

# An Empirical Analysis into Factors that Influence Perceived Demand-Side Barriers to Formal Financial Service Access: Evidence from Zambia

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**Abstract:** *This study investigates factors that influence perceived consumer barriers to formal financial service access in Zambia. We focus on two formal financial institution type, commercial banks and microfinance institutions. We employ a Multinomial Logit (MNL) model and benefit from the Zambia FinScope 2015 Survey. In understanding factors influencing barriers to access to commercial bank services, we establish that education, access to informal financial services, location and gender are significant in influencing the perception of barriers of 'low income'. The excluded population with the aforementioned characteristics were observed to be more likely to perceive the low-income barrier relative to the self-exclusion barrier. When it comes to barriers of 'access reason', location and gender were found to be significant in the perception of this barrier. Assessing factors influencing perception of barriers to 'information asymmetry', we establish that education, access to informal financial services, gender, location and age are significant. Lastly, in assessing MFIs, our work establishes three main factors in explaining the three categories of barriers; it was observed that education, location (rural/urban), economic status, gender and age play a very important role in perception of barriers of 'low income', 'access reasons', 'information asymmetry' and 'lack of collateral' by the excluded population.*

**Key Words:** *financial inclusion, Multinomial Logit Model, barriers to financial inclusion, formal financial services.*

## 1. INTRODUCTION:

It is argued that, in modern economies, a functional financial system is critical and serves a very important role, providing payment platforms, savings, credit and risk management services to individuals with a variety of needs. Further, that mainly the marginalised and poor segments of the population are more likely to benefit from a financial system that is deemed to be inclusive, void of barriers of any kind such as income and price barriers. In the absence of such an inclusive financial system, poor individuals are left to depend on their small and limited savings for educational investment or in their entrepreneurial endeavours. This has the potential of worsening the persistence of income inequality as well as poor economic growth (Demirguc et al., 2012).

According to Thouraye et al. (2013), "Financial inclusion refers to all initiatives that make formal financial services available, accessible and affordable to all segments of the population. This requires particular attention to specific portions of the population that have been historically excluded from the formal financial sector, either because of their income level and volatility, gender, location, type of activity, or level of financial literacy". Financial inclusion involves access and utilisation of financial services given a conducive regulatory environment that guarantees systems of protection for the consumers and promotes financial literacy so as to better the financial capacity of all segments of the population (Ledgerwood et al., 2013).

It is argued that in order for developing countries to achieve economic growth, there is a need to harness the untapped potential of those individuals and businesses currently excluded from the formal financial sector or underserved, and enable them to develop their capacity, strengthen their human and physical capital, engage in income-generating activities, and manage risks associated with their livelihoods. Financial inclusion goes beyond improved access to credit to encompass enhanced access to savings and risk mitigation products, a well-functioning financial infrastructure that allows individuals and companies to engage more actively in the economy, while protecting users' rights.

Zambia has been a part of the many developing countries seeking to enhance the role of its financial system in achieving economic growth and alleviating poverty. To actualize the plan, Zambia started financial sector liberalization in the 1970s through a number of reforms, from privatization of government owned banks to opening up the sector to foreign banks.

In 2004, the government through the central bank launched the financial sector development plan which envisioned that, "the Zambian financial sector will develop to become a stable, sound and market based financial system that would support efficient mobilization and allocation of resources necessary for economic diversification, sustainable

growth and poverty reduction” (Central Bank of Zambia, 2004). Part of the main objective of the financial sector development plan was facilitation towards increased access to financial services in the country through a pro-poor and effective rural finance system for affordable financial services aimed at enabling small businesses and ordinary citizens to enhance income generation and alleviate poverty.

The plan was implemented for 5 years from 2004 to 2009 and was extended into phase two starting in 2015. Further, in 2017 the Government of the Republic of Zambia launched the National Financial Inclusion Strategy (NFIS) in order to steer up efforts of financial inclusion by financial sector players. In the same vein of trying to increase access to finance through financial sector deepening, the government also launched the rural finance policy and strategy which is anchored in the Ministry of Finance (Ministry of Finance, 2004, Central Bank of Zambia 2017). In addition to government efforts, there have been other efforts from market actors, sector associations and non-governmental organizations aimed at facilitating increased access to financial services by the Zambian adult population.

However, despite all these efforts that the government and various financial sector stakeholders have put in, access to formal financial services has only marginally increased. According to the 2015 FinScope survey (Access to finance survey), only 38.2 per cent of Zambian adults have access to formal financial services while the rest of the 61.8 per cent is excluded from formal financial services (Zambia FinScope, 2015). This is a story which is common in many African countries especially in the southern region of the continent. With these high levels of financial exclusion of households and businesses in the economy, it is impossible to achieve economic growth and poverty reduction through financial sector deepening as envisaged in many developing countries, government policies and strategies. In this regard, our work seeks to contribute to this topic of financial inclusion in developing countries. Specifically, we look at the Zambian case in understanding the factors that influence an individual’s perceived barriers to financial access and utilisation. Evidence from Zambia presents an interesting case as there is limited empirical studies on financial inclusion in this country.

### **1.1 STUDY OBJECTIVES AND SIGNIFICANCE:**

As the Zambian government and financial stakeholders embark on the facilitation of increased access to finance by economic agents, small businesses and households, it is very important to understand the demand and supply side involved. Until the recent past 5 years, access to financial services especially to the poor households was not given much attention in terms of knowledge generation, hence, there is limited literature on this subject matter. Our work contributes to a further investigation into the financial inclusion landscape in Zambia. Specifically, we contribute to understanding the factors that influence barriers to access to the financial system in the country. Understanding the factors that influence the barriers to the financial system is very important for appropriate and timely policy and intervention design by relevant stakeholders. In the current literature, the focus is on what factors (barriers) influence access to formal financial services. In our work we investigate the root-cause by looking at what individual characteristics influence a potential consumer in perceiving a certain barrier category. This empirical analysis will enable key players to have full insight on how to address the barriers through a further understanding of the drivers of these barriers thereby, informing the design of appropriate interventions. Claessens (2006) argues that in order for countries to reduce the formal financial inclusion gap, formal financial service providers and sector regulators should address the barriers and tailor their services to the needs of the consumers.

Financial inclusion efforts have become one of government’s priority areas of attention as it has been realised that financial expansion is one of the quickest ways of fostering economic growth and thereby, improving people’s quality of life. The findings of this research can be used in complementing the analysis that was done in the FinScope publications. The analysis of the FinScope was mainly descriptive, hence, our work which uses an econometric model in assessing financial behaviour is a good complement. We consider a case of two sub financial sectors; commercial banks and microfinance institutions in the country.

