

# Financial Inclusion and its Determinants in Zimbabwe

Gerald Ngoma

MSc Economics Student, Department of Economics, University of Zimbabwe  
Harare, Zimbabwe

Email - gerryngoma@gmail.com

**Abstract:** *Financial inclusion has taken a centre stage in academia and policy circles in developing countries due to its ability to drive economic growth, reduce poverty and inequality as well as facilitate savings. This study provided evidence on the determinants of financial inclusion in Zimbabwe using a binary logit model. This study established that individual characteristics: age, income, gender, education and employment status were the determinants of financial inclusion in Zimbabwe. In addition, this study established that trust in financial institutions was the major reason why the majority remained unbanked. Against these findings, promoting an all-inclusive financial sector to cover existing gaps is essential for the nation and implementing policies effective in boosting confidence and trust in financial institutions remains critical for Zimbabwe.*

**Key Words:** *Financial inclusion, Financial institutions, Logit model, Zimbabwe.*

## 1. INTRODUCTION AND BACKGROUND:

Financial inclusion is defined as the process by which access to and use of formal financial services are maximised, whilst minimising unintended barriers, perceived as such by those individuals who do not take part in the formal financial system (Cámara *et al.*, 2014). It involves financial institutions offering credit, savings, payment and risk management services to people with a wide range of needs. In recent years, interest in and devotion to improving financial inclusion levels around the world have increased as shown by an increase in the number of governments as well as regional blocs that are committed to developing and promoting financial inclusion strategies. The increased emphasis on financial inclusion comes as a result of its ability to produce benefits at individual level, society level, country level and the world at large. In particular, financial inclusion is able to drive economic growth (Kim *et al.*, 2017) and promote resource mobilisation through developing a culture of saving (Allen *et al.*, 2012). In addition, financial inclusion helps in narrowing the gap between the poor and the rich, as well as male and female individuals, through empowering the disadvantaged groups (Swamy, 2013). More so, financial inclusion enables individuals to access funds from the financial market that will enable them to smooth consumption. Furthermore, Aterido *et al.* (2013) opined that lack of access to and use of financial services impedes entrepreneurship and prevents the disadvantaged groups to participate in the modern market economy. In light of these benefits, financial inclusion has gained popularity and priority among financial regulators and policy makers in developing countries including Zimbabwe.

In its quest to improve financial inclusion, Zimbabwe joined the Alliance for Financial Inclusion network in 2012 and has been implementing the Southern African Development Committee's strategy on financial inclusion. Being part of different networks across the globe shows that Zimbabwe is interested in financial inclusion matters. Against the background of increasing financial inclusion and its importance, the Government of Zimbabwe through the Reserve Bank of Zimbabwe (RBZ) launched the National Financial Inclusion Strategy (2016-2020) in 2016. The strategy seeks to ensure the existence of an inclusive financial sector that broadens access to and use of financial services by all with the view of engendering social and economic development (RBZ 2016). In other words, the strategy seeks to increase the status of financial inclusion which is defined as the effective use of a wide range of quality, affordable and accessible financial services, provided in a fair and transparent manner through formal/regulated entities, by all Zimbabweans (RBZ, 2016). In particular, the strategy aims to increase the overall level of access to affordable and appropriate formal financial services within the country from 69% in 2014 to at least 90% by 2020 and to increase the proportion of banked adults from 30% in 2014 to at least 60% by 2020 as well as addressing the needs of special interest groups, namely women, youth, MSMEs, the rural and the small scale agricultural communities (RBZ, 2016).

However, the attainment of these objectives can be endangered by policies implemented by the Government of Zimbabwe and problems facing the economy. These include the Intermediated Money Transfer Tax (IMMT)<sup>1</sup> policy established by the Government in 2018 applicable to all electronic transactions. The tax acts as a barrier to financial inclusion in that individuals are demotivated to use payment services such as mobile money or bank transfers as it leads to an increase in costs of transacting. The other issue that poses a threat to financial inclusion is the liquidity crises that

<sup>1</sup> This is a 2% tax charged when a financial institution mediates the transfer of money, not by cheque, between two persons or from one person to two or more persons or from two or more persons to one person.

has worsened. Since people are facing difficulties in withdrawing their savings from banks, trust and confidence in banks have been eroded and as such a few are saving with banks; thus, hazarding financial inclusion.

Despite the unfavourable economic conditions experienced in Zimbabwe, banks had made commendable efforts to increase financial inclusion levels. These efforts include, among others, increasing services such as automated teller machines and point of sale facilities, introducing low cost bank accounts, increasing agent banking network and introducing easy-to-register bank cards and accounts that give their holders access to formal banking. The status of financial inclusion is shown in Table 1.

