit, which was identified as the biggest obstacle to their expansion in the World Bank's 2013 Enterprise Survey. In addition, 22.5% of the informal sector's access to finance was constrained by poor record-keeping abilities and a lack of corporate governance knowledge. Further research revealed that 9% of medium-sized organizations (20-99 employees), 53% of small firms (enterprises with 5-19 employees), and 0 of the bigger firms (100+ employees) had their loan applications rejected. The excessive cost of borrowing, even in cases where credit facilities are provided, further limits the ability of smallholders to repay their loans.

Cost of Credit: Even though agriculture supports most African economies and provides employment for 55% of the continent's population, banks only devote about 1% of their financing to this industry. Additionally, only 5.9 percent of individuals in rural areas of developing nations have access to formal credit, and only 4.7% have bank accounts. Interest rates are one of the macroeconomic variables that have a big impact on the agricultural sector since they determine how expensive borrowing money is. Zambia has excessive interest rates, like most developing nations, which severely restrict the ability of potential borrowers to receive agricultural financing, especially from the formal financial sector like commercial banks. The major goals of financing for agricultural uses are working capital support for cultivation and operations costs, as well as capital investments in machinery and vehicles (Sebatta et al, 2014).

Collateral: Due to their inability to offer adequate collateral, if any, most agribusinesses have difficulty obtaining credit facilities from traditional credit lenders. When collateral is there, it is frequently either insufficient or difficult to dispose of, making it unsuitable for a lender to take (Jessop et al, 2012). To protect themselves from the various types of risks associated with agriculture lending, credit providers in this industry ration credit excessively and rely more on traditional collateral, such as real estate in urban areas, which is preferred by lenders rather than borrowers' assets in rural areas. Therefore, the ratio of collateral to financing amount is typically substantially higher for a lender to extend credit to a borrower in a rural location (IFC, 2011).

Household Income: The ability of the borrower to repay the loan within the specified and agreed-upon time is therefore assessed by financial lenders. So, it is quite improbable that an agribusiness owner with a very low income will be able to obtain financing from banks or other lenders. This is corroborated by Korir's (2013) study on the determinants influencing financial access, which found that income was crucial for obtaining loans2016).

Age of the Household Head: Regarding access to credit, the household head's age is also quite important. Banks and microfinance organizations utilize it while deciding whether to provide small-scale finance with funding. Age can either have a good or bad impact on the farmers' ability to acquire capital. The average age of SHF household heads in Zambia is 48 (Siwale, 2019).

Gender of the Household Head: Research by Ali Chandio et al (2016), in Pakistan, discovered that families with male heads were more likely to get agricultural financing than households with female heads. This could be explained by several variables, including the fact that men typically have easier access to bank financing criteria such as land (collateral), which is crucial for obtaining credit, especially in developing economies. Sebatta et al. (2014), on the other hand, claim that there was a significant distinction between female farmers who had access to financing and those who did not. Female SHFs still have limited access to financing, however, because of cultural conventions that mandate that women only apply for loans with their husbands' approval.

II. LITERATURE REVIEW

2.1. Overview of Agriculture Financing

Approximately 500 million smallholder farming households worldwide, or 2.5 billion people, primarily depend on agriculture for their livelihoods. In rural areas, SHFs are mostly given agricultural credit in the form of cash or in-kind supplies of inputs through programs like out-grower schemes in return for harvested crops that are then sold to the lender, who is typically also the crops off taker. In the out-grower system, the lender would provide the SHFs a markup on the crop's cost. In recent years, Zambia's agriculture sector has benefited greatly from credit extensions in contrast to other industries, it had experienced a decrease in the last ten years concerning the overall amount of bank loans. Ten years later, bank lending to the agriculture sector fell dramatically to a concerning 17.1% from an estimated 25% of total bank loans in 2006 (NFIS, 2017). Due to the very high risks involved with the agriculture industry, efforts to increase finance will remain difficult in its current form, especially from commercial banks. One method to deal with the issues raised by the Joint Liability theory of moral hazard, adverse selection, expensive state verification, and enforcement is through well-established cooperatives.