### **2. LITERATURE REVIEW:**

There has been an emerging consensus amongst economists on the relationship between financial sector development and economic growth through finance (Goldsmith, 1969; Mckinnon, 1973; Benhaib and Spiegel, 2000; Claessens and Laeven, 2003; Levine et al., 2000). Financial sector deepening has been observed to impact on economic growth by reducing constraints (legal constraints, enforcement of property rights, creditor rights and accounting standards), thereby eliminating distortions that would otherwise make investment more inefficient in the economy.

In Honohan and King (2012) literature, they establish that an individual’s income level is key in determining whether they are formally banked or not in Sub-Saharan African region. Additionally, in developing countries, Demirgüç-Kunt and Klapper’s (2012) work observe that segments of the population in the lowest income quintile are relatively less likely to have a formal bank account compared to their counterparts in the highest quintile.

Allen et al. (2013) establishes that the following factors are key and with a positive effect on use and ownership of a bank account across the globe: individuals in urban areas, older, married, educated, rich and formally employed.

The study utilised probit model analysis with cross-sectional data from across the globe. Another similar study is that of Zins and Weill (2016). Using 37 African financial systems, they investigated the drivers of financial inclusion using the probit model. They established that gender was influential in financial inclusion, with men being more likely to be included. Further, an individual's economic status and increase in age have positive effects on the likelihood of being financially included.

Further Cole et al. (2009) in a research conducted on India and Indonesia observe that price of financial services in the economy plays a key role in determining demand. This literature discovered that offering small subsidies on some banking services resulted in significant increase in their demand.

The first two discussed factors, income and price are established to be the leading self-reported barriers to access to bank account services globally. Literature indicates that over 65% of individuals who report having no access to a bank account attributed it to a lack of money while 30% of that category identified it as the sole reason. The reason of bank accounts being too expensive was identified to be the second common barrier accounting for 25% of individuals without a bank account (Demirgüç-Kunt and Klapper, 2012).

Claessens (2006), argues that lack of financial inclusion or access to the financial system is mainly as a result of supply and demand factors. The main barriers on the supply side are market failures such as asymmetrical information, monopoly or oligopoly in the financial market and entry barriers to new competitors and or products mean barriers for a category of the population financially excluded due to price reasons, risk and or reduction in supply. On the demand side, price and income are the major economic determinants of demand for savings and payment services.

Additionally, existant literature postulates that an individual's financial literacy levels are significant in their participation in the formal financial sector. They argue that financial literacy can facilitate their understanding of formal service use benefits and in turn improve their demand for such services (Demirgüç-Kunt and Klapper, 2012; Beck and Brown, 2011). Implying that greater financial literacy levels in the economy are likely to lead to increased overall demand, and ultimately, into reducing the inclusion gap.

Further, in Demirgüç-Kunt and Klapper, (2012) research, they argue that cultural norms can also influence demand for formal banking services. They observe that individuals from minority segments of the population are more likely to understand formal financial services differently and are likely to face unique barriers in their access. Additionally, self-selection out of the formal banking sector is relatively higher for minorities. Osei-Assibey (2009) also observes that in order to understand the drivers of formal use, an individual's capability in using and maintain formal financial services should be considered.

In our work, we group these barriers into categories and investigate the underlining factors that influence an individual to perceive these barriers. To the best of our knowledge, there is no such work in the current literature. Our work groups the barriers into the following categories: *barriers of Low Income or insufficient/Irregular*; *barriers of Access (distance to banks, excessive documentation)*; *barriers of Information Asymmetry (lack of financial knowledge, mistrust)* and; *barriers of Lack of collateral and other MFI requirements*.

### 3. EMPIRICAL ANALYSIS:

#### DATA

In this research, we use data from the Zambia 2015 FinScope National Household Survey. The Survey is cross sectional by nature and is conducted approximately after every 5 years considering different respondents in each undertaking. So far, three surveys have been conducted in 2005, 2009 and 2015 respectively. Its main scope is generation of information to help in understanding how individuals manage their financial lives in the economy. In the 2015 survey, a total number of 8,479 respondents were considered. Each respondent represented a household. The survey sample selection process ensured equal representation at national, community and household level respectively. The data was collected using questionnaires with face to face interviews with the respondents. The survey only considered adult respondents, that is, individuals 16 years or older. The survey collected information both at individual and household level making it very useful for our study (FinScope, 2015).

### 4. MODEL SPECIFICATION:

#### MULTINOMIAL LOGIT MODEL

In analysing the barriers to financial inclusion, we employ the Multinomial Logit (MNL) Model. The barriers in the FinScope 2015 where grouped into four categories: '*barriers of low or insufficient income*'; '*barriers of access reason's*'; '*barriers of asymmetric information*' by excluded population and; '*barriers of self-exclusion*'. In the MFI analysis, barriers of lack of collateral are also considered. All the respondents who reported to be excluded from the financial system<sup>1</sup>, indicated one of the barriers highlighted above as the main cause for their financial exclusion.

<sup>1</sup> Individual reporting non-use of any banking nor MFI services. This is as analysed in the FinScope 2015 survey – question Q9\_2

The MNL model for financial inclusion barrier perception is;

$$prob(Y_i = j|X_i) = \frac{\exp(X_i\beta_j)}{1 + \sum_{k=1}^4 \exp(X_i\beta_k)}, j = 1, 2, \dots, 4. \quad (1)$$

In equation (1),  $j$  is the barrier indicated (1. Low income; 2. Access reasons; 3. Asymmetric information and mistrust; 4. Self-exclusion reasons) by the excluded respondent. In this study we are considering the barriers as highlighted above. The  $\beta_j$  term in the equation is the coefficient vector which contains intercepts for the four barriers modelled herein. To guarantee identification in our model,  $\beta_4$ , the intercept for self-exclusion was set to zero (as base outcome). The unit of analysis in this study is the financially excluded respondent in the FinScope, 2015 survey. Outcome four, self-exclusion was used as the base outcome in this empirical analysis. (Wooldridge, 2012; Greene, 2012)

## MODEL VARIABLES

### Dependent Variables

#### *Barriers of Low Income or insufficient/Irregular Income*

This variable was the most attributed to barrier to financial inclusion by the excluded population. It includes barriers such as insufficient income, no regular income, and inability to maintain minimum account balance.

#### *Barriers of Access (distance to banks, excessive documentation)*

The dependent variable considers access barriers such as distance to the banks, inconvenient banking hours, excessive documentation requirement and other barrier reasons from the supply side.

#### *Barriers of Information Asymmetry (lack of financial knowledge, mistrust)*

This is a category of barriers arising from the lack of information about the supply side by the demand side (potential consumers). This category consists of barriers such as lack of knowledge on how to open an account and benefits thereof, misperception of banks being only for a certain economic group and issues of mistrust of banks by the excluded.