Table 1: Financial Inclusion Status in Zimbabwe

Year	Banked	Informal	Mobile Money Account	Financially Excluded
2011	24%	41%	-	40%
2014	30%	37%	91%	23%

Sources: FinScope (2014)

As shown in Table 1, 24% and 30% were banked in 2011 and 2014, respectively. FinScope (2014) consumer survey reported that in 2011, 40% of the population was financially excluded and the level declined to 23% in 2014. Table 1 also shows that informal financial inclusion that is participation in informal borrowing and saving increased to 49% in 2017 from 37% in 2014.

### 1.1 Objectives of the Study

Against the backdrop of declining financial inclusion level, this study seeks to investigate the barriers to financial inclusion in Zimbabwe. Specifically, this study seeks to unearth the impact of individual characteristics on financial inclusion that is measured by ownership of an account at a formal financial institution, mobile money account, saving and borrowing. In addition, this study seeks to obtain a deeper understanding on the barriers to financial inclusion by unearthing the impact of individual characteristics on the likelihood of reporting the reasons for being financially excluded. Since informal financial inclusion has increased, this study is motivated to determine the factors affecting the decision to participate in it.

### 1.2 Research Questions

This study raised several questions, and these are: what are the determinants of financial inclusion in Zimbabwe? What is the impact of individual characteristics on financial inclusion that is measured by ownership of an account at a formal financial institution, mobile money account, saving and borrowing? What are the factors affecting the likelihood to be financially excluded? What are the factors determining the decision to participate in informal financial markets?

### 1.3 Research Contributions

This study makes several contributions. This study is in an effort to contribute to the literature on financial inclusion by studying the determinants of financial inclusion in Zimbabwe. To the best of the researcher’s knowledge, previous studies on the determinants of financial inclusion have used 2011 and 2014 financial inclusion data. Thus, this study provides new evidence by using new data available, the 2017 financial inclusion data, provided by the World Bank. Furthermore, the results of this study will be of utmost value to policy makers and financial regulators.

## 2. LITERATURE REVIEW:

### 2.1 Theoretical literature

The demand theory is one of those theories that can be linked to financial inclusion when articulating the determinants of financial inclusion. The theory insinuates an inverse relationship between price of a commodity and its quantity demand meaning that when price of a commodity rises, consumers will buy less of the commodity, *ceteris paribus*. When related to financial inclusion, this inverse relationship would imply that when the price (in this case interest rate, transaction cost and other costs related to the use of financial services) increases, the use of financial services or products will decline, *ceteris paribus*. To this end, it can be argued that if individuals view banking services and products as expensive, financial exclusion will be high especially among the disadvantaged people such as low income individuals. The Life Cycle Hypothesis (LCH), developed by Modigliani, Ando and Brumberg (1954), also helps to identifying factors that affect financial inclusion. The LCH is appreciated for its recognition of income fluctuations and saving behaviour of individuals in their lives. Thus, this hypothesis acknowledges that income and saving behaviour depends on the age of the person. In the early stages of people’s life, income will be low hence individuals will dis-save and as they move into the middle stage, income will rise that’s when they repay the debt incurred in the early stages and also save for the retirement years. When people retire, income will be low and will consume the resources accumulated in the middle stage. In this sense, this hypothesis implies that financial institution will be of great importance in the process of consumption smoothing. The use of financial institutions to save or borrow

is part of financial inclusion; hence, financial inclusion depends on age and income of the individual and will be expected to be the greatest among people who are middle-aged as compared to other stages. Thus, there is a non-linear relationship between age and financial inclusion implied by this hypothesis.

## 2.2 Empirical Literature Review

Allen *et al.* (2012) studied the individual characteristics associated with the use and ownership of bank accounts using cross-sectional data for 123 countries across the globe. Probit models were estimated to determine the impact of different factors on the likelihood of ownership and use of bank accounts to save and the frequency of use of that accounts. It was found out that the likelihood of owning a bank account was higher among the urban, richer, older, educated, married and employed individuals but was not affected by gender.

Using cross-sectional data, Camara *et al.* (2014) investigated the factors that matter for financial inclusion in Peru. The study used probit model to analyse data from the World Bank (2011). The study found out that living in rural areas, low educational level, low income, being a woman and being single appeared as significant factors that reduced the likelihood of using banking products and services. However, it was reported that age had no impact on financial inclusion.

