UNIVERSITY OF THE WESTERN CAPE

DEPARTMENT OF ECONOMICS

Investigating financial inclusion in rural households: A South African case

By

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DECLARATION

I declare that "*Investigating financial inclusion in rural households: a South African case*" is my own work, that it has not been submitted for any degree or examination in any university, and that all the sources that I have used or quoted have been indicated and acknowledged by complete references.

Sisonke Mtyapi

Signature:

Date: 30 September 2021

ABSTRACT

People residing in rural areas generally struggle with many socio-economic problems, such as transport, health access, employment opportunities, poverty, inequality, access to essential services and facilities (e.g., piped water, electricity) as well as access to financial services. The global community has over the years came up with progressive measures directed at economic development and improvement of living standards, with one of them being financial inclusion (FI). FI is seen as one of the strategies to eradicate poverty, reduce unemployment and inequality as well as enhancing an inclusive economic growth.

This study investigated financial inclusion in rural households of South Africa, using the Finscope data (2011 and 2016), with the aim of examining the extent of financial inclusion in rural households. The Principal Component Analysis (PCA) method was used to derive the Financial Inclusion Index (FII), considering numerous indicators from the four key dimensions of financial inclusion, namely access, usage, quality, and welfare. Ordinary Least Squares (OLS) and probit regressions were undertaken to estimate values of several demographic characteristics of rural residents based on the financial inclusion index.

The study found that the provision of financial services in South Africa has improved over the years; however, this supply of financial services remained relatively low in rural areas compared to urban counterparts. The findings also suggested that younger age cohorts and low levels of educational attainments were associated with low levels of financial inclusion. In addition, people residing in rural areas experience significantly lower financial inclusion index and a relatively higher likelihood of being financially excluded.

This study recommends that the government introduce regulations that encourage the establishment of microfinance institutions in rural areas — such as credit unions and non-governmental organisations (NGOs) — with the goal of rural residents obtaining small credit at reasonable interest rates. Also, more research needs to be done to investigate what are the factors that hinder the usage of financial services by rural residents. This would help the government and policymakers to design appropriate policies that target rural areas and help improve the use of financial services.

Keywords: Financial development, financial inclusion, poverty, rural population, Finscope
JEL Codes: G00, G21

DEDICATION

I dedicate this dissertation to my father Onele Mtyapi,

Who I lost midyear 2020.

Your spirit has kept me strong; I hope you are looking down at me and feeling proud

I love you Jola

Until we meet again.

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I would like to start by thanking God for giving me the strength and endurance throughout this journey.

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LIST OF ABBREVIATIONS

ATM	Automatic teller machine
CFI	Centre for Financial Inclusion
DFID	Department for International Development
FE	Financial exclusion
FI	Financial inclusion
FII	Financial inclusion index
GLSS	Ghana Living Standard Survey
ICT	Information and Communication Technology
ID	Identity Document
IV	Instrumental Variable
MFIs	Microfinance Institution
NIDS	National Income Survey Data
PCA	Principal Component Analysis
SADC	Southern African Development Community
SALDRU	Southern Africa Labour Development Research Unit
SRMI	Sequential Regression Multiple Imputation
StatsSA	Statistics South Africa

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CHAPTER ONE: INTRODUCTION

1.1   Background

Over recent decades there has been rapid urbanisation in South Africa. However, a large proportion of the country's population continues to exist in rural areas and poverty remains primarily a rural phenomenon (Kok and Collison, 2006). According to the 2016 Community Survey, 64% of the South African population lived in urban areas, increasing from 52% in 1990. People residing in rural areas generally struggle with many socio-economic problems such as transport, health access, employment opportunities, poverty, inequality, access to essential services and facilities (for example, piped water and electricity), as well as access to financial services.

The global community has, over the years, come up with progressive measures directed towards economic development and improvement of living standards, with one of them being financial inclusion (FI). FI is seen as one of the strategies to eradicate poverty, reduce unemployment and inequality and enhance an inclusive economic growth (World Bank, 2018). The aforementioned are the central socio-economic problems that many developing countries experience. Nonetheless, there is debate among local and cross-country scholars, with some demonstrating that FI positively impacts on development and others indicating that it leaves people deprived. Scholars such as Mader (2016), De Haan and Sturm (2017) — as well as Bateman (2019) — are of the view that financial development does not guarantee a broader socio-economic development or bring about immediate benefits to the poor.

Demirguc-Kunt and Klapper (2012) contend that the absence of FI has a terrible consequence for a country's economic wealth, transformation, and the poor people's ability to partake in formal financial sector activities. For that reason, South Africa's 2012 National Development Plan aimed to attain 90% FI by 2030 (Deloitte and MasterCard, 2019). Thus, the agenda of FI has become a buzzword for the global community, government, financial institutions, banks, and policy makers. According to the International Labour Organisation (2015), financial education is critical in enhancing FI because it helps empower the working poor to make informed financial decisions.

Well-functioning, healthy and competitive financial systems are attained by allowing people and firms to have access to — and to use a variety of — financial services such as savings,

investment, credit, payment, and risk management (Triki and Faye, 2013). Access and usage of financial services for all is facilitated by an inclusive financial system that ensures accessibility, availability, and usage of formal financial services by the entire population, including disadvantaged communities (Triki and Faye, 2013). Owing to poverty being so widespread in rural areas, providing financial services to these areas becomes a prerequisite for poverty reduction.

There has been substantial progress made to broaden and deepen FI in South Africa (Deloitte and MasterCard, 2019). As a result, 80% of the South African population in 2019 had transaction accounts, increasing from 46% in 2004. Although this statistic indicates that to a certain degree South Africa is financially inclusive, many people continue to make use of informal financial services and transact in cash (Deloitte and MasterCard, 2019). Additionally, rural households are the largest unserved market for financial services. Only 46% of three to four million rural households in South Africa are banked. Most of the rural population have transaction accounts, but very few have loan accounts (FinScope, 2011). This proves that even though FI can unlock considerable economic potential in rural areas, its ability to assemble a more inclusive growth remains constrained and more investigation needs to be conducted on progress that has been made (if any) in rural areas with regards to FI.

1.2   Problem statement

Evidence shows that, while South Africa has a sophisticated financial sector, most financial institutions are paying more attention to urban areas. Consequently, there is low access to financial services in rural areas. The engagement with finance in rural areas is mostly for the purposes of securing funeral cover (Maziya and Zwane, 2017). Moreover, it is relatively difficult to obtain data on the trends of FI in rural areas. This motivates this study, as it appears that South Africa is financially inclusive compared to other developing countries, but the adoption and usage of financial services in rural areas remains low. More specifically, the research problem of this study is to investigate FI and identify the factors that impede the access to and adoption of financial services in rural households in South Africa.