#### *Barriers of Lack of collateral and other MFI requirements*

This category is specifically considered in the empirical analysis of the MFI section. This is one of the main barriers to access to financial services provided by MFIs. The main requirements to qualify for MFI services is collateral and sometimes membership to a corporative. In this regard, this barrier has been added specifically for analysis in the MFI section.

### Independent Variables

#### *Gender*

It has generally been established through different studies that access to financial services is different for men and women in the market. In developed countries, 37 per cent women and 47 per cent of men possess an account in a financial institution. In Mexico, in the National Financial Inclusion Survey, access figures were at 40 per cent for men and 30 per cent for women. In the Zambian FinScope 2015, men still have a higher access at 61.2 per cent compared to females at 57.4 per cent. As can be noticed from the examples highlighted herein, access to the financial system is more favourable to men than women. In research, gender was considered as a dummy variable of women to help understand the interaction of gender and perception of exclusion barriers by the consumer (Allen et al., 2013; Johnson, 2004; BBVA, 2013).

#### *Age*

Modigliani's life-cycle theory argues that as people grow old, they tend to consume less. Therefore, they accrue savings in adulthood and de-accumulate in their youth and old age. This might imply that the middle-aged segment of the population has a greater access to financial services (financially included). Against this hypothesis, we included the variable age and age squared to put the aforementioned theory to test (Modigliani and Ando, 1963).

#### *Household size*

Household characteristics to which the individual belongs is very important in influencing financial inclusion. It is argued that the bigger the family, the more likely they are to be excluded from the financial system. In the BBVA, (2013) research on financial inclusion in Mexico, it was established that household size had no influence on perception to barriers to financial exclusion. On the other hand, Cano et al., (2013), demonstrates the opposite in a Columbian study. Against this background, it was very interesting to consider this variable and observe which side it falls on. This variable was considered as a dummy variable for the head of household.

#### *Marital status*

Marital status is another household characteristic that is considered very important in assessing perception to barriers to financial exclusion. In Cano et al. (2013) study, it was established that married men had higher likelihood to

have access to financial services. These results overlap with Allen et al. (2012) studies for countries in the Global Index Survey. In their work, marital status was considered a dummy variable for married individuals.

### Educational status

Educational status of the individual is considered a very important potential influential factor in financial inclusion. This is mainly because educational status is usually used as a proxy for financial literacy of a consumer. Many studies have established that the higher the educational level of an individual, the more likely they are to be financially included. In this research, dummies for primary, secondary and tertiary education were used to estimate the influence of education on an individual's perception of financial exclusion barriers.

### Locational Setting – Urban/Rural

In analysing the effect of locational set up (Urban/Rural) of an individual, this variable was considered. With high disparities in financial service facilities availability between urban and rural areas, we sought to estimate how location influences an individual's perception of the barriers to financial exclusion. This variable was very important as 54.8 per cent of the Zambian population live in rural areas while the rest of the 45.2 per cent reside in urban centres. This empirical analysis used the dummy of rural area in the estimation.

### Accessing Informal Services

Access to informal financial services can influence whether consumers perceive the barriers to access to the financial system or not. It is anticipated that the consumer is likely to perceive the barriers to access to financial services if they have access to informal financial services. Our work considered a dummy variable of those who access informal services in order to assess this supposition.

### Economic status (PPI-quintiles)

In the 2015 FinScope survey, the Progress out Poverty Index (PPI) was used to establish the proportion of respondents that were poor. This variable will be used to assess the influence of poverty or economic status on an individual's perception of the barriers to access to financial services. The variable was considered in quintiles as analysed in the survey. With a very large population of Zambians living in poverty, it is argued that poverty has a greater influence in the perception of financial inclusion barriers. It is hypothesised that the poorer the person as ranked in the PPI quintile, the more likely they are to perceive the barriers, especially access barriers (FinScope, 2015).

## 5. DISCUSSION OF FINDINGS:

Discussion of Findings for commercial banks.

Barriers of low income or insufficient/irregular income.

Table 1: Estimates from the Multinomial Logit Model (Dependent variable: Barriers of low or irregular income)

Variable	RRR	Std. Error	P-value	Sign	Variable	RRR	Std. Error	P-value	Sign
Barriers of self – exclusion	Base								
Marital status-Never Married	1.143	0.547	0.780		Female household head	1.610	0.549	0.163	
Marital status-Married	1.098	0.462	0.824		Female respondent	0.610	0.160	0.060	*
Marital status-Separated	1.495	1.171	0.607		Age household head	1.010	0.008	0.217	
Marital status-Divorced	0.895	0.495	0.840		Household size	1.006	0.036	0.877	
Education 1 (Grade 1 - 4)	2.179	1.233	0.169						
Education 2 (Grade 5 - 7)	4.407	2.823	0.021	**	Provincial Code				
Education 3 (Grade 8 - 9)	2.646	1.344	0.055	*	Copperbelt	0.742	0.257	0.389	
Education 4 (O level)	2.479	1.231	0.067	*	Eastern	0.673	0.260	0.305	
Education 5 (Certificate/Diploma)	2.290	1.109	0.087	*	Luapula	0.990	0.404	0.979	
Education 6 (Degree & above)	2.434	1.230	0.078	*	Lusaka	0.505	0.173	0.046	**
Access to informal financial Services (Yes=1)	2.014	0.488	0.004	***	Muchinga	1.056	0.438	0.895	
Location - Rural (Yes = 1)	1.238	0.232	0.253		North western	1.568	0.856	0.410	
					Northern	0.975	0.392	0.949	
Progress out of Poverty Index (PPI) -Quintiles					Southern	0.745	0.283	0.439	
Very poor	0.792	0.204	0.365		Western	0.584	0.245	0.200	
Poor	0.735	0.229	0.323						
Least Poor	0.821	0.336	0.630						
Log-Likelihood	-2592.934								
No. of Observations	4159								
pseudo-R2	0.032								

\*\*\*Significance to 99%; \*\*Significance to 95%; \*Significance to 90%

Source: Study analysis based on the FinScope 2015 data

In analysing the variables that influence the low-income barriers, we establish that education plays a very important role in the perception of this barrier. The excluded who have only attained primary school education category is observed to be significant (0.021 p-value) and more likely to perceive this barrier more than their counterparts who

have attained higher education. The population with only primary school education is 4.41 (relative risk ratio – RRR) more likely to perceive low income barrier relative to the self-exclusion barrier. This is as expected because the population with only primary education is likely to have few income earning opportunities such as formal employment which usually require individuals to have a functional account for wage payments.

In addition to education, access to formal financial services such as savings groups<sup>2</sup> and chilimba<sup>2</sup> are found to be significant (0.004 p-value) in explaining perception of low income as a barrier to access to formal financial services. Our results indicate that the population with access to informal financial services was 2.01 (RRR) times more likely to perceive low income as the main barrier compared to self-exclusion barriers. The analysis is made assuming other factors remain constant. This is another expected result as the two can be used as a substitute especially in rural areas. Therefore, those using the informal service are likely to say that they cannot maintain the minimum balance in the formal account as they utilize the informal services. This entails that the population accessing informal services are in need of financial services but cannot manage the formal services because of low income.