A cross-country study was carried out by Zins and Weill (2016) to determine factors influencing financial inclusion in 37 African countries using a probit model. Variables included were gender, age, income and education. The study found out that the probability of being financially included was greater among men, higher income earners and increases with age up to a certain point where it starts to decrease and also established that the determinants of informal financial inclusion differ from those of formal financial inclusion. The results of this study are in line with those of Fungáčová and Weill (2014) who established that male individual, older individuals, high income earners and more educated individuals had high chances of being financially included than their respective counterparts.

In addition, Akudugu (2013) carried out a study on the determinants of financial inclusion in Ghana. The study adopted a logit model and observed that the probability that an adult is included in the formal financial system was low when an individual lacks trust and necessary documents, cost was perceived to be high and wealth was low. The study found out that education and age increase the probability of an adult to be included in the formal financial system. Gender was observed to have no effect on financial inclusion.

Musa *et al.* (2015) analysed the drivers of financial inclusion and its gender gap in Nigeria. To accomplish the objectives, the study applied a binary probit model and also used the technique of Fairlie decomposition. The study found out that youthful age, better education and high income increased the chance for individuals to be incorporated in the financial sector. However, being female, having low income and old age decreased the prospect for an individual to be formally included in the financial sector. The results from the decomposition technique endorsed the presence of gender gap in the financial inclusion acutely in favour of male individuals; secondary education was outlined as the significant propelling cause of the existence of the gender gap. Similar results were obtained by Zins and Weil (2016) in Africa.

In Zimbabwe, Chikoko and Mangwendeza (2012) investigated financial inclusion by commercial banks in a liquidity constrained environment. Descriptive statistics was used to analyse cross-sectional data collected through questionnaires and interviews. The study revealed that liquidity or inadequate funding on the part of banks was the major challenge of financial inclusion followed by high bank charges. The other barriers cited included financial education, geography, low and irregular income. In a follow up study, Abel *et al.* (2018) investigated the determinants of financial inclusion in Zimbabwe using the 2014 FinScope 2014 consumer survey data. A logit model was employed, and they established that age, education, distance, financial literacy, trust and income were the determinants of financial inclusion in Zimbabwe.

## 3. MATERIALS AND METHOD:

### 3.1 Model Specification

Since an individual can only make a choice on whether to be included or not in the financial market, this study resorted to the use of a binary response model where the dependent variable takes only two values, 0 or 1. In this setting, the decision to be included in the financial market (which is equal to 1 if financially included and 0, otherwise) will depend on a latent variable  $y_i^*$  which is determined by a set of exogenous factors (such as age, gender, income and education),  $x_i'$ , that can be depicted in mathematical form as:

$$y_i^* = x_i' \beta + \varepsilon_i \quad (1)$$

with  $y_i = 1$  if  $y_i^* > 0$  and  $y_i = 0$  if  $y_i^* \leq 0$

In this case,  $i$  represents an individual included in the sample,  $\beta$  represents a vector of coefficients to be estimated and  $\varepsilon$  represents an error term. This study used a binary logit model to investigate the determinants of financial

inclusion. The use of a logit model instead of a probit model, in this case, was arbitrary since the two give similar results in most cases (Maddala, 1983 and Cameron and Trivedi, 2005). However, a logit model was applied instead of a linear probability model since the later can sometimes have an error term with negative variance, suffers from heteroscedasticity and its predicted probabilities can sometimes surpass unity or go below zero which is absurd (Cameron and Trivedi, 2005). In addition, the use of a logit model was motivated by previous studies (Akudugu, 2013; Potrich *et al.*, 2015 and Abel *et al.*, 2018) that successfully applied a logit model in investigating the determinants of financial inclusion. Thus, the logit model this study estimated is presented as:

$$Pr(y_i = 1 | x) = F(x_i' \beta) = \frac{e^{x_i' \beta}}{1 + e^{x_i' \beta}} \tag{2}$$

where  $y$  is a financial inclusion variable of interest and  $x$  represents a vector of explanatory variables. Since financial inclusion has several indicators, we used several dependent variables to try to capture various indicators of financial inclusion. Thus, several models were estimated basing on the framework presented in equation (2) using the maximum likelihood estimation technique. Interpretation was done on the marginal effects since, by interpreting estimated coefficients we'll overestimate the effects of each regressor on the regressand. Following Cameron and Trivedi (2005), marginal effect can be represented mathematically as:

$$\frac{\partial Pr(y_i = 1 | x)}{\partial x_{ij}} = F(x_i' \beta)[1 - F(x_i' \beta)]\beta_j \tag{3}$$

### 3.2 Data

This study made use of micro-level data for the 2017 financial inclusion survey for Zimbabwe sourced from the World Bank's Global Findex database. The survey was carried out by Gallup Inc. as part of its Gallup World Poll and data were collected through face to face interview with 1 000 adults across different occupations, gender, age groups, education levels and geographical location. The survey targeted civilians and non-institutionalised population aged 15 years or above.