The research questions for this study are as follows: what are the trends and levels of FI in rural areas? What are the key factors that impede FI in rural areas? What impact does FI have on individuals residing in rural households? Is there a significant difference between FI in urban and rural areas?

1.3 Research objectives

Using FinScope data from the FinMark Trust initiative, this study generally aims to investigate the extent of FI in rural households of South Africa in 2011 and 2016. In addition to the aforementioned general research objective, this study further aims to attain the following specific research objectives:

- Analyse the trends and levels of FI in rural households.
- Study the status of FI among rural households by various personal characteristics such as gender, race, educational attainment, and labour market status.
- Investigate the impact of FI on people living in rural households for the purpose of evaluating poverty and economic welfare.
- Compare and contrast the extent of FI in rural and urban areas.

1.4 Significance of the study

Several measures have been adopted to ensure FI in South Africa, ranging from financial literacy programmes, innovations to expand the access of financial services and the digitisation of financial services, to the increase in infrastructure such as automatic teller machines (ATMs) and bank branches (Mishi et al., 2012). Even though there are noticeable efforts for FI in South Africa, the usage and access of financial services remain low in rural areas. Therefore, investigating progress made (if any) on FI in rural households would provide valuable information on the design of FI initiatives that focus mainly on the needs of people residing in rural areas. Moreover, determining the trends of FI in rural households would assist in understanding and making informed decisions about the implementation and provision of appropriate measures in rural areas.

Peake (2012) expresses that customer who live in rural areas possess characteristics that are different from those of urban residents. Rural residents are not within the scope of urban areas and are likely to face many limitations in terms of distance, travel times and infrastructure development. The author further states that there are low literacy levels, low smartphone penetration rates and poorer network coverage in rural areas. This means that policymakers, as well as financial institutions, need to be cognisant of the need to introduce appropriate products based on the real customers' needs and outlooks.

The relevance of this study is rooted in the fact that there is no extensive research conducted on FI in rural households in South Africa. The available studies briefly examine FI in rural

households and, as such, there is inadequate information provided on trends of FI and how to increase usage and access to financial services in rural areas. Moreover, this study will provide useful information on the impact of FI in rural development. Christiabell and Vimal (2012) state that financial inclusion is of vital importance in the development of rural areas, by acting as a lubricant that oils the wheels of economic development.

1.5   Outline of the study

This study is structured in the following manner: chapter one introduces the background and problem statement — followed by the objectives of the study, significance, and the structure of the study. Chapter two provides a thorough literature review by comprehensively defining numerous key concepts and discussing the theoretical framework that reinforces the study, as well as past empirical literature conducted under the topic. Chapter three offers the methodology and data that will be utilised in the study, while chapter four provides the empirical findings of the study. Chapter five concludes the study and offers policy recommendations.

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CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter provides a review of FI in rural areas of South Africa. The chapter is divided into four main sections. Section 2.2 offers a brief definition of the main concepts used in this study, such as rural areas, FI and financial exclusion. Subsequently, in section 2.3, various theoretical frameworks that underlie the FI in rural areas — that is, credit rationing, free market, asymmetric information, and vulnerable groups of FI — are discussed. This is followed by section 2.4, which offers a review of both local and cross-country empirical studies that have examined FI in urban and rural areas. Last, section 2.5 concludes the chapter.

2.2 Conceptual framework

2.2.1 Rural areas

According to StatsSA (2001), the term 'rural areas' in the South African context encompasses tribal areas, commercial farms and informal settlements which do not form part of urban areas. Throughout the world, rural areas are characterised as districts mostly dominated by agriculture, where the mobilisation of resources is limited. Rural residents face major development challenges, as there is difficulty in providing goods and services effectively and the cost of such provisions is often too high. Consequently, the predominant economic conditions that rural people experience result in fewer opportunities than in urban areas (South Africa, 2000). Similarly, the characteristics of South African rural areas exhibit characteristics that are like rural conditions around the world, such as high levels of poverty, non-vibrant economies, sparse populations and high costs of goods and services, among others (Mpofu and Warikandwa, 2013).

2.2.2 Financial inclusion

There is a wide range of different but correlated definitions of FI used by scholars. The Centre for Financial Inclusion (CFI) describes FI as a situation where every individual has access to high-quality financial services that are provided at affordable rates, in a convenient manner and with dignity for the customers (Gardeva and Rhyne, 2011). Likewise, Shipilana (2019) claims that FI means having easy access to and convenient usage of financial services — with the aim of delivering appropriate and beneficial services to the underserved members of the economy.

The Alliance for Financial Inclusion (2010) states that FI is a multifaceted term with complex components to distinguish. The four most used lenses to define FI are:

- *Access:* this component refers to the ability to make use of formal financial services with zero or little barriers to opening a transaction account. Access also entails affordability and physical proximity of financial services and products to existing and potential clients.

- *Usage:* has to do with the actual usage of financial services and products. Financial consumers must be making use of all the financial services available to them frequently. Usage measurement can therefore be determined by regularity, patterns, intensity, and the number of financial products used by one person or household.

- *Quality:* encompasses the degree of excellence in meeting the needs of the clients. This means that appropriate financial services for the customers must be delivered. The attitudes and opinions towards the financial services and products manifest the quality of the financial services provided to the consumers.

- *Welfare:* this component refers to the effect that the financial services have on the livelihoods of the consumers. The financial services must be beneficial to the financial services clients and improve their levels of consumption, income and personal or business productivity.
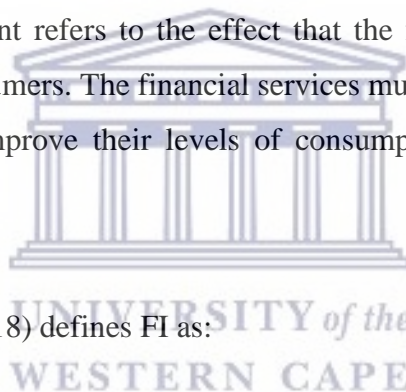
Moreover, the World Bank (2018) defines FI as:

> Individuals and businesses having access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit, and insurance – delivered in a responsible and sustainable way.

However, by comparison, the financial needs of people residing in rural communities are dissimilar from those living in urban areas.

Rural finance is a financial operation — that is, insurance, money transfers, payments, credit card, farm, and non-farm activities — that occurs outside the urban areas, (World Bank, 2003). Furthermore, rural finance seeks to promote financial services locally rather than consolidating the formal banking system. There are two ways in which rural finance can be realised: first, by integrating financial market into rural areas. The second is by creating banks that are focused on catering for the rural poor (Shobade, 2018).

2.2.3   Financial exclusion

There are some complications when it comes to having a proper understanding of FI. As such, the definition of financial exclusion (FE) must be provided in order to obtain a better understanding of FI. Warsame (2009) states that FE involves both the narrow and broad definitions. In the narrow sense, it can be explained as the exclusion of people from the sources of financial services like insurance, credit, bill payments and appropriate as well as accessible deposit accounts (Warsame, 2009). In broader terms, FE means that the underprivileged members of the society are hindered access to the mainstream financial services due to several factors, such as having insufficient income or being high risk (Warsame, 2009).