2.2 Related Studies

Similar research has been done all over the world, in Africa, and in Zambia particularly, with the goal of determining the variables that impact small-scale farmers' access to financing. The outcomes of these investigations have all been inconsistent. For example, Chandio et al. (2017) carried out a survey in Pakistan to determine the variables influencing financial access, focusing on the issue of which factor collateral or cash flow mattered most in relation to a farmer's ability to obtain financing. The study's findings demonstrated that factors such as income, gender, household size, education level, size of farm, farming experience, and availability of collateral all positively impacted a farmer's ability to obtain financing. However, the study also found that small-scale farmers' access to financing was negatively impacted by the age of the household head. In the end, the analysis showed that the only farmers who could get formal credit were those who had huge land holding sizes, significant incomes, and collateral. In a study on the variables influencing SMEs' ability to obtain financing, Osano and Languito in Mozambique discovered a connection between collateral requirements and financing availability. A similar study was done in Ghana, Jalil (2015) examined the factors that influence smallholder farmers' access to financing and how it affects food security. The findings showed that access to credit and, in turn, food security were positively impacted by a number of parameters, including age, the number of male-headed households, family size, education, farm size, and membership in farmer-based organizations. The author's findings also demonstrated the beneficial benefits of institutional elements on credit availability and food security, such as credit worthiness and guarantors. Other major barriers to smallholder farmers' bank credit accessibility included high interest rates, proximity to banks, lack of collateral, and important bank information. Furthermore, it was discovered that smallholder farmers' performance was significantly impacted by their ability to obtain bank credit, as it affected their output as well as their ability to raise annual returns (Madafu, 2015).

Farmers in Zambia perceive financing to be hard to come by, expensive, and benefiting the larger corporate sector, according to the Zambia National Farmers' Union's 2009 assessment of the country's agriculture finance market (supply and demand). Bankers and Microfinance Institutions in Zambia, on the other hand, claimed that farm lending in Zambia was a risky and expensive endeavor. In Zambia, Sebatta et al. (2014) performed research on the factors that influence smallholder farmers' access to agricultural financing. It was discovered that the farmer's decision to access financing was highly influenced by the household head's education level, the size of the household, and the number of daily meals served.

It should be noted that the studies mentioned above emphasized the broad influences on small-scale farmers' access to financing. The relationship between agribusiness access to finance and its key determinants and alternative to finance, which are crucial in preparing the firm for agriculture finance, was not precisely examined in a quantitative manner. As a result, this study will take things a step further and examine both the quantitative and qualitative relationship between the key characteristics of Small Holder Farmers and their access to financing and provide alternative financing options.

III. METHODOLOGY

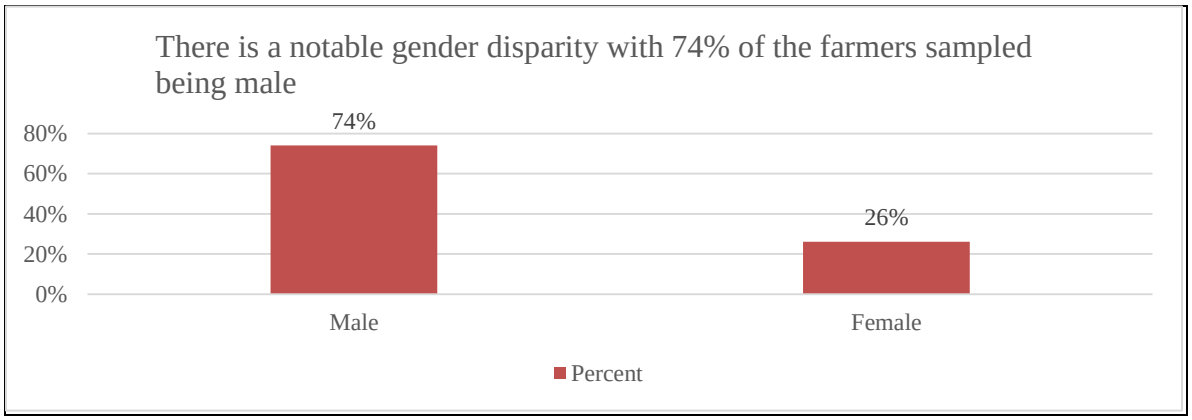
The study was conducted using a descriptive research design to which a mixed method approach was undertaken. The target population was 48, 000 smallholder farmers spread into the 20 agricultural camps in Chibombo district. Using the semi-structured interviews and questionnaires, data was collected from both smallholder farmers and financial services providers. The Logistical Regression Analysis using ATLAS.ti analysis software was performed to analyze the collected data. The test split-half approach was used in this study to examine the dependability of the data collection instruments. The study adopted the coefficient alpha using ATLAS.ti to determine the reliability coefficient and discovered that the correlation between the two piloted groups was 0.8.