### 3.3 Estimation Procedure and Definition of Variables

This study's analysis of the determinants of financial inclusion was in three parts. The first analysis was of the main indicators of financial inclusion, followed by the motives for exclusion and lastly informal borrowing and saving.

On the main indicators<sup>2</sup>, this study considered formal account which is defined as 1 (and 0 otherwise) if the individual has an account either at a financial institution, a mobile money account or both. We also captured saving that is coded 1 (and 0 otherwise) if the individual saved using a formal financial account or club in the past one year. Another measure of financial inclusion we considered is borrowing coded 1 (0 otherwise) if an individual borrowed money in the past year, from a financial institution, family or friends. Another measure of financial inclusion considered is mobile money account ownership equal to one if an individual owns it and zero otherwise.

In a bid to provide a better understanding of the factors stimulating financial exclusion, this study analysed how individual characteristics affect the decision of an individual to cite an of the reasons asked during the survey: "too far away", "too expensive", "lack of documents", "lack of trust", "no need of financial services" and "lack of money". Following Allen *et al.* (2012), this study considered that some of the reasons are associated with involuntary financial exclusion ("too far away", "too expensive", "lack of documents" and "lack of trust") whereas some are considered as responsible for voluntary exclusion ("religious reasons", "no need of financial services", "lack of money" and "family member has one"). Involuntary financial exclusion arises when individuals do not use financial services due to barriers that are a result of market failure (for example, asymmetric information or inadequate contract environment) while voluntary financial exclusion arises when individuals do not have sufficient cash earnings to need the use of a formal account or who choose not to have an account for cultural or religious reasons (Allen *et al.*, 2012). This distinction helps in policy making as involuntary exclusion matters most and the role of policy is to broaden financial inclusion to reach those who are excluded because of market failure. Each of the reason given by the responded is a dummy variable equal to 1 if the answer was "yes" and 0 otherwise.

The last part focused on informal financial inclusion that is saving using and borrowing from clubs/groups, friends or relatives. Since Zimbabwe is one of the countries characterised by high degree of financial dualism—the coexistence of informal and financial markets, it seemed pertinent to this study to analyse why individuals participate in informal saving and borrowing. In this case, an individual is said to be saving informally if he or she has personally saved or set aside any money by using an informal savings group/club or a person outside the family. On the contrary, we considered that a person who is borrowing informally is one who has personally or together with someone else, borrowed any money from friends, family or relatives in the past 12 months.

<sup>2</sup> See appendix 1 for detailed definitions of these financial inclusion indicators.

In all regression analyses, this study used the same individual characteristics: age, gender, income, education and workforce status as explanatory variables. Age (*age*) is defined as how old an individual was at the time the interview was conducted and is a continuous variable measured in years. The dictates of the life cycle hypothesis made this variable to be included in the analysis. It implies that as individuals grow older, their probability of being financial included in the financial market increases up to a point when they pass the economically active age group and then move to the declining phase. Thus, we introduced another variable, the square of age (*age\_square*), which can capture the possibility of this non-linearity between age and financial inclusion. Gender (*female*) which defines the biological sex of individual is a dummy variable that is equal to 1 if an individual is female and zero otherwise. Employment status (*employment\_in*) entails and describes an individual’s working status at the time the interview was carried out and is a dummy variable that takes a value of 1 if an individual is in the workforce and zero if an individual is out of the workforce. To take education into analysis, we introduced three dummy variables (*completed primary or less*, *secondary* and *completed tertiary or more*) each taking the value of one if an individual fall into the defined category and zero otherwise. We excluded the *completed primary or less* category to act as a base category and to avoid dummy variable trap. Concerning income, five dummy variables were used: *poorest 20%*, *second 20%*, *middle 20%*, *fourth 20%* and *the richest 20%*. In each case, each dummy variable takes the value of one if an individual fall in his/her respective category and zero otherwise. The category *poorest 20%* acted as a base category to avoid dummy variable trap. In the analysis, individuals who refused to give a response or who didn’t know how to respond were not included.