According to the World Bank (2014), there are two types of FE: voluntary and involuntary exclusion. Figure 1 provides a clear illustration of usage and access of financial services, as well as the difference between voluntary and involuntary exclusion. The non-users of financial services either self-exclude (voluntary exclusion) themselves because they do not need financial services; have indirect access to the services; or cultural and/or religious reasons do not allow them to make use thereof.

Figure 1: Use of and access to financial services
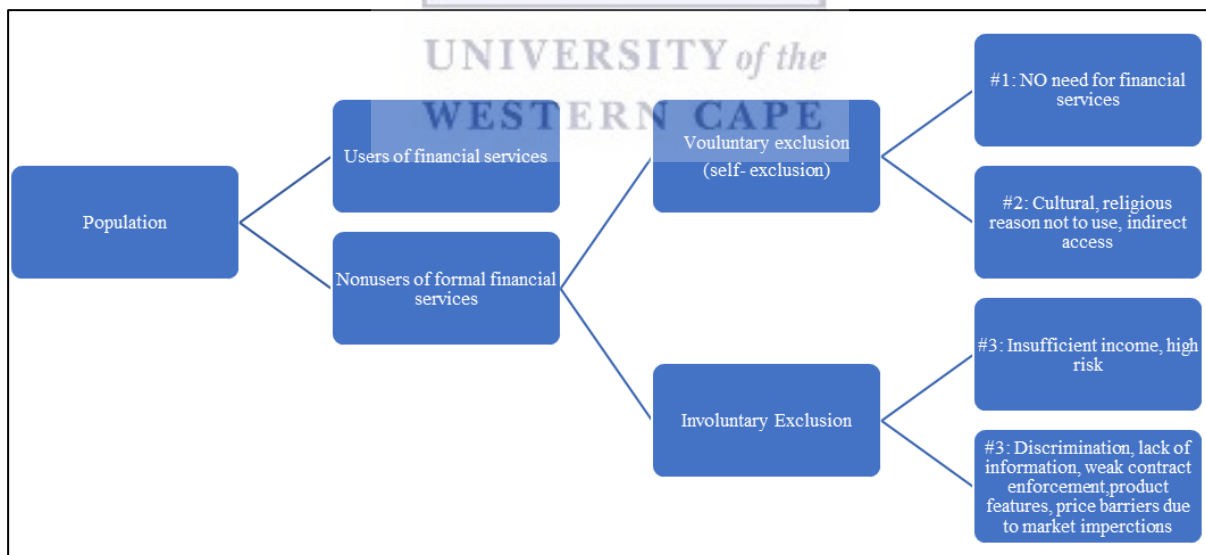
Source: World Bank (2014: 16).

The other group of non-users are involuntarily excluded because their income is insufficient, or they pose lending risks to financial institutions. In this instance, the absence of use is not necessarily caused by market or government failure. Financial institutions can also exclude this group through discrimination — that is, by providing insufficient information or products that

are not suitable for these individuals; enforcing weak contracts; or charging higher prices (World Bank, 2014).

2.3   Theoretical framework

2.3.1   Credit rationing theory

Credit rationing theory suggests that, among borrowers of the same identity, some receive loans and others receive some or none of the amount they require from the lenders. Stiglitz & Weiss (1981) assert that even though the potential borrowers who are unable to receive credit are willing and able to pay a higher interest rate, lenders continue to limit the supply of additional funds. This theory suggests that in the presence of market failure or market imperfection, the price mechanism fails to achieve an equilibrium in a competitive loan market.

Credit rationing occurs when the lender's projected return does not necessarily always increase following the interest rate increase. Instead, several factors — including the projected returns of the loan, terms of the loan, market imperfections and characteristics of the borrower — cause the loan to default. Thus, the lender would not raise the interest rate even if the demand for loanable funds exceeded the supply. Two reasons account for this: first, risk-averse borrowers would be discouraged to borrow when there are high interest rates. In doing so, the riskiness of the bank's loan portfolio would increase. Second, borrowers would be induced to invest in riskier projects and thus decrease banks' profits (Stiglitz and Weiss, 1981).

Credit market borrowers have better information about their potential risk to default than lenders. This places lenders at risk and, as a result, lenders target people with something of value pledged as security to repay the loan, such as high-value of mortgage property, or payslips as proof of employment — but many rural residents lack the latter. Furthermore, lenders often incur transactional and administrative costs, as well as costs of gathering information about the borrowers. Accordingly, financial institutions have been unable to serve rural residents due to cost, risk, and difficulty in obtaining information about rural residents (Kuhn et al., 2000). The lack of access to credit does not necessary imply FE, however, as credit is an important FI variable and has been observed to better the lives of the underprivileged (Ntsalaze and Ikhide, 2017).

2.3.2   Free market model

The free-market model assumes that an economic system which is based on demand and supply should have little or no government intervention. This theory suggests that a deregulated

economy has an inherent tendency to move closer to the so-called 'Pareto efficiency', where all resources are efficiently employed and distributed in a manner that ensures maximum possible wealth creation (Kumar, 2011). Kumar further states that while the government has control over the market, the economy is removed from the path of attaining growth, followed by the removal of all imbalances.

There is, however, a paradox raised by this theory. While FI appears to have increased, FE also seems to have surfaced. The lending risk has increased due to more products being introduced to the market. As a result, banks render their focus exclusively to valuable customer groups and exclude their non-valuable customer groups. Generally, banks believe that the inclusion of more valuable customer groups, even at the cost of the exclusion of the underprivileged or the least valuable, will immensely enrich the value-added in the shareholder wealth maximisation sense (Kumar, 2011). On top of that, markets' main objective is to maximise profits. This means that if there is no government intervention, or markets are unregulated, banks may try to increase prices unethically and produce fewer goods and services. This ends up being unprofitable. This will also result in the further FE of the underprivileged (including rural residents).

2.3.3 The theory of asymmetric information

Asymmetric information occurs when one party has more information about a specific product than the other (Asongu & Odhlambo, 2018). According to Kumar (2011), asymmetric information denies the borrower effective access to financial resources. In financial transactions, lack of correct information causes an imbalance of power in the parties involved, which can sometimes skew the transaction. It is generally observed that banks lend money without complete certainty of whether the borrowers will return it or not, hence sometimes some people are denied loans or credit (Kumar, 2011). As previously stated, collecting information about rural residents is a costly and difficult task to perform. This means that even though banks may have enough money at their disposal, they may choose not to provide credit to borrowers as they lack the relevant and necessary information (Llanto, 2015).