IV. RESULTS

4.1 Demographic Characteristics

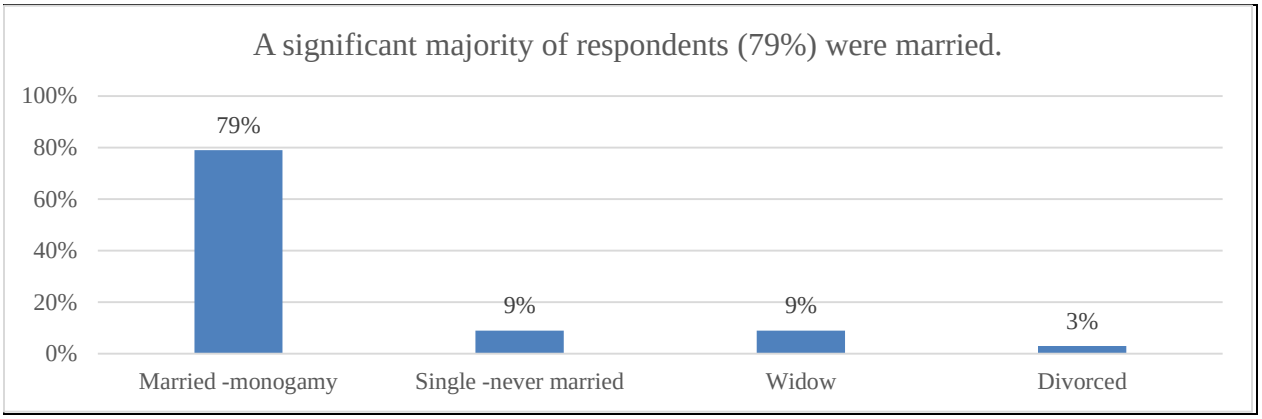
The demographic findings in this section are derived from the respondents' gender, age, years of experience in farming, and annual income. These results play a crucial role in assessing the experience, capacity, and performance of the respondents in terms of their access to finance. The demographic results were as follow as;

4.1.1 Respondents Gender



The survey respondents' demographic profile provides valuable insights into the composition of the study's participants and holds significance in understanding their access to finance. The data indicates a notable gender disparity, with males comprising a substantial majority at 74%, while females represent a smaller proportion of 26%.

4.1.2 Marital Status



The study delved into the marital status of the participants. Interestingly, a significant majority, comprising 79% of the respondents, were married, suggesting that this demographic constitutes a prominent group in the sample. Additionally, 9% of the participants were identified as single, while 3% reported being divorced. The study also highlighted that 9% of the respondents were widows, indicating the presence of vulnerable groups among the surveyed population.