On the other hand, the research obtains unlikely result indicating that the excluded in Lusaka province are highly likely to indicate low income as a barrier to accessing financial services. Lusaka province was significant with a p value of (0.046 p-value). The empirical analysis establishes that the excluded in Lusaka are 0.51(RRR) times more likely to state low income as the main barrier relative to self-exclusion.

Further, gender is also significant (0.060 p-value) in explaining the perception of low income as a barrier to financial inclusion. It is observed that females are 0.70 (RRR) more likely to perceive low income barriers compared to self-exclusion barriers. This is an expected result as women are much highly marginalised in many opportunities such as employment, access to business opportunities, education and many others. Therefore, with such a situation, it is expected that women are likely to perceive low income as a major barrier to financial inclusion. It is in this regard that many financial inclusion programmes in Zambia are paying special attention to addressing financial inclusion amongst women. Financial inclusion programmes such as the Financial Sector Deepening have set up departments to specifically look at financial inclusion and women. The result established in this study is very much in conformity with the FinScope results of 2009 and 2015. In the latest FinScope, of the 38.2 per cent adult population, only 33.3 per cent women compared to 43.2 per cent of men access formal financial services.

Barriers of access reasons (distance to banks, inappropriate service hours, and excessive documentation)

Table 2: Estimates from the Multinomial Logit Model (Dependent variable: Barriers of access reasons - Banks)

Variable	RRR	Std. Error	P-value	Sign	Variable	RRR	Std. Error	P-value	Sign
Barriers of self- exclusion	Base				Female household head	2.041	0.794	0.067	*
Marital status-Never Married	1.574	0.865	0.409		Female respondent	0.557	0.167	0.051	*
Marital status-Married	1.478	0.726	0.426		Age of household head	0.993	0.009	0.463	
Marital status-Separated	1.528	1.364	0.635		Household size	1.052	0.045	0.236	
Marital status-Divorced	0.904	0.599	0.879		Provincial Code				
Education 1 (Grade 1 - 4)	1.429	1.028	0.62		Copperbelt	0.517	0.212	0.107	
Education 2 (Grade 5 - 7)	2.653	2.084	0.214		Eastern	0.757	0.337	0.532	
Education 3 (Grade 8 - 9)	2.266	1.469	0.207		Luapula	0.671	0.321	0.403	
Education 4 (O level)	1.732	1.106	0.39		Lusaka	0.454	0.183	0.05	*
Education 5 (Certificate/Diploma)	1.821	1.136	0.336		Muchinga	0.615	0.305	0.326	
Education 6 (Degree & above)	2.186	1.408	0.225		North western	1.277	0.781	0.689	
Access to informal financial Services (Yes=1)	1.567	0.46	0.126		Northern	0.841	0.391	0.71	
Location Rural (Yes = 1)	2.014	0.45	0.002	***	Southern	0.66	0.29	0.343	
Progress out of Poverty Index (PPI)- Quintiles					Western	0.958	0.456	0.928	
Very poor	0.795	0.239	0.445						
Poor	1.088	0.403	0.819						
Least poor	1.197	0.588	0.714						
Log-Likelihood				-2592.934					
No. of Observations				4159					
pseudo-R2				0.033					

\*\*\*Significance to 99%; \*\*Significance to 95%; \*Significance to 90%

Source: Study analysis based on the FinScope 2015 data

When it comes to access barriers, demand challenges emanating from service providers, location is found to be significant (0.002 p-value) in explaining this. Our work establishes that the excluded from rural areas are 2.01(RRR) times more likely to indicate access reasons as the main barrier to accessing the financial system relative to self-exclusion barriers. This is a highly expected result on this barrier because there exists a major disparity in financial

<sup>2</sup> ‘Marry goes round’ usually women and workmates contribute an agreed amount to a colleague every month

services provision between the rural and the urban areas in Zambia. The rural areas experience difficulties in accessing these services due to distance to service points. With 58 per cent of the Zambian population residing in rural areas of the country, this barrier is one of the major barriers to financial inclusion. So much needs to be done by the government, market actors and financial inclusion stakeholders (Zambia Central Statistical Office, 2015).

Another variable that is significant (0.0051 p-value) in influencing the barrier to access reason is gender of the household head. We observe that houses headed by females are 2.04 times more likely to face access barriers relative to self-exclusion. This is another result that is within the research expectation because of disparities in opportunities some of which have been discussed in above sections. Zambia like many developing countries is faced with inequality in income earning opportunities between men and women. Further, accessing certain financial services such as loans is usually very difficult for females because of the lack of collateral. It is generally very difficult for women to own assets that can be used as collateral. The cultural norm is that property is usually registered in the ownership of the man regardless of who is the head of the household. Worse still, registration of property like land is not well implemented especially in rural areas hence most people have no legal documentation even in instances where they own land.

In addition to the points above, women are also likely to highlight access reasons as the main barrier to their access to financial services because they multi-task and end up performing so many house duties in addition to income generating activities. In this regard, they are likely to indicate barriers such as distance to banks, excessive document requirements by the bank and inappropriate bank working hours as the main barriers to financial inclusion.

In this group of barriers, location in terms of province was established to be significant (0.05 p-value). Specifically,

Lusaka province was the significant province here. The study established that the excluded population in Lusaka where 0.452 times more likely to indicate access reason barriers as the main barrier to financial exclusion. This is a strange result because Lusaka is the capital city of the country and hence it was expected that the access reasons would not matter much compared to other provinces. Therefore, it would be interesting to conduct further studies on why the excluded in Lusaka have a likelihood of indicating access reason as a barrier relative to self-exclusion reasons.