**4. RESULTS PRESENTATION, INTERPRETATION & DISCUSSION:**

**4.1 Descriptive Analysis**

Table 2: Descriptive Statistics for the Dependent variables used in this Study

Variable	Response	Frequency	Percent
<b>Main Financial Inclusion Indicators</b>			
Account	Yes	591	59.10
	No	409	40.90
Saved	Yes	546	54.60
	No	454	45.40
Borrowed	Yes	487	48.70
	No	513	51.30
Mobile Money Account	Yes	515	51.50
	No	485	48.50
<b>Motives for Exclusion:</b>			
Too far away	Yes	100	14.27
	No	601	85.27
Too expensive	Yes	182	27.08
	No	490	72.92
No documents	Yes	323	45.62
	No	385	54.38
Lack of Trust	Yes	152	21.71
	No	548	78.29
Lack of money	Yes	549	77.43
	No	160	22.57
No need for financial services	Yes	122	17.16
	No	589	82.84
<b>Informal Financial Inclusion Indicators:</b>			
Informal borrowing	Yes	377	37.74
	No	622	62.26
Informal saving	Yes	236	23.62
	No	763	76.38

Note: The sample used excludes those respondents who refused to give their responses and didn’t know how to respond

As shown in Table , the majority of the respondents (59.10 %) had a bank account or any other account at a formal financial institution. As we noted, 45.40% did not save and 51.30% did not borrow. This is a worrisome percentage since if people are not largely saving and borrowing, the level of investment is likely be low and so is economic growth.

Basing on the descriptive statistics, lack of money was the major barrier to formal financial inclusion with 77.43% of the respondents who cited that that they did not have an account because they lacked money. However, it is of less interest in policy making since lack of money is categorised as a motive for voluntary exclusion. Of the motives for involuntary exclusion, lack of documents was the major barrier with 45.62% of the respondents that did not have an account due to lack of necessary documents. On informal financial inclusion, 37.74% participate in informal borrowing

whereas 23.62% were saving with clubs, friends or relatives. Despite the fact that the majority was not participating in informal saving, the percentage that was participating in this informal sector was still significant to the extent that it is necessary to analyse how individual characteristics affected their participation.

Descriptive statistics for the explanatory variables are shown in Table 3. As shown in Table 3, the sample consisted of more female than male respondents and more individuals were in the workforce. Concerning education, the majority (67.43%) completed at most secondary education, 26.85% completed primary or less and those who completed tertiary or more are 5.71%. Descriptive statistics also shows that middle 20% quantile dominated with 53.40% and the quantile with the least percentage was the poorest 20% with 17.70%.

**Table 3: Descriptive Statistics for Explanatory Variables**

Variable	Response	Frequency	Percentage
Gender	Female	611	61.10
	Male	389	38.90
Education	primary or less	268	26.85
	Secondary	673	67.43
	Tertiary or more	57	5.71
Income	poorest 20%	177	17.70
	Second 20%	181	18.10
	Middle 20%	176	53.40
	Fourth 20%	213	21.30
	Richest 20%	253	25.30
Workforce status:	out of workforce	331	33.10
	In workforce	669	66.90

Note: the sample excludes those respondents who refused to give their responses and didn't know how to respond.

**4.2 Findings on the Main Determinants of Financial Inclusion**

In Table 4, we show the marginal effects of individual characteristics on financial inclusion.

**Table 4: Logit Model Results on the Main Determinants of Financial Inclusion**

Variables	Account ownership (1)	Saving (2)	Borrowing (3)	Mobile money account (4)
Age	0.0117*** (0.0041)	-0.0009 (0.0047)	0.0098** (0.0048)	0.0158*** (0.047)
Age_square	-0.0000*** (0.0000)	0.0000 (0.0000)	-0.0001** (0.0000)	-0.0002*** (0.0000)
<i>Education</i>				
Secondary	0.1382*** (0.0345)	0.0864** (0.0414)	0.0533 (0.0413)	0.1979*** (0.0405)
tertiary or more	0.4364*** (0.0771)	0.2675*** (0.0771)	0.274*** (0.0758)	0.3123*** (0.0790)
<i>Income Quantiles</i>				
Second 20%	0.1103*** (0.0403)	0.0024 (0.0522)	0.0151 (0.0523)	0.1491*** (0.0534)
Middle 20%	0.1538*** (0.0417)	0.0011 (0.0534)	-0.0780 (0.0529)	0.0826 (0.0530)
Fourth 20%	0.2712*** (0.0417)	0.1195** (0.0515)	0.0085 (0.0517)	0.1708*** (0.0508)
Richest 20%	0.3628*** (0.0434)	0.1195** (0.0520)	-0.0031 (0.0522)	0.2412*** (0.0512)
Female	-0.0650** (0.0271)	0.0451 (0.0327)	0.0010 (0.033)	0.0056 (0.0315)
emp_in	0.0502 (0.0314)	0.0450*** (0.0339)	0.0722** (0.035)	0.0813** (0.0332)
Observations	996	996	996	996
Pseudo R <sup>2</sup>	0.158	0.038	0.028	0.083
Wald chi2 (prob)	0.000	0.000	0.000	0.000

Note: \*\*\*, \*\*, and \* entails significant at 1%, 5% and 10%, respectively. Robust standard errors in parenthesis.