4.1.3 Income

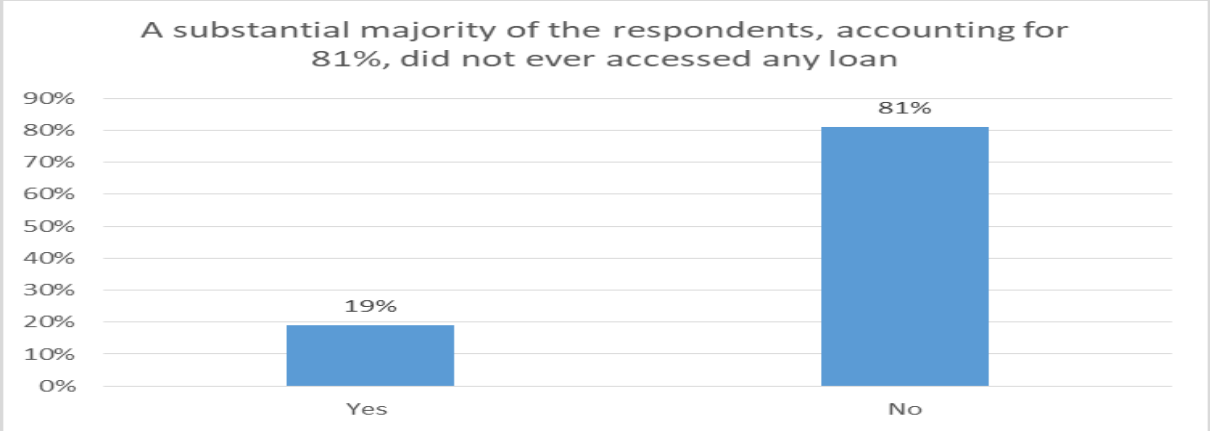
Among the 100 households surveyed, data on annual income was available for 90 households. The reported annual incomes spanned from ZMW 12.00 to ZMW 150,000.00. The mean annual income for these households was ZMW 27,615.97, with a standard deviation of ZMW 31,374.11. These findings provide crucial insights into the income distribution among smallholder farmers, helping them to understand their financial capacity and potential challenges in accessing finance.

Table 4.1: Average household income

Variable	**Mean**	**Std. Dev.**	**Min**	**Max**
Annual income	ZMW 27,615.97	ZMW 31,374.11	ZMW 12.00	ZMW 150,000.00

Understanding the demographic composition of the survey respondents lays the foundation for comprehending their financial landscape. Factors such as gender, age, and marital status can significantly influence the level of access to finance they experience. For instance, gender disparities may lead to differential treatment in financial institutions, affecting one's ability to obtain loans or access other financial services. Similarly, age and marital status can play a role in determining financial responsibilities and commitments, impacting financial decision-making.

4.2 Access to credit



Merely 19% of the farmers surveyed reported having accessed credit, revealing a considerable hurdle in their efforts to secure financial resources for enhancing agricultural activities and livelihoods.

4.3. Factors Affecting Access to Credit

Several factors were hypothesized to influence smallholder farmers' access to finance. This investigation aimed to address the second objective of the study, which was to identify the key determinants affecting the financial access of smallholder farmers in Zambia. To accomplish this, a logistic regression model was employed, using financial accessibility as the dependent variable, and considering gender, age, and income as the independent variables. The findings are presented below;

Table 4.2: Logistic Regression Results

Logistic regression					Number of obs =	100
					LR chi2(2) =	0.68
					Prob > chi2 =	0.7132
Log likelihood = -48.284368					Pseudo R2 =	0.007
borrowed	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]	
gender	0.4100844	0.3323014	-1.1	0.271	837768	2.007348
age	0.9709352	0.0367731	-0.78	0.436	0.9014714	1.045752
income	1.000009	0.00000822	1.08	0.278	0.9999928	1.000025
_cons	1.427881	2.582176	0.2	0.844	0.0412459	49.43138