Information asymmetry (mistrust, lack of financial knowledge)

Table 3: Estimates from the Multinomial Logit Model (Dependent variable: Barriers of lack of information - Banks)

Variable	RRR	Std. Error	p-value	Sign	Variable	RRR	Std. Error	p-value	Sign
Barriers of self – exclusion	Base								
Marital status-Never Married	0.785	0.502	0.705		Female household head	1.592	0.682	0.278	
Marital status-Married	1.246	0.66	0.678		Female respondent	0.392	0.124	0.003	***
Marital status-Separated	2.331	2.075	0.342		Age of household head	1.023	0.01	0.016	**
Marital status-Divorced	0.906	0.648	0.89		Household size	1.01	0.046	0.833	
Education 1 (Grade 1 - 4)	4.997	5.865	0.17		Provincial Code				
Education 2 (Grade 5 - 7)	13.551	16.358	0.031	**	Copperbelt	0.634	0.275	0.294	
Education 3 (Grade 8 - 9)	7.721	8.698	0.07	*	Eastern	0.696	0.331	0.446	
Education 4 (O level)	5.837	6.542	0.115		Luapula	0.309	0.174	0.037	**
Education 5 (Certificate/Diploma)	4.532	5.046	0.175		Lusaka	0.557	0.239	0.173	
Education 6 (Degree & above)	6.263	7.064	0.104		Muchinga	0.504	0.274	0.207	
Access to informal financial Services (Yes=1)	1.673	0.512	0.093	*	North western	2.292	1.414	0.179	
Location - Rural (Yes = 1)	1.387	0.333	0.174		Northern	0.371	0.201	0.067	*
Progress out of Poverty Index (PPI) - Quintiles					Southern	0.977	0.448	0.96	
Very poor	0.94	0.301	0.847		Western	0.737	0.382	0.556	
Poor	0.858	0.342	0.702						
Least poor	0.624	0.348	0.397						
Log-Likelihood	-2592.934								
No. of Observations	4159								
pseudo-R2	0.033								

\*\*\*Significance to 99%; \*\*Significance to 95%; \*Significance to 90%

Source: Study analysis based on the FinScope 2015 data

In this section, education was found to be significant (0.031 p value) in influencing information, mistrust barriers by the financially excluded population. Our work establishes that the excluded with only primary school education are 13.55 times more likely to perceive this variable relative to the self-exclusion barriers. This result affirms the supposed positive relationship between education and financial literacy as argued in the wide financial literacy literature. In many studies, education is used as a proxy for financial literacy and this result confirms the argument as people with lower education were observed to be more likely to perceive the barrier of asymmetric information. It can be insinuated that this perception was due to the fact that individuals with only primary school and without education have less financial knowledge to facilitate their appropriate utilisation of financial services.

Age of household was also found to be significant (0.016 p-value) in explaining this barrier under consideration. The study established that an increase in age increased the likelihood of perceiving this barrier. However, at a certain age (46 years), this variable gets reversed (hits the reflexion point). This can be explained by the fact that at this age the consumers are likely to have acquired enough information to erase the misperception about commercial bank services and formal financial services in general.

Further, the study established a significant (0.067 p-value) influence from location in terms of province. The excluded population from Northern Province were found to be 0.37 (RRR) times more likely to perceive this barrier relative to self-exclusion reasons. The study established the excluded population in Northern Province part of Zambia are more likely to perceive this barrier. This result is within the expectation of the study as Northern Province is one of the provinces with low literacy and high poverty levels in the country.

Another variable that was significant, was gender with 0.003 p-value. In particular, women were more likely to attribute to this barrier relative to the self-exclusion barrier. This is another outcome that is within the study hypothesis expectation. As argued in above sections, women are highly marginalised in access to so many opportunities in the economy. With women being the more uneducated compared to men, they are most likely to perceive this barrier of information asymmetry more than men. The study established that women respondents are 0.39 (RRR) times likely to attribute to barriers of information asymmetry and mistrust as the main barriers to access to the formal financial system.

Access to informal financial services was also established to be significant (0.093 p-value). Here, the formally excluded individuals but using informal services were established to be more likely to indicate this barrier. This group of excluded population was found to be 1.67 times more likely to indicate this barrier relative to self-exclusion barriers. This may be explained by the fact that having access to informal financial through friends and family, and through savings groups makes them less interested to know about formal financial services. In terms of trust, these individuals accessing informal services from savings groups are self-selected usually business friends or church mates hence they trust each other more than the banks. In this regard, it would be interesting to conduct a study on whether informal services and formal financial services are being considered as substitutes.

Microfinance institutions

Barriers of low or insufficient income

Table 4: Estimates from the Multinomial Logit Model (Dependent variable: Barriers of low or irregular income - MFIs)

Variable	RRR	Std. Error	P-value	Sign	Variable	RRR	Std. Error	P-value	Sign
Barriers of self-exclusion	Base								
Marital status-Never Married	0.72	0.274	0.389		Female household head	1.199	0.323	0.5	
Marital status-Married	0.75	0.263	0.411		Female respondent	0.646	0.137	0.039	**
Marital status-Separated	1.731	1.348	0.481		Age of household head	1.025	0.008	0.001	***
Marital status-Divorced	1.014	0.511	0.978		Household size	1.001	0.032	0.983	
Education 1 (Grade 1 - 4)	2.712	1.187	0.023	**	Provincial Code				
Education 2 (Grade 5 - 7)	3.933	1.915	0.005	***	Copperbelt	1.044	0.27	0.868	
Education 3 (Grade 8 - 9)	3.524	1.293	0.001	***	Eastern	1.399	0.434	0.279	
Education 4 (O level)	2.944	1.015	0.002	***	Luapula	2.471	0.907	0.014	**
Education 5 (Certificate/Diploma)	3.384	1.115	0	***	Lusaka	1.489	0.402	0.141	
Education 6 (Degree & above)	2.926	0.974	0.001	***	Muchinga	2.311	0.85	0.023	**
Access to informal financial Services (Yes=1)	1.14	0.209	0.473		North western	2.213	0.887	0.048	**
Location - Rural (Yes = 1)	0.749	0.125	0.082	*	Northern	1.981	0.669	0.043	**
Progress out of Poverty Index (PPI)- Quintiles					Southern	1.07	0.324	0.822	
Very poor	0.536	0.14	0.017	**	Western	1.238	0.509	0.604	
Poor	0.471	0.142	0.013	**					
Least poor	0.293	0.106	0.001	***					
Log-Likelihood	-5522.461								
No. of Observations	4128								
Pseudo-R2	0.035								

\*\*\*Significance to 99%; \*\*Significance to 95%; \*Significance to 90%

Source: Study analysis based on the FinScope 2015 data

In analysing factors that influence the perception of low-income barriers in microfinance institutions, location (Rural/urban), education, poverty, gender and age are established to be significant.

The study established that the excluded population in rural areas are 0.75 (relative risk ratio -RRR) more likely to attribute to low income as the barrier to financial inclusion relative to self-exclusion. This factor was significant with 0.084 p-value. This observation is within the study hypothesis because of the high disparities in income earning opportunities between the urban and rural areas of the country. Most of the income earning opportunities such as jobs and businesses are concentrated in urban centres. Therefore, the excluded in rural areas face the barrier of low/irregular income more than their urban counterparts.

In addition to location, poverty status was also significant in explaining the perception of low income as a barrier to financial inclusion in MFIs. Using the Progress out of Poverty Index (quintiles), we observe that the poorer the person the more they were expected to attribute to low income as a barrier to financial inclusion relative to self-exclusion. The excluded in first quintile (poorest) are 0.537 (RRR) more likely to attribute to low income barriers relative to self-exclusion barriers. This result is equally as expected by the study, in that, poverty is very highly connected to a lack of income for consumption and savings.