Expanding on the same logic, some borrowers can present misleading creditworthiness information to the banks and thus raise the loan default rate. This would result in banks employing extra measures and screening techniques to insulate themselves from default risk and, consequently, excluding people who would otherwise be included (Matsebula and Yu, 2020). Thus, the information problem in rural financial markets causes an intricated credit market structure that is highly information dependent (Llanto, 2015).

2.3.4   Vulnerable group theory of financial inclusion

Individuals who belong to the less fortunate groups — such as the poor, women, elderly, and rural residents — tend to suffer the most from economic hardships and crises. The vulnerable group theory of FI seeks to address such issues, as it argues that FI activities or programmes in a country should be targeted at the vulnerable groups (Ozili, 2020). Moreover, individuals in these groups are often the most adversely affected by financial crises and economic recessions; it therefore makes sense to integrate these people into the formal financial sector (Ozili, 2020). This theory, however, only prioritises the vulnerable group in the population to be financially included. This can create income inequality, as the vulnerable group would receive better access to financial services than others. Nonetheless, prioritising this group remains a tool that seeks to promote FI, as this will make it easier to identify financially excluded members of the population (Ozili, 2020).

2.4   Review of past empirical studies

2.4.1   Local studies

According to author's knowledge, there are no local empirical studies that explicitly focus on the rural population. However, there are some studies that briefly examine what happened to the population at the bottom end of income distribution, as they are most likely to live in rural areas or poor provinces such as the Eastern Cape, KwaZulu-Natal, and Limpopo (most of the people in these provinces also live-in rural areas).

First, Wentzel et al. (2016) investigated factors that impacted on FE at the bottom end of the income distribution in South Africa by focusing on the aspect of access to financial services. The data collection of the study was obtained in the form of administered questionnaires delivered at the respondents' places of residence. The empirical findings suggested that the most contributing factors to FE at the bottom of the pyramid in South Africa were educational attainment, primary source of income, age, home language and number of dependents. Residents in rural areas, as opposed to urban areas, were associated with being financially excluded; however, there was no significant association between the two. Similarly, the study by Matsebula and Yu (2020) briefly examined the FE profile of people living in rural areas. This study made use of the National Income Survey Data (NIDS), emphasising both the aspects of usage and access to financial services. Their study showed that the likelihood of complete FE was predominant among poor rural households in the Eastern Cape, KwaZulu-Natal, and Limpopo provinces.

Next, Mishi et al. (2012) reviewed the impact of financial literacy on optimising FI in rural South Africa, focusing on the Eastern Cape province. The study utilised the household survey data provided by the Southern Africa Labour Development Research Unit (SALDRU), which was supplemented by a self-administered survey among beneficiaries of several financial literacy programmes in the Eastern Cape. The study found that most respondents did not make use of bank services as they were not aware of the implications of doing so. Moreover, the growth in literacy levels increased financial inclusion.

Nonetheless, there is a growing body of literature that commonly examines FI in South Africa. (2015) analysed FI and individual welfare in post-apartheid South Africa. The study used a FinScope survey to analyse the disparities at different quantiles of the welfare distributions of formal financial services for users and non-users. The results proposed a larger and significant difference in the middle and top end compared to the bottom end of welfare distribution. Furthermore, the results revealed that when the different components of financial services were separated, informal credit and informal insurance had positive effects on the bottom end of the distribution while formal product contributed more at the top end of distribution.

Van Rensburg (2017) conducted an analysis of South Africa's high levels of FE. A sample of 1 500 low-income South Africans in both rural and urban areas was interviewed in this study. Focus groups and numerous in-home interviews were also conducted. The empirical findings showed that only a quarter of South Africa's low-income households made use of their bank accounts for transactions. Contrastingly, Louis and Chartier (2017) assessed the integrated framework for FI of vulnerable communities in South Africa's financial regulatory system reform. Their study used the financial inclusion data from the World Bank to analyse financial inclusion in South Africa. Both Twin Peaks' South African financial inclusion model and the Irish financial model were utilised as integrated frameworks for the study. The former model revealed that people who were money-metric poor struggled to survive and perceived that the banking industry was interested in providing them with less-expensive access to financial services. However, the latter model proved to be more impactful in making a difference to many people living in rural areas.

Baiyengunhi and Fraser (2014) used cross-sectional data from a smallholder farmers´ household survey to investigate smallholder farmers' access to credit in the Amathole district in the Eastern Cape. The empirical findings indicated that credit market access was significantly

influenced by socio-economic and demographic characteristics such as gender, education, and household income. Smallholder farmers with high income enjoyed greater access to credit whereas those with low income did not have any access to credit. The study by Ntsalaze and Ikhinde (2017) utilised NIDS data to investigate the threshold effects of household indebtedness on multidimensional poverty. Their empirical findings revealed that urban households were more than three times over-indebted (78.8%) than those living in rural areas (17.9%). The study also showed that having debt helped smooth consumption and improved the quality of life; however, the debt must not have exceeded 42.5%.

Last, Sibanda and Sibanda (2016) used primary data to examine financial education in South Africa. The results revealed that over-indebtedness in South Africa was an enormous challenge. The authors further expressed that 32.4% of active credit consumers were in three or more months in arrears and that 11.8% had adverse listings against their names. The conclusion of their study is that South Africa has a sophisticated financial sector, although it is of vital importance to improve financial literacy skills for existing and potential financial services clients.

2.4.2   International studies

At the time of writing, only few cross-sectional studies had investigated FI in rural households. The general observation from these empirical studies is that rural residents are more likely to be financially excluded compared to urban residents. First, Kata et al. (2015) assessed the extent of FE on the rural population of Poland for the 2006 to 2013 period. The survey used in the study was held in the second half of 2012 and included a group of 125 randomly selected rural households. The results revealed that there was a limitation in the provision of financial services for rural inhabitants compared to urban households. Moreover, the limited provision of financial services in rural areas was not only caused by geographical factors but also other related factors, such as cost, income, and information.

Similarly, using primary data from 120 respondents in rural households in the Bageshwar district of Utterrakhand, India, Kavidayal and Kandpal (2016) investigated the extent of FI among rural households. The empirical results showed that rural people were unaware of the existence of financial instruments and banking services; as a result, they were likely to be financially excluded. Bhise and Babar (2016) used a field survey to examine FI in rural Marathwanda, India, by deriving an index of FI. The results revealed that FE incidence was

higher among underprivileged sections of the society. The study also found that FE was more severe in scheduled castes, scheduled tribes, and farm households.

Another empirical research conducted on FI in rural areas provided that on the face of it, rural areas residents appeared to be inclusive; however, there remained some gaps in the usage, access, quality, and welfare of financial services. Canaan et al. (2012) investigated FI in rural South India. The study administered household surveys to a sample of rural residents of South India. The results revealed that 77% of the households had bank accounts. The findings further demonstrated that credit card, money transfer and credit counselling were the least accessible financial services. The levels of making bank-related savings and loans were low as well, but the rates of possessing life and general insurance were high. Therefore, the authors argued that the results suggested that regardless of the high possession of bank accounts, real FI was far from being attained and it was subject to geographic variability.