Gender: The coefficient for gender is -0.59 (expressed as an odds ratio of 0.4101). This coefficient indicates that, holding all other variables constant, being female (gender=2) decreases the odds of borrowing money by approximately 59.9% compared to being male (gender=1). However, the p-value for gender is 0.271, which is greater than the typical significance level of 0.05. Therefore, the effect of gender on borrowing is not statistically significant at this level.
Age: The coefficient for age is -0.029 (expressed as an odds ratio of 0.9709). This coefficient suggests that, holding all other variables constant, a one-unit increase in age leads to a decrease in the odds of borrowing money by approximately 2.91%. However, the p-value for age is 0.436, which is greater than 0.05. Therefore, the effect of age on borrowing is not statistically significant at the 0.05 level.
Income: The coefficient for income is 0.000009 (expressed as an odds ratio of 1.000009). This coefficient implies that, holding all other variables constant, a one-unit increase in income leads to an increase in the odds of borrowing money by approximately 0.0009%. The p-value for income is 0.278, which is greater than 0.05. Hence, the effect of income on borrowing is not statistically significant at the 0.05 level.
Constant term (Intercept): The coefficient for the constant term is 0.356 (expressed as an odds ratio of 1.4279). This coefficient represents the estimated odds of borrowing money when all other variables in the model are zero or at their reference levels. The p-value for the constant term is 0.844, which is greater than 0.05. Therefore, the constant term's effect on borrowing is not statistically significant at the 0.05 level.

In summary, based on the logistic regression results above, none of the variables (gender, age, income) have a statistically significant impact on the likelihood of borrowing money at the 0.05 significance level. However, it's important to note that the p-values for gender and income are relatively close to the significance level, suggesting the need for further investigation with a larger sample size or additional variables.

V. SUMARY OF FINGS, DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 Smallholder Farmers' Access to Finance

Merely 19% of the farmers surveyed reported having accessed credit, revealing a considerable hurdle in their efforts to secure financial resources for enhancing agricultural activities and livelihoods. Notably, these findings resonate with the observations of other researchers, including Siwale (2018) and CABRI (2014) who found that only 14.1% and 13% of smallholder farmers in Zambia had access to finance, respectively. The alignment of our findings with these established research outcomes emphasizes the consistency and gravity of the challenges faced by smallholder farmers in the realm of financial inclusion.

5.2 Factors Affecting Smallholder Farmers' Access to Finance

This study undertook a comprehensive analysis encompassing both the demand and supply sides of credit accessibility for smallholder farmers, considering a wide array of demographic and contextual factors. The empirical exploration of the demand side sought to discern the impact of three pivotal demographic variables namely gender, age, and income on farmers' access to credit. However, the subsequent regression analysis indicated that these predictor variables did not yield statistically significant impacts on credit access. Despite this outcome, it's important to note that the p-values for gender and income approached the significance level, implying the potential influence of these variables.

A similar study conducted by Siwale (2018) on income's effect on access to finance found that more than half (55.2%) of the farmers who accessed finance were considered wealthy, compared to only 35% of those who did not access finance. This underscores the significance of wealth, which comprises a combination of assets owned, and income earned by a household, in determining the ease with which a household can access finance. Lenders typically extend finance to wealthier households as they perceive them to carry less risk when it comes to loan repayment.

The absence of collateral and inadequate record-keeping practices emerged as additional challenges, further dampening farmers' creditworthiness. Furthermore, complications surrounding land ownership largely devoid of proper land titles create barriers that impede access to financing opportunities. This is supported by studies by Chandio et al. (2017) as well as Lemessa and Gemchu (2016), who found that lack of collateral and poor record-keeping has a negative effect on farmers' ability to access finance.

In light of these intricate dynamics on both the demand and supply sides, this study underscores the multifaceted nature of credit accessibility for smallholder farmers. The findings emphasize the need for tailored interventions and policy measures that address these challenges holistically.

5.3 Alternative Financing Options for Smallholder Farmers

The findings of this research underscore a prevalent issue: rural smallholder farmers are, indeed, facing exclusion from accessing essential financial services (AGRA, 2020). In light of these conclusions, this study advocates for the exploration and adoption of diverse financing options that can effectively empower smallholder farmers. The proposed models hold the potential to revolutionize the financial landscape for these farmers, providing them with the means to access credit and enhance their economic prospects.