Further, the study also establishes that gender of the household head is significant (0.039 p-value) in explaining low income. It is observed that women are 0.646 (RRR) more likely to attribute to low income as a barrier to financial inclusion relative to self – exclusion. And as it has been argued in the commercial bank section, marginalisation of women in access to essential facilities is the main explanation to this situation.

Lastly, the other variable that is found to be significant (0.001 p-value) is the age of the household head. We note that with an increase in age, the excluded individual was 1.025 (RRR) more likely to attribute to low income as a barrier to their access to MFI financial services.

Barriers of Access reasons (High interest rates, distance to banks, inappropriate service hours)

Table 5: Estimates from the Multinomial Logit Model (Dependent variable: Barriers of access reasons - MFIs)

Variable	RRR	Std. Error	P-value	Sign	Variable	RRR	Std. Error	P-value	Sign
Barriers of self- exclusion	Base								
Marital status-Never Married	0.752	0.334	0.522		Female household head	1.049	0.327	0.877	
Marital status-Married	0.859	0.35	0.709		Female respondent	0.549	0.132	0.013	**
Marital status-Separated	1.323	1.18	0.754		Age of household head	1.035	0.009	0	***
Marital status-Divorced	0.919	0.538	0.885		Household size	0.986	0.036	0.696	
Education 1 (Grade 1 - 4)	1.583	0.8	0.364		Provincial Code				
Education 2 (Grade 5 - 7)	1.831	1.022	0.279		Copperbelt	0.352	0.104	0	***
Education 3 (Grade 8 - 9)	2.057	0.886	0.094	*	Eastern	0.866	0.292	0.67	
Education 4 (O level)	1.526	0.627	0.304		Luapula	1.037	0.417	0.928	
Education 5 (Certificate/Diploma)	1.781	0.699	0.141		Lusaka	0.589	0.179	0.081	*
Education 6 (Degree & above)	2.024	0.796	0.073	*	Muchinga	0.981	0.399	0.963	
Access to informal financial Services (Yes=1)	1.241	0.265	0.313		North western	0.621	0.289	0.307	
Location - Rural (Yes = 1)	1.29	0.245	0.18		Northern	0.672	0.257	0.3	
Progress out of Poverty Index (PPI)- Quintiles					Southern	0.772	0.253	0.43	
Very poor	0.516	0.148	0.021	**	Western	2.037	0.858	0.091	*
Poor	0.525	0.178	0.057	*					
Least poor	0.384	0.16	0.021	**					
Log-Likelihood	-5522.461								
No. of Observations	4128								
Pseudo-R2	0.035								

\*\*\*Significance to 99%; \*\*Significance to 95%; \*Significance to 90%

Source: Study analysis based on the FinScope 2015 data

When it comes to barriers of access reasons in MFIs, the study establishes that Economic status (PPI-poverty quintiles) education status, gender and age are significant.

The research observes that economic status as measured using the Progress out of Poverty Index (PPI) was significant (0.021 p-value) in explaining access reason barriers. It is established that poor people are more likely to attribute to this barrier. This observation is certainly within the expectations of the study as many of the poor are in rural areas and cannot afford the high charges from financial service providers.

Further, education is also found to be significant with 0.094 p – value. We establish that the less educated are more likely (2.057 RRR) to perceive this barrier relative to the self – exclusion barriers.

Information asymmetry (Lack of information about MFIs, mistrust)

Table 6: Estimates from the Multinomial Logit Model (Dependent variable: Barriers of lack of information - MFIs)

Variable	RRR	Std. Error	P-value	Sign	Variable	RRR	Std. Error	P-value	Sign
Barriers of self – exclusion					Base				
Marital status-Never Married	0.25	-1.12	0.307		Female household head	1.197	0.323	0.504	
Marital status-Married	0.854	0.301	0.654		Female respondent	0.59	0.125	0.013	**
Marital status-Separated	2.408	1.867	0.257		Age of household head	1.025	0.008	0.001	***
Marital status-Divorced	0.774	0.398	0.618		Household size	0.994	0.032	0.862	
Education 1 (Grade 1 - 4)	1.929	0.837	0.13		Provincial Code				
Education 2 (Grade 5 - 7)	2.906	1.403	0.027	**	Copperbelt	0.604	0.157	0.053	*
Education 3 (Grade 8 - 9)	3.01	1.085	0.002	***	Eastern	1.171	0.363	0.61	
Education 4 (O level)	2.138	0.725	0.025	**	Luapula	2.119	0.777	0.041	**
Education 5 (Certificate/Diploma)	2.613	0.843	0.003	***	Lusaka	1.294	0.348	0.338	
Education 6 (Degree & above)	2.574	0.836	0.004	***	Muchinga	2.162	0.793	0.035	**
Access to informal financial Services (Yes=1)	1.284	0.236	0.173		North western	2.446	0.973	0.024	**
Location - Rural (Yes = 1)	0.878	0.146	0.433		Northern	1.877	0.631	0.061	*
Progress out of Poverty Index (PPI)- Quintiles					Southern	1.585	0.469	0.12	
Very poor	0.535	0.139	0.016	**	Western	2.296	0.918	0.038	**
Poor	0.412	0.125	0.003	***					
Least poor	0.337	0.122	0.003	***					
Log-Likelihood	-5522								
No. of Observations	4128								
Pseudo-R2	0.035								

\*\*\*Significance to 99%; \*\*Significance to 95%; \*Significance to 90%

Source: Study analysis based on the FinScope 2015 data

In understanding this barrier, it is established that gender, economic status (PPI quintiles) and education are significant. The independent variable gender is significant with 0.013 p-value and 0.589 relative risk ratio. Implying that women are 0.589 times more likely to perceive barriers of lack information about MFI's operations/services. Economic status is another factor that is significant in explaining this barrier. Our work establishes that poor people (first quintile of PPI) are more likely to perceive this barrier relative to the self – exclusion barriers (base outcome). Further, education is also significant in explaining this barrier. The paper observes that the excluded population are more likely indicate this as the barrier to access to MFI services.