Table 4 shows the results for the impact of different individual characteristics on financial inclusion. These results indicate that education, workforce status and income were the major determinants of financial inclusion basing

on the magnitude of marginal effects. Regarding education, the probability that an individual who had completed secondary education had a formal financial account, save, borrow and had a mobile money account was 13.82%, 8.64%, 5.33% and 19.79% higher than those who completed primary education or less, respectively. In the same vein, as compared to an individual who completed primary education or less, an individual who completed tertiary education or more had 43.64%, 26.75%, 27.4% and 31.23% higher chances of having a formal financial account, save, borrow and have a mobile money account, respectively. These dummies for education signal that as individuals become more educated, their chances of being financially included increased. This might be due to the reasoning that as individuals become more educated, lack of information on the availability, importance and use of financial services is reduced due to exposure, hence, individuals become more financially included.

As observed in this study, marginal effects for all income quantiles are statistically significant at 1% level of significant in model 1 only where they signal that the probability of owning an account at a formal financial institution increased as an individual's income increased. When it comes to borrowing, income did not have impact on the chances of being financially included since the marginal effects of all the income quantile dummies are statistically insignificant at all conventional significance levels. For saving, the fourth 20% and the richest 20% quantiles were the only quantiles with significant marginal effects implying that individuals who were in these quantiles saved more than those who were in the poorest income quantile. Thus, those with low income had lower chances of being financially included than those who had higher incomes. Compared to an individual who was out of the workforce, the probability for an individual who was in the workforce to save was 4.5% higher, borrow was 7.22% and of having a mobile money account was 8.13% higher. Whether, one was in the workforce or not was not a determinant of having an account at a formal financial institution as the marginal effect is statistically insignificant at all conventional levels. Regarding gender which was captured by the female variable, the likelihood that a female individual had a formal account was less than that of their male counterparts by 6.5%. However, whether one was a male individual or otherwise did not determine whether he/she had higher chances of saving, borrowing and owning a mobile money account as the respective marginal effects of inclusion indicators was statistically insignificant at all conventional levels of significance. Age is a determinant of all other measures of financial inclusion except for saving. We noticed that as individual's age increases by a year, the probability increases by 1.65%, 0.98% and 1.58% for formal account, borrowing and mobile money account, respectively. The negative sign on the marginal effect of the square of age means that as age increases, the probability of being financially included increases up to a certain point and then decreases. This confirms to the implication of the life cycle hypothesis. The results we find here confirm to those of other studies like Fungáčová and Weill (2015) and Zins and Weill (2016).

### 4.3 Motives for Financial Exclusion

Respondents who did not own a bank account indicated some of the factors they think are barriers to owning bank accounts. In this section, we analyse how individual characteristics determine the likelihood of reporting the reasons for not having an account and the results are shown in Table 5.

Table 5: Logit Model Results on the Determinants of Barriers to Owning a Formal Account

	Too far away (1)	Too expensive (2)	Don't have necessary documents (3)	Don't trust financial institutions (4)	Don't have enough money (5)	No need for financial services (6)
<i>age</i>	0.004 (0.003)	0.010* (0.005)	-0.010 (0.005)	0.013** (0.005)	0.000 (0.005)	-0.009* (0.004)
<i>Age_square</i>	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000* (0.000)	-0.000 (0.000)	0.000* (0.000)
Education						
<i>Secondary</i>	-0.027 (0.030)	-0.009 (0.042)	-0.125** (0.046)	0.054 (0.038)	-0.052 (0.038)	0.050 (0.032)
<i>Tertiary</i>	0.032 (0.114)	0.088 (0.133)	-0.010 (0.142)	0.127 (0.121)	-0.178 (0.142)	0.261 (0.142)
Income						
<i>Second 20%</i>	-0.066 (0.044)	-0.044 (0.053)	-0.010 (0.057)	0.093* (0.045)	0.019 (0.044)	0.058 (0.040)
<i>Middle 20%</i>	-0.046 (0.046)	-0.046 (0.054)	0.037 (0.058)	0.040 (0.042)	-0.027 (0.047)	0.081 (0.042)
<i>Fourth 20%</i>	-0.117** (0.042)	-0.026 (0.055)	-0.079 (0.058)	0.142** (0.048)	-0.089 (0.050)	0.048 (0.041)