Mobile money lending emerges as a compelling solution that aligns with the digital age. By utilizing mobile phone networks to facilitate money transfers between borrowers and lenders, this model capitalizes on the widespread usage of mobile phones in rural areas. This aligns with the study by Marcy Corps (2022) indicates that smallholder farmers mainly use their phones for communication, with few farmers receiving and making payments using their phones. Further, the study showed that six in ten smallholder farmer are financially excluded in Zambia, a narrative that needs to change.

Peer-to-peer lending, gaining momentum in Zambia, demonstrates the strength of community-based support. By enabling direct lending between individuals, bypassing traditional financial intermediaries, this model taps into local networks to provide credit to those unable to secure loans from conventional lenders. In line with this recommendation, Bank of Zambia (2018) stated that crowd funding and peer-to-peer lending is a keystone of serving the capital-demand of Zambian SMEs.

Guarantee schemes offer a mechanism to mitigate risk, assuaging lenders' concerns about potential defaults. These programs provide a safety net, encouraging lenders to offer loans to high-risk borrowers like rural farmers. This aligns very well with the Zambia Credit Guarantee Scheme (ZCGS) whose made is the provision of partial credit guarantees to enable viable and eligible Zambian Micro, Small and Medium Enterprises (MSMEs) with inadequate collateral, have increased access to affordable financing from lending financial institutions thereby promoting their growth and development.

Collateral substitutes address a fundamental limitation often encountered by smallholder farmers, the lack of conventional collateral. By accepting alternative assets as security for loans, this model paves the way for those without tangible property to access credit, leveling the playing field and promoting financial inclusivity. Although a study by Qwabe (2014) on lending to small scale farmers in South Africa stated that there was little to no innovation with regards to collateral alternative especially when considering private sector formal institutions.

Group lending introduces a communal dimension into the financial ecosystem. Through collective responsibility, borrowers form groups and mutually guarantee each other's loans. This fosters accountability, reducing risk for lenders and providing support to rural farmers who may lack individual financial backing.

5.4 Conclusion

The research aimed to study the effects of factors that affect agribusiness financing in Zambia and provide alternative financing models to address the financial exclusion faced by rural smallholder farmers. The findings revealed that only 19% of the SHFs surveyed accessed credit and only 8% of rural SHFs were utilizing formal banking services. . The study delved into credit access challenges, both on the demand and supply sides, and identified variables such as gender, age, and income that impacted credit availability. Logistic regression analysis further explored the influence of these variables on credit access. In

response to these challenges, the research proposed innovative financing models tailored to the unique needs of SHFs. These models include mobile money lending, peer-to-peer lending, guarantee schemes, collateral substitutes, and group lending. Each model offers an avenue to empower farmers economically and overcome barriers to financial access. The study recommended that the Government and other stake holders should strengthen technological infrastructure, develop and implement tailored financial education programs and encourage diversification of agriculture activities and develop regulatory framework for mobile money lending to ensure consumer protection and fair competition.

5.5 Evidence-Based Recommendations

- ❑ Strengthening technological infrastructure to leverage the increasing adoption of mobile money services among smallholder farmers.
- ❑ Tailored financial education programs for smallholder farmers.
- ❑ Encouraging diversification of agricultural activities to mitigate the risk associated with lending to farmers focused on a single crop.

5.6 Policy Recommendations

- ❑ Rural infrastructure development, government initiatives should focus on improving rural infrastructure, including road networks and transportation systems.
- ❑ Development of the regulatory framework that support and governs for mobile money lending.
- ❑ Strengthening community-based financing by incentivizing institutions that actively participate in community-based financing initiatives.

5.7 Future Research Directions

Longitudinal studies on impact. Future research should focus on conducting longitudinal studies to assess the long-term impact of the recommended interventions. This will enable researchers and policymakers to measure the effectiveness of the implemented measures and make necessary adjustments to further enhance financial inclusion outcomes.

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