Dube et al. (2014) utilised the mixed methods approach and a concurrent dominant status design where quantitative and qualitative approaches were concurrently used with the quantitative approach having a dominant status. Questionnaires and focus group discussions were used as the main data of the study. The study analysed mobile money as a strategy for FI for rural communities in Zimbabwe. The evidence suggested that there was a very high usage of mobile money by the unbanked rural people, particularly for sending and receiving payments. Nevertheless, the aspects of savings and loans were not very popular. Most users relied on their traditional methods of savings and borrowing.

The effect of technology in achieving FI in rural India was studied by Bansal (2014). The results revealed that tremendous efforts had been made by the government, the Reserve Bank of India, and the banking sector to integrate every segment of the country into the mainstream financial system. However, there was a significant disparity between rural and urban areas in terms of availing financial services to develop financial services in remote areas. The study further expressed that there was a need for a tool to close the gap and bring everyone (whether from rural or urban parts of the society) to take part in the mainstream financial activities. Thus, Modern Information and Communication Technology (ICT) was designated as a tool that could help extend financial services to remote areas because it reduced cost and increased customer reachability.

Similarly, Munyengera and Matsumoto (2015) investigated the effect of ICT for FI on financial behaviour of rural households in Ghana. The study used household survey data with a sample size of 820 rural households. The authors found that financial innovation and the adoption of mobile money reduced transaction costs. As a result, there was an increase in the likelihood of saving, borrowing, and receiving remittances.

Fanta et al. (2016) utilised a FinScope Survey to analyse the role of mobile money in FI in the Southern African Development Community (SADC) region. The results demonstrated that the ownership of mobile money was relatively low among women, the retired, low-income groups, and rural people. This was partly due to a lower level of mobile phone ownership and a lower level of financial literacy. Myeni et al. (2020) also used FinScope data to investigate whether mobile money promoted FI in Eswatini and found that mobile money had a positive correlation with bank account ownership, having a higher proportion of users residing in urban areas. The result suggested that mobile money did not seem to increase the reach of financial services to those who were geographically excluded from participating in the formal financial system, such as rural residents.

Using data from the sixth wave of the Ghana Living Standard Survey (GLSS), and applying several econometrics techniques[1], Danquah et al. (2017) examined whether having access to financial services via the rural communities and banks of Ghana had a positive impact on the welfare of households. The empirical findings indicated that access to financial services through rural and community banks had a significant and positive influence on the standards of living of rural households. Abraham (2018) used cross-sectional household data from two rural communities of Nigeria to estimate the effects of access to financial services by poor farmers in rural northern Nigeria. The findings showed that access to financial services, whether via formal or informal financial institutions, benefited vulnerable farmers.

Lopez and Winkler (2018) tested whether rural FI, particularly lending to rural borrowers, was hindered by sustainability challenges than inclusion in urban areas in 80 countries where Microfinance Institutions (MFIs) operated. The results demonstrated that a higher share of rural borrowers did not have a direct effect on microfinance institutions' sustainability. Nevertheless, microfinance institutions with higher shares of rural borrowers could not entirely exploit productivity and economies of scale. As a result, the findings of the study supported the notion

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[1] Ordinary Least Squares (OLS), Instrumental variable approach (IV) as well as Sargan or Hansen test.

that sustainability challenges were an obstacle to achieving progress in FI in rural areas as compared to urban areas.

The empirical literature that seeks to study FI in rural areas reveals that there is low adoption of financial services and products in rural areas, as most rural residents are not financially literate. This is also shown by GIZ (2015NANZIRI), who utilised the baseline survey which was conducted by the 'Microfinance in Rural Areas – Access to Finance for the Poor' project. The study showed that the rural population was financially excluded due to limited experience in dealing with financial institutions and services. There was also a lack of basic numeracy skills, which were essential to assessing credit and savings conditions.

Murendo and Motsonziwa (2017) investigated the savings decisions taken by adult financial consumers in Zimbabwe, based on their financial literacy rates. The study used survey data from a sample of 4 000 adult financial consumers in Zimbabwe. The empirical findings indicated that there was a positive correlation between financial literacy and savings. Also, rural residents suffered lower financial literacy compared to urban financial consumers.

The findings of Murendo and Motsonziwa (2017) were confirmed by Gaisina and Kaidorova (2017), who interviewed a sample of 405 households in Kazakhstan to investigate whether financial literacy was a determinant of savings. The results revealed that rural areas had limited access to financial education, a lack of financial experience and low levels of income. Moreover, financial literacy was an extremely important determinant of savings as it enabled people to have a basic understanding of financial concepts such as interest rate, inflation, and time value of money.

Last but not least, VJ and John (2018) examined the perception as well as the extent of FI in terms of access and usage of bank accounts among rural households in Parlikad village, India. The study used a randomly selected sample of 150 rural households' data from Parlikad. The results showed that there was a need for greater awareness about the financial services as well as the products. Financial services offered in rural households were also below the standards of expectation, interest, and satisfaction. In addition, occupation and monthly income were likely to influence the levels of satisfaction with the financial services offered.

2.5   Conclusion

Chapter two began by reviewing various key concepts in connection with FI and exclusion, followed by discussing the core theories relevant to the study, before the review of past local and international empirical studies were conducted. The existing local empirical literature did not explicitly examine what transpired in rural areas. As a result, only a few local studies that briefly examined what happened to the population at the bottom end of income distribution (as they were most likely to reside in rural areas) were reviewed in this study. These studies provide insufficient information as to what has been done to promote FI in rural households of South Africa so far. In addition, the international past empirical studies did not derive a clear conclusion on whether FI in rural areas had improved over the years.

The research gap has been identified in the literature reviewed, as only a few local and cross-country studies have used FinScope survey to investigate FI in rural areas. Most international studies utilised primary data, which covered a small sample size of the entire population of rural residents. This can therefore affect the consistency of research, as it leads to higher variability, which may cause bias. Additionally, the shortage of literature on FI of rural residents' dynamics in South Africa offers a significant gap in the research; the present study aims to reinforce the knowledge base around the dynamics of FI in rural areas of South Africa explicitly. This research therefore intends to add significance to the existing local and cross-country studies by utilising the FinScope Survey — which has a relatively larger sample size — and by offering a contemporary evaluation of FI in rural areas.