<i>Richest 20%</i>	-0.125**	-0.044	-0.046	0.135**	-0.128*	0.104*
	(0.044)	(0.059)	(0.062)	(0.050)	(0.054)	(0.045)
<i>female</i>	-0.016	0.018	0.022	-0.052	-0.019	0.038
	(0.028)	(0.037)	(0.040)	(0.031)	(0.034)	(0.031)
<i>emp_in</i>	-0.011	-0.003	0.007	0.025	0.060	0.030
	(0.028)	(0.038)	(0.041)	(0.035)	(0.034)	(0.030)
<i>N</i>	698	670	705	696	705	707
<i>Pseudo R<sup>2</sup></i>	0.031	0.008	0.029	0.046	0.030	0.032
<i>Wald chi2 (prob)</i>	0.046	0.008	0.003	0.001	0.016	0.026

Note: this table presents marginal effects. \*\*\*, \*\*, and \* entails significant at 1%, 5% and 10%, respectively. Robust standard errors in parenthesis

As this study noticed, the poor are likely to report that financial institutions are too far away than the rich. Age is positively related to the probability of citing the costs of being financially included as too expensive. Those who attended secondary education are less likely to cite trust as a barrier than those who attended primary education or less. We also observed that those who are rich are more likely to report that they don't trust financial institutions than those that are poor. As the results for model 4 shows, the probability that an individual lacks trust in financial services as he or she gained an additional year is 1.3%. The negative sign on the marginal effect for the square of age indicate that trust in financial institutions increase with age and then decreases when it reaches a certain point. In addition, the probability that the rich will cite that the reason they don't have financial account is that they don't have enough money is less than those who are poor by 12.8% whereas other marginal effects for income dummies are statistically insignificant. However, we found out that those that are in the richest 20% quantile are more likely to report that they don't need financial services than those that are poor and the probability is 10.4%. This is contrary to what we expect as the rich are expected to have greater need for financial services as they do most of their transactions electronically. As we noticed, whether an individual is a male or female does not affect the probability of citing any of the reasons being discussed here. To sum up, trust in financial institutions appears to be the major factor as it has more factors explaining it than any other reason. This might be due to the fact that in the past Zimbabweans lost their deposits in banks due to inflation and because of that they are not willing to own an account due to lack of trust.

#### 4.4 Understanding Informal Saving and Borrowing

Table 6: Logit Model Results on the Determinants of Informal Borrowing and Saving

	Saving using a group or club (1)	Borrowing from friends, family or relatives (2)
Age	0.012**	0.000
	(0.004)	(0.005)
Age_square	-0.000*	-0.000
	(0.000)	(0.000)
Secondary	0.063*	0.023
	(0.032)	(0.039)
tertiary	0.207**	0.247**
	(0.071)	(0.078)
Second 20%	0.018	-0.071
	(0.041)	(0.052)
Middle 20%	0.036	-0.097
	(0.042)	(0.052)
Fourth 20%	0.105*	-0.041
	(0.041)	(0.051)
Richest 20%	0.077	-0.082
	(0.041)	(0.051)
Gender	0.158**	-0.007
	(0.027)	(0.032)
emp_in	0.135**	0.092**
	(0.031)	(0.034)
<i>N</i>	995	995
<i>Pseudo R<sup>2</sup></i>	0.075	0.024
<i>Wald chi2 (prob)</i>	0.000	0.001

Note: this table presents marginal effects. \*\* and \* entails significant at 5% and 10%, respectively. Robust standard errors in parenthesis

As

Table 6 shows, the likelihood of saving increases by 1.2 percentage points when an individual's age increases. The marginal effect for the square of age is negative implying that as a person's age increases, the probability of saving informally increases up to a point at which it will decline. Age does not determine the likelihood of borrowing from friends and family or relatives. As we noticed, moving out of the workforce will increase the probability of saving informally by 13.5% and being female will increase the probability of saving by 15.8% than being male. Regarding income, only those in the fourth income quantile have a probability of saving informally that is 10.5% higher than that of individuals in the poorest quantile. The respective probabilities for individuals who are in the secondary education category and tertiary education or more category are 6.3% and 20.7% higher than those of individuals who completed primary education or less, implying that those who are more educated tend to participate in informal saving than those that are not.

In regard to borrowing from friends, family or relatives, the evidence suggests that a person who has attended tertiary education or more will have a probability of borrowing informally that is 24.7% higher than that of an individual who completed at most primary education. The likelihood of borrowing from friends and relatives is likely to be 9.2% higher for those in the workforce as compared to those who are out of the workforce. Age, gender and income has no influence on whether one will participate in borrowing informally in Zimbabwe basing on the data used in this study.