#### Lack of collateral

Table 7: Estimates from the Multinomial Logit Model (Dependent variable: Barriers of lack of collateral - MFIs)

Variable	RRR	Std. Error	P-value	Sign	Variable	RRR	Std. Error	P-value	Sign
Barriers of self – exclusion					Base				
Marital status-Never Married	1.342	0.794	0.619		Female household head	1.382	0.548	0.414	
Marital status-Married	1.476	0.81	0.478		Female respondent	0.499	0.149	0.02	**
Marital status-Separated	2.215	2.402	0.464		Age of household head	1.017	0.012	0.139	
Marital status-Divorced	1.316	1.012	0.721		Household size	1.038	0.051	0.441	
Education 1 (Grade 1 - 4)	0.896	0.683	0.885		Provincial Code				
Education 2 (Grade 5 - 7)	3.143	2.228	0.106		Copperbelt	0.695	0.268	0.345	
Education 3 (Grade 8 - 9)	1.597	0.909	0.411		Eastern	0.837	0.401	0.71	
Education 4 (O level)	1.643	0.868	0.347		Luapula	0.501	0.33	0.294	
Education 5 (Certificate/Diploma)	1.805	0.902	0.238		Lusaka	1.147	0.447	0.725	
Education 6 (Degree & above)	1.597	0.808	0.354		Muchinga	0.369	0.265	0.166	
Access to informal financial Services (Yes=1)	0.783	0.237	0.419		North western	0.826	0.526	0.764	
Location - Rural (Yes = 1)	0.591	0.165	0.059	*	Northern	0.492	0.297	0.24	
Progress out of Poverty Index (PPI)- Quintiles					Southern	0.915	0.41	0.842	
Very poor	1.08	0.476	0.862		Western	0.829	0.529	0.769	
Poor	0.84	0.423	0.729						
Least poor	0.902	0.529	0.861						
Log-Likelihood	-5522								
No. of Observations	4128								
Pseudo-R2	0.035								

\*\*\*Significance to 99%; \*\*Significance to 95%; \*Significance to 90%

Source: Study analysis based on the FinScope 2015 data

When it comes to barriers of collateral, location is a significant (0.085 p-value) factor. We establish that the excluded population in rural areas are 0.621 (RRR) times more likely to attribute to lack of collateral as the barrier to access to MFI's services relative to self –exclusion barriers (base outcome). This result makes sense because of the disparities in income and possession of property that exists between the rural and urban, with the urban residents being better off. Further, problems in possession of legal documents for property such as land in rural areas makes the rural population worse off in terms of collateral as required by the MFIs.

Further, gender is found to be significant (0.023 p-value) in explaining this barrier under consideration. It is observed that women are 0.06 (RRR) times more likely to perceive lack of collateral as the barrier to MFI's services relative to self-exclusion barriers. Like in the other sections where gender was significant, the main factor driving this is the marginalisation of women against opportunities such as land ownership, jobs, education amongst a few??

## **6. CONCLUSIONS AND POLICY IMPLICATIONS:**

In Zambia, 38 per cent of the adult population aged 16 and older have access to the formal financial system. This means that, the larger population of 62 per cent is excluded from the formal financial system in the country (FinScope, 2015).

To help in understanding the financial behaviour of the financially included and excluded population, our work employed the Zambia 2015 FinScope Survey data-set. Our empirical analysis uses a multinomial logit model in understanding the phenomenon under consideration. The multinomial model estimated the relative risk ratios (RRR) to indicate whether an individual with certain attributes is more likely to perceive the barrier of low income, access reason, information asymmetry or personal reasons instead of self-exclusion barrier category which was employed as the base outcome.

As established in the FinScope 2015, the most important barrier to the formal financial system is low income by the excluded population. In commercial banks, this barrier was found to be influenced by: education, access to informal financial services and gender of the potential consumer. The excluded individuals with these characteristics are more likely to perceive low income barriers relative to self-exclusion barriers. In MFIs analysis, location setting (rural/urban), poverty status, gender and age education are significant in explaining the low-income barrier to MFI services.

The second most important group of barriers was access reasons (reasons due to the limitations from the providers). In assessing what factors influence this barrier in commercial banks, it was observed that location and gender of household head are the significant or important factors. When it comes to MFIs, age, location, gender, education and economic status (PPI-poverty status) are the factors that influence perception of access reason barriers by the excluded population.

Lastly, 'lack of information and personal reasons' barrier was established to be influenced by education, access to informal financial services, age, location and gender in commercial banks. On the other hand, age, economic status, education and gender are the significant factors in explaining this barrier in MFI financial exclusion. In addition to the three barriers, the study analysed the barrier of lack of collateral in MFI section only. In this barrier, it was established that location and gender are the significant factors.

## **7. STUDY RECOMMENDATIONS:**

As established and highlighted herein, special consideration should be given to interventions aimed at encouraging women participation in the financial system and other essential sectors. Our work establishes that women are likely to perceive all the four main barriers to financial inclusion, low income or irregular income, 'information asymmetry and personal reasons', access reasons barriers and lack of collateral relative to their male counterparts. In the current state of affairs, this outcome was expected because females are highly marginalised in most economic and social opportunities such as job and business opportunities, property ownership, education and many others. Therefore, the government and promoters of women empowerment should continue with their efforts and design special interventions for women's increased participation in the financial system.

The other critical area of consideration is the provision of information about financial services and products to the financially excluded population. As established in this research piece, education, gender and age are the common factors that explained the perception of this barrier by the excluded population. Therefore, provision of financial literacy and specific information about commercial banks and MFI services should put into consideration the low literacy levels that exist in the country. This is so because most of the excluded population who perceived this barrier where those with low education status.

On one of the main barriers of access to MFIs, lack of collateral which is influenced by location and gender, ensuring that the newly established collateral registry system is functional and serves low-income individuals is key. Therefore, stakeholders should work on its functionality and ramp-up national sensitisation of its use. Further, formalisation of property such as land especially in rural areas will help in addressing this barrier.

## **8. Potential Research Opportunities :**

- Future studies should concentrate on financial inclusion using the SME sector as a case study. There are few studies on this topic especially in the Southern Part of Africa. Considering the SME sector will make the financial inclusion picture more holistic and perfectly complement this work which considered financial inclusion at household or individual level only.

- Further, an analysis of other access to finance data sets especially in the Sub-Saharan Africa region would be very insightful on this topic. This study has done a very good analysis of the Zambian case but to enhance the inference power further, a regional analysis would be useful. It would further help compare across the continent and help regional bodies in interventions design.