CHAPTER THREE: METHODS AND DATA

3.1   Introduction

This chapter provides an outline of the data and methodology that will be employed in this study. The South African FinsScope survey data of 2011 and 2016 will be used in this study. The analysis of this dissertation will be based only on the working-age population (15 to 64 years) of the sample. The Finscope Survey is particularly significant for this study because it asks in-depth questions in connection with FI. Further, the Principal Component Analysis (PCA) method will be used to derive the financial inclusion index (FII). Subsequently, Ordinary Least Squares (OLS) and probit regressions will be undertaken to estimate values of several demographic characteristics of rural residents based on the financial inclusion index

3.2   Data

This study will utilise FinScope South Africa surveys for 2011 and 2016. Finscope is a FinMark Trust initiative based in Johannesburg and was established in 2002. FinMark Trust is an independent trust whose business is controlled by five trustees from Southern Africa and is primarily funded by UKaid from the Department for International Development (DFID). FinScope South Africa is a nationally representative survey which provides an overview of the financial behaviour of South Africans aged 16 and older. The survey provides a comprehensive database on the needs and usage of financial services across the population of South Africa (FinScope, 2018).

In South Africa, FinScope survey is conducted on a yearly basis since 2002. However, due to internal reasons, FinMark does not make its latest data available to the public realm. And for that reason, this study has opted to use the dataset that is within 2011 and 2016. The 2011 and 2016 FinScope questionnaires cover almost the same information and enable fairness and consistency. The survey is based on a nationally representative sample of South Africans who are 16 years or older. The sample size increased from 3 900 in 2011, to 4 992 in 2016. The main purpose of FinMark is to make financial markets work for the poor. FinScope promotes FI, regional financial integration and institutional and organisational development to increase the access of financial services for the un-served and underserved in Africa (FinScope, 2018).

The scope of the issues covered in the FinScope survey has been grouped into the following 12 sections: (1) household register; (2) receiving and spending money; (3) remittances; (4) using cellphones for financial services and technology; (5) banking penetration; (6) borrowing

(credit/loans); (7) insurance; (8) funeral cover; (9) retirement/pension; (10) savings/investments; (11) general attitude and statements; and (12) general attitude and demographics.

FinScope survey is appropriate for this study because it explores the trends of formal and informal FI. The survey data help assess whether and how FI has evolved over the years in South Africa by asking many in-depth questions about individual and household characteristics in connection with FI (see Tables 12-15). The access dimension is covered by indicators such as the number of savings and/or transaction accounts and debit cards a person has. Usage is covered by indicators such as how frequently a person makes use of his/her financial services, as well as the number of products and services the person uses. The quality dimension is covered by the opinions that customers have about their banks. The welfare dimension will be captured by indicators such as how clients' consumption has improved over the years.

3.3   Methodology

Since FI is an abstract concept which cannot be measured quantitatively in a straightforward manner, descriptive statistical analysis will be conducted on the personal characteristics of the survey participants as well as the key indicators from the four FI dimensions. Before the examination of what has been transpiring with rural residents — and comparing them to their urban counterparts — the Principal Component Analysis (PCA) method will be used to derive the overall FII.
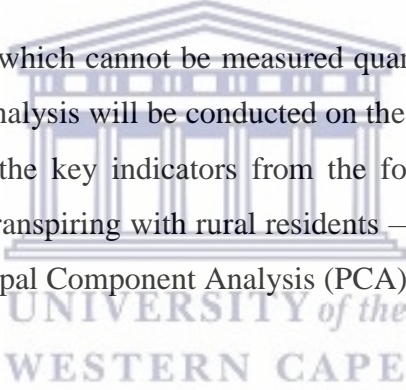
The PCA is a data reduction method to re-express large numbers into fewer dimensions. This process lessens the set of experimental variables into principal components, which keeps information from the original set as far as possible. In equation terms, the first principal component can be expressed as:

$$P_1 = \Sigma_{i=1}^n a_i X_{1i} \; where \; a_{ki} = \frac{\Sigma_{i=1}^n r_{x1xi}}{\Sigma_{i=1}^n \Sigma_{j=1}^n r_{xjxi}} \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

In the equation above, $P_1 = \Sigma_{i=1}^n a_i X_{1i}$ represents the principal component, and $\frac{\Sigma_{i=1}^n r_{x1xi}}{\Sigma_{i=1}^n \Sigma_{j=1}^n r_{xjxi}}$ the sample variance of the linear combinations of the indicators (Shlens,2009).

This study will conduct these two types of econometric analyses. First will be OLS regressions on the FII (all, rural only and urban only), with the following explanatory variables:

- Gender (reference category: female)

- Province (reference category: Western Cape)

- Age cohort (reference category: 15 to 24 years)

- Race (reference category: African)

- Real per capita income quintile (reference category: quintile 1)

- Education level (reference category: primary education)

- The main source of income (reference category: self-employed)

- Geo-type: (reference category: urban).

Second, probit regressions on FI probability will be conducted. The probit model is a type of regression that has a binary dependent variable; that is, the y-variable is either one or zero. To perform the probit estimation the following equation was used:

$$Prob(financially\ included)_i = \beta_0 + \beta_1 gender_i + \beta_2 province_i + \beta_3 age_i + \beta_4 race_i + \beta_5 real\ per\ capita\ income_i + \beta_6 Educ_i + \beta_7 source\ of\ income_i + \beta_8 geo-type_i + \varepsilon_i \ldots \ldots (2)$$

Where the subscript the "i" represents one given individual in the sample; the intercept is β_0 and ε is the error term for each individual in the model. In this study, one stands for people who are financially excluded while zero refers to financially included individuals. The same explanatory variables, as mentioned above for the OLS regression, will be used to conduct the probit regression. The FII will be used at the 40th percentile in 2011 to distinguish the poorest 40% (that is, those who were most excluded in 2011, as they had the lowest FI), and then use this 2011 40th percentile FII as the threshold to distinguish the included from the excluded in 2016. In other words, this study will use the relative approach to distinguish the included from the excluded.

3.4   Limitations

While the data used in this study provide information on both formal and informal FI — as well as in-depth information on individual and household characteristics in connection with FI — the 2017 to 2018 data were still not available at the time of the present writing. Accordingly, the 2016 data will be used as the most recently available and will be compared with the 2011 data. This presents a complication for the present research, because the older the data the more outdated and inaccurate they tend to be. For example, there are financial indicators from questions that were asked in the 2016 survey and not asked in the 2011 survey. To derive the

FII consistently across the two surveys, only indicators from questions that were asked in both years will be included. This can render the findings of this study biased or inaccurate.

Moreover, the FinScope survey is a data source that is only based on the demand side (household or individual level) of FI. Complementary supply-side data are also needed to paint a full picture of FI from access to branches and ATMs per square kilometre. The sample size of 3 900 in 2011 covered in the survey is relatively low in relation to the entire South African population, though the 2016 data increased to 4 992. Furthermore, the individual level of sampling bound of 16 years is rather low, as in South Africa most 16-year-olds are still in school and cannot open a bank account in their own capacity as they are still minors under South African law. This can generate bias in the results of the study.