## 5. SUMMARY:

In this study, we empirically examined the determinants of financial inclusion in Zimbabwe using data from the 2017 financial inclusion survey conducted by the World Bank. We adopt a binary logistic regression model to determine how individual characteristics affect different dimensions of financial inclusion that is formal account, mobile banking, saving and borrowing. We also estimated the impact different factors on the probability of citing the reasons provided as barriers to having a banking account. We also established the determinants of participating in informal financial markets captured by informal saving and borrowing. Using recent data on financial inclusion we established that financial inclusion declined from its 2014 level of 77% to 61% in 2017 and informal financial inclusion has also increased. Basing on the results of the logistic model, age, income employment status and education are the determinants of financial inclusion in Zimbabwe and trust in financial institution seems to be the major barrier to owning a bank account.

## 6. POLICY RECOMMENDATIONS:

Basing on these findings, this study recommends the central bank to encourage banks to develop practises that are inclusive to all adult age groups, income and education levels. In addition, the central bank should implement policies that will restore confidence in the financial institution since people are unbanked due to lack of trust in financial institutions. To boost confidence in the banking sector, the RBZ should increase awareness concerning the existence of institutions such as the Deposit Protection Corporation of Zimbabwe, that can compensate depositors after they lost their savings in banks.

## REFERENCES:

1. Abel, S., Mutandwa, L. & Roux, P.L. (2018). A Review of Determinants of Financial Inclusion, *International Journal of Economics and Financial Issues*, 8(3), 1-8.
2. Akudugu, M., (2013). The Determinants of Financial Inclusion in Western Africa: Insights from Ghana. *Research Journal of Finance and Accounting*, 4(8), 1–10.
3. Allen, F., A. Demirgüç-Kunt, L. Klapper, & M. S. Martinez Peria. (2012). The Foundations of Financial Inclusion: Understanding Ownership and Use of Financial Accounts. Policy Research Working Paper no. 6290. Washington: World Bank.
4. Aterido, R., Beck, T. & Iacovone, L. (2013). Access to Finance in Sub-Saharan Africa: Is There a Gender Gap? *World Development*, 47, 102–120.
5. Camara, N., Pena, X. & Tuesta, D., 2014. Factors that Matter for Financial Inclusion: Evidence from Peru. *BBVA Bank, Economic Research Department, Working Papers: 1409*, (14), 1-26.
6. Cameron, A.C & Trivedi, P.K. (2005). *Microeconometrics: Methods and Applications*. Cambridge: Cambridge University Press.
7. Chikoko, L. & Mangwendeza, P. (2012). Financial Inclusion by Zimbabwean Commercial Banks in a Liquidity Constrained Environment. *Journal of Economics and International Finance*, 4(10), 252–259.
8. Kim, D., Yu, J., & Hassan, M. K. (2018). Financial Inclusion and Economic Growth in OIC Countries. *Research in International Business and Finance*, 43, 1–14.
9. Maddala, G.S. (1983). *Limited-Dependent and Qualitative Variables in Econometrics*. Cambridge University Press.

10. Potrich, A.C.G.R., Vieira, K.M. & Kirch, G.G. (2015), Determinants of financial literacy: Analysis of the influence of socioeconomic and demographic variables. *Revista Contabilidade and Finanças*, 26(29), 362-377.
11. Reserve Bank of Zimbabwe. (2016). Zimbabwe National Financial Inclusion Strategy (2016-2020), Harare, Zimbabwe.
12. Swamy, V. (2014). Financial Inclusion, Gender Dimension, and Economic Impact on Poor Households, *World Development*, Vol. 56, 1–15
13. World Bank, 2018. Global Findex database (last accessed on 17 December 2018)
14. Zins, A. & Weill, L. (2016). The Determinants of Financial Inclusion in Africa. *Review of Development Finance*, 6(1), 46–57.

### **Appendix A: Indicator definitions**

The definitions of the main financial inclusion indicators given below are according to the World Bank.

Account: Equal to 1 (0 otherwise) if the respondent has an account at a financial institution, a mobile money account, or both.

Borrowed: Equal to 1 (0 otherwise) if the respondent, personally or together with someone else, borrowed money in the past year, including from a financial institution, a store (by using installment credit), family or friends, or another private lender, or for education or school fees, medical purposes, to start, operate, or expand a farm or business, or for any other reason.

Saved: Equal to 1 (0 otherwise) if the respondent, personally, saved or set aside money in the past year, including using an account at a financial institution, a savings club or person outside the family, or for education or school fees, old age, or to start, operate, or expand a farm or business, or for any other reason.

Mobile money account: Equal to 1 (0 otherwise) if the respondent, personally, used a GSM Association (GSMA) mobile money service to pay bills or to send or receive money in the past year; or received wages, government transfers, public sector pension, or payments for agricultural products through a mobile money account in the past year. Available only for countries where a GSMA mobile money service is available.