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## APPENDIX

Appendix 1: Description of independent variables in the MNL Models

Variable	Question FinScope 2015	Definition/Description
Gender (head of household & respondent)	Q1.1.2 Is the head of household male/female?	Dummy: 2 is female and 1 male
Age	Q1.1.1 How old is the head of household?	Age in years
Age squared	Q1.1.1 How old is the head of household?	Age squared
Household size	A6. How many people are in this household?	Number of members in the household
Locational setting	A5. Setting of residence, Rural /Urban	Dummy: 1 if rural and 2 Urban
Accessing informal services	Q8.1.1 Do you currently belong to a 'chilimba' or savings groups?	Dummy: 1 if yes and 2 otherwise
Marital status	Q1.1.3 Which of the following apply to the head of household?	Married and living together
Education status	Q1.14 What is the highest level of education the head of household has achieved?	No formal education Grade 1-4, Grade 5-7 Grade 8-9. Grade 12 & A-levels, and tertiary education
Poverty levels	PPI	PPI poverty quintiles
Risk mitigation ability	Q3.6.1 We all have unexpected expenses such as medical costs, etc. Are you doing anything to make sure that you can deal with such unexpected expenses?	Dummy: 1 Yes and 2 No

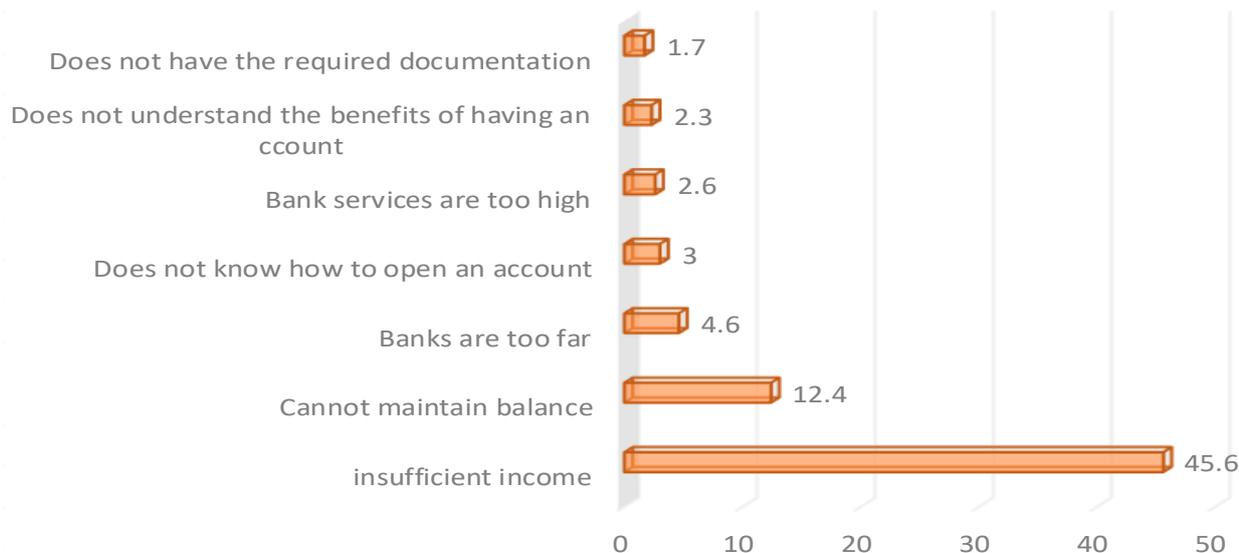
Source: Author's work

Appendix 2: Dependent Variables

Variable	FinScope 2015 Question	Definition/Description
Barrier of low income or irregular income	Generated from Q9_6 for banks and Q9_10 for MFIs	This variable combines responses of insufficient and inability to maintain the minimum balance.
Barriers of access reasons	Generated from Q9_6 for banks and Q9_10 for MFIs	This barrier combines the following exclusion reasons: bank charges are too high, banks are too far away, banking hours are not convenient, does not have the required documentation and banks do not provide appropriate products for me
Barriers of personal barriers/information asymmetry and mistrust of banks	Generated from Q9_6 for banks and Q9_10 for MFIs	Considers the following exclusion reasons: does not know how to open an account, does not understand benefits of having an account, does not trust banks And I feel intimidated in the bank/Not comfortable
Barriers of self-exclusion	Generated from Q9_6 for banks and Q9_10 for MFIs	Can get the same service somewhere else (I have no interest) 12. I need permission from someone

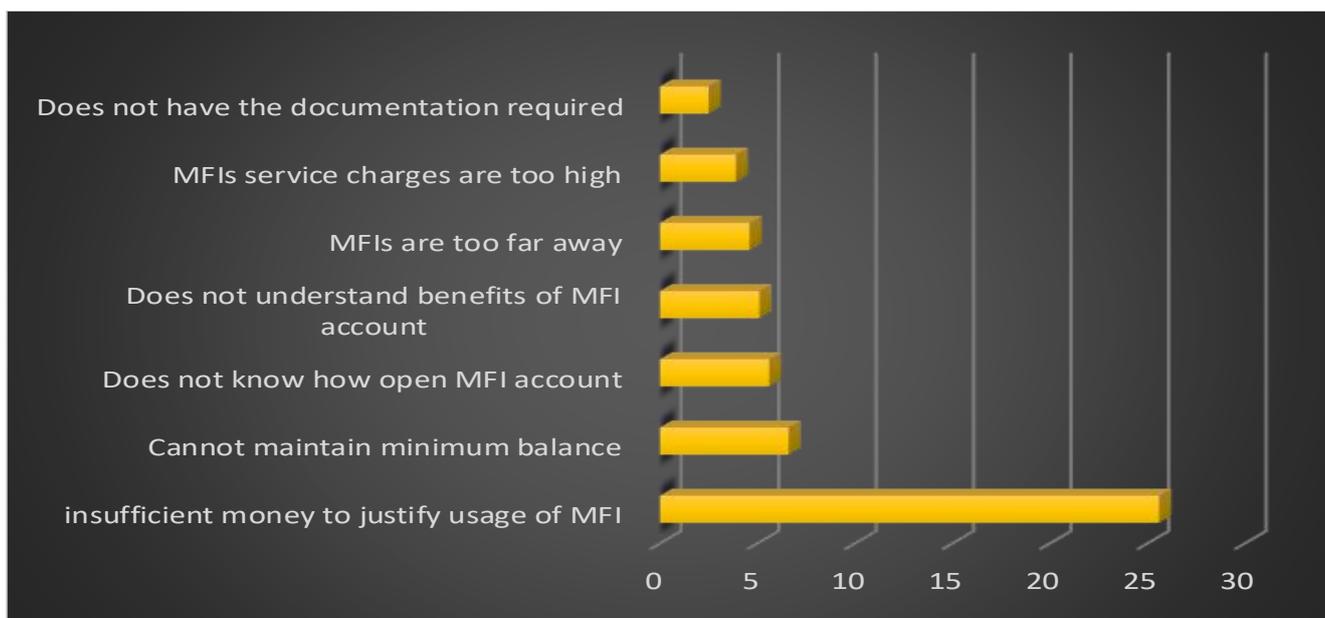
Source: Author's work

Appendix 3: Barriers of access to bank services in percentages



Source: FinScope, 2015

Appendix 4: Barriers of access to Microfinance institutions in percentages



Source: FinScope 2015 survey

Appendix 5: Distribution of banked population by province

Province	Percentage of Population	Percentage of the banked
Lusaka	14.8	39.2
Copperbelt	17.8	21.2
Southern	11.7	12.9
Northern	12	6.7
Central	11.3	5.9
Eastern	12.7	5.5
North Western	5.5	3.5
Western	7.3	2.7
Luapula	7.3	2.4

Source: FinScope, 2009.