Finally, in the forthcoming empirical analysis, this study will briefly examine the relationship between real per capita income quintile and FII, as well as FI probability. However, there were some individuals with unspecified/missing household income (see tables A1 and A2). Fortunately, the 2016 FinScope already provided the post-imputation household income variable, but this was not the case in 2011. There is therefore a need to conduct sequential regression multiple imputation (SRMI)[2] to impute the household income of these individuals.

3.5   Conclusion

In this chapter, the data and methodology used in this study were discussed. A table of in-depth questions asked in the survey in connection with access, usage, quality, and welfare of financial services was also presented in this section. This was followed by the overview and insight of the PCA method, which will be utilised in the next chapter to derive FII. Last, the limitations of the study were also highlighted.

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[2] SRMI is the process of imputing missing values in each variable with the least to those with the most missing values, using fully observed variables. Detailed mathematical explanation of the SRMI technique falls beyond the scope of this study but can be referred to Yu (2011 & 2016).

CHAPTER FOUR: EMPIRICAL FINDINGS

4.1   Introduction

The purpose of this chapter is to provide statistical results based on the method mentioned in chapter three. Section 4.2 offers a descriptive analysis of the 3 449 and 3 298 individuals in 2011 and 2016, respectively, but only including the working-age population. Section 4.3 provides a multivariate econometric analysis (OLS and probit regression) to examine correlation and probability between FII and several demographic characteristics. Last, section 4.4 concludes the chapter. Note that all empirical findings are derived with person weight in this chapter, unless stated otherwise.

4.2   Descriptive statistics

4.2.1   Profile of the weighted sample

Table 4.1 below presents a summary statistic of demographic characteristics of the working-age population-weighted sample for 2011 and 2016. For the province categorical variable, Limpopo at 26%, followed by KwaZulu-Natal at 23%, and the Eastern Cape at 19%, had a prevalence of people residing in rural areas for the 2011 final sample. In 2016, Limpopo, KwaZulu-Natal and the Eastern Cape were still the top three provinces that had dominant shares of people residing in rural areas. In 2011, 67% of the final sample consisted of people residing in urban areas and 33% living in urban areas. Nevertheless, in 2016, the number of urban residents had increased to 73% and decreased to 27% for those residing in rural areas. In both 2011 and 2016 final samples, females were the ones with the largest proportion residing in rural areas. In fact, the female share increased from 54% in 2011 to 61% in 2016 in rural areas.

For both 2011 and 2016 final samples, Africans accounted for the greatest share of people living in rural areas (94% and 97%, respectively), while Whites (13% and 17%, respectively) dominated urban areas. With regards to the age cohort, those between the ages of 15 and 24 accounted for 35% of people living in rural areas in 2011, and this increased to 37% in 2016. On the other hand, those between the ages of 55 and 64 accounted for the smallest share of people residing in rural areas, with 9% in 2011 and 5% in 2016. Over the years, people living in rural areas became more educated such that people with at least primary education significantly increased from 16% to 21%.

Table 1: Demographic characteristics of the final sample (%)

	2011			2016		
	Urban	Rural	All	Urban	Rural	All
Province of residence						
Western Cape	14.91	2.43	10.77	18.11	0.96	13.43
Eastern Cape	10.58	18.68	13.27	8.25	21.02	11.73
Northern Cape	2.24	1.72	2.07	2.73	2.41	2.64
Free State	6.58	2.99	5.39	7.40	2.04	5.93
KwaZulu-Natal	19.74	23.08	20.85	12.24	20.37	14.46
Northwest	4.52	10.58	6.53	5.87	11.22	7.33
Gauteng	34.47	2.49	23.86	36.83	1.48	27.19
Mpumalanga	5.22	11.91	7.44	6.08	11.52	7.56
Limpopo	1.73	26.11	9.82	2.49	28.99	9.72
	100.00	100.00	100.00	100.00	100.00	100.00
Gender						
Male	48.84	45.72	47.81	48.37	38.66	45.72
Female	51.16	54.28	52.19	51.63	61.34	54.28
	100.00	100.00	100.00	100.00	100.00	100.00
Population group						
African	69.88	94.32	77.99	65.91	97.49	74.52
Coloured	13.02	2.93	9.67	12.97	2.18	10.03
Indian / Asian	4.08	0.00	2.72	4.58	0.00	3.33
White	13.02	2.75	9.61	16.54	0.33	12.12
	100.00	100.00	100.00	100.00	100.00	100.00
Age cohort						
15-24 years	26.11	34.88	29.02	36.78	37.29	36.92
25-34 years	29.34	23.74	27.48	28.11	26.20	27.59
35-44 years	20.74	17.29	19.59	18.10	17.50	17.94
45-54 years	13.68	14.75	14.04	12.02	13.63	12.46
55-64 years	20.74	9.33	9.87	4.98	5.39	5.09
	100.00	100.00	100.00	100.00	100.00	100.00
Highest educational attainment						
No formal education	1.16	6.23	2.84	0.48	4.52	1.58
Primary education	7.54	16.41	10.48	7.02	21.15	10.87
Secondary education	71.71	72.13	71.85	73.83	70.08	72.81
Vocational/Specialised training/Other	3.75	0.32	2.61	2.46	0.73	1.99
Tertiary Education	15.85	4.92	12.22	16.22	3.52	12.75
	100.00	100.00	100.00	100.00	100.00	100.00

Table 1: Continued

	2011			2016		
	Urban	Rural	All	Urban	Rural	All
Main source of income						
Farming/Fishing	0.00	0.21	0.07	0.06	0.42	0.15
Self-employed	3.88	2.47	3.41	6.68	2.88	5.71
Formally employed (Government / Private)	43.28	25.43	37.35	54.99	31.98	49.10
Informally employed	3.91	5.16	4.33	10.65	18.68	12.71
Remittance Dependent	33.09	40.13	35.42	23.35	40.77	27.81
Government Dependent	12.36	24.33	16.33	0.33	0.36	0.34
Other Income	3.48	2.26	3.08	3.95	4.91	4.19
	100.00	100.00	100.00	100.00	100.00	100.00
Labour market status						
Employed	49.03	30.36	42.83	64.61	44.47	59.12
Unemployed	28.21	40.07	32.15	13.92	26.72	17.41
Economically inactive	22.76	29.58	25.02	21.48	28.80	23.47
	100.00	100.00	100.00	100.00	100.00	100.00
Marital status						
Married /Living together	36.74	29.09	34.20	42.33	28.64	38.60
Divorced/ Separated	3.87	3.02	3.59	5.03	2.80	4.42
Widowed	3.85	5.00	4.23	9.65	15.83	11.33
Single/ Never married	55.48	62.77	57.90	42.90	52.73	45.58
Do not know	0.06	0.12	0.08	0.10	0.00	0.07
	100.00	100.00	100.00	100.00	100.00	100.00
Real per capita income quintile						
Quintile1	12.67	35.90	20.38	14.03	36.48	20.15
Quintile2	17.39	26.67	20.47	20.88	36.45	25.13
Quintile3	19.31	19.96	19.53	16.92	14.78	16.33
Quintile4	23.79	12.36	19.99	23.78	9.31	19.83
Quintile5	26.84	5.11	19.63	24.40	2.98	18.56
	100.00	100.00	100.00	100.00	100.00	100.00
Financial inclusion index quintile						
Quintile1	14.60	32.02	20.38	16.37	31.65	20.54
Quintile2	19.36	28.96	22.55	17.48	32.72	21.64
Quintile3	17.24	18.29	17.58	17.38	19.20	17.88
Quintile4	22.67	13.34	19.57	23.31	11.37	20.05
Quintile5	26.14	7.39	19.92	25.46	5.06	19.89
	100.00	100.00	100.00	100.00	100.00	100.00

Concerning the main source of income categorical variable, the proportion of rural residents who relied on employment income between 2011 and 2016 had increased from 25% to 32%, and from 5% to 19% for formal and informal employment, respectively. Given the labour

market status, a positive trend in employment can be seen, as the proportion of both rural and urban residents who declared to be unemployed decreased from 28% to 13% in urban areas, and from 40% to 27% in rural. There was also a significant increase in the proportion of employed people. Focusing on marital status, single/never-married people had the largest share of people residing in rural areas (63%) in 2011, followed by those who were married or lived together (37%). This was the case for 2016 as well, as single/unmarried rural residents comprised 53% of the entire rural population, followed by married or people who lived together at 29%.

The majority of the people who lived in the rural areas in 2011 fell under income per capita quintile 1 and 2, with 36% and 27%, respectively. In 2016, the percentage share of quintile 1 in rural areas remained the same at 36%; then for quintile 2, the percentage share increased to 36%. Last, regarding the FII quintile variable, quintile 1 of the 2011 final sample had the largest portion — 32% — followed by quintile 2 at 29% in rural areas. In 2016, the proportion of quintile 1 was still at 32%, and quintile 2 had increased to 33%.

4.2.2   Financial inclusion dimensions

Figures 4.1 and 4.2 present the overall banking status for 2011 and 2016, respectively. The results indicate that there was an increase in people who were banked in both urban (71% to 87%) and rural (46% to 78%) areas at the time of the 2011 and 2016 surveys, respectively. However, the proportion of the banked population remained low in rural areas compared to their urban counterparts.

Figure 2: Overall banking status 2011
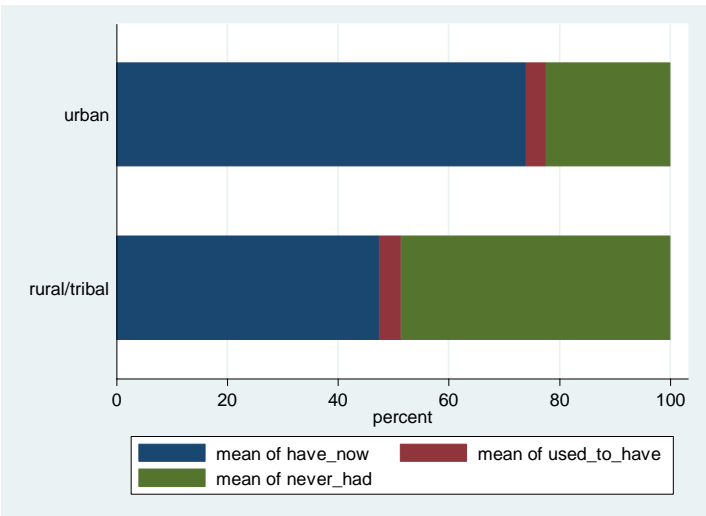
Source: Own calculations using the FinScope 2011 data.

Figure 3: Overall banking status 2016
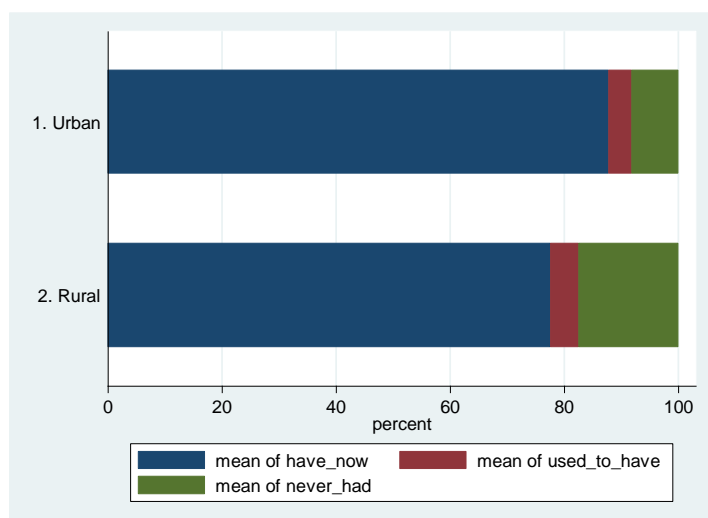
Source: Own calculations using FinScope 2016 data.

The results from the two figures also illustrated a substantial decline in the proportion of people who had never been banked previously. Furthermore, only people whose answer was 'never had' and 'used to have in the past' could answer questions in connection with the access to and quality of FI dimensions. Table 2 presents information on the overall banking status between 2011 and 2016, and the results suggest that there was an improvement in access to financial services. However, access remained low in rural areas.

Table 2: Overall banking status (%)

	2011			2016		
	Urban	Rural	All	Urban	Rural	All
Never had	25.27	50.01	33.48	8.89	17.05	11.12
Use to have in the past	3.86	4.14	3.95	4.49	5.28	4.70
Have now	70.88	45.85	62.57	86.62	77.67	84.18
	100.00	100.00	100.00	100.00	100.00	100.00

Source: Own calculations using FinScope data.

Table 3 presents statistics on the access dimension of FI for both urban and rural residents. The results show that there had been a positive trend in accessing financial institutions. There had also been a decrease in the proportion of people who could not access financial institutions in both rural and urban areas, due to the following reasons: not being in possession of a proof of residence; the bank being too far; not having an identity document; high cost of running a bank

account; and already having access to another person's account. Furthermore, there had been an increase in the proportion of people who generally did not find the language used in financial paperwork confusing — in both urban (67% to 75%) and rural (73%) areas — between 2011 and 2016.

Table 3: Descriptive statistics on the access dimension of financial inclusion (%)

	2011			2016		
	Urban	Rural	All	Urban	Rural	All
Reason: never had or used to have a bank account/card: no proof of residence						
Yes	2.53	1.32	1.95	0.04	0.42	0.14
No	97.47	98.68	98.05	99.96	99.58	99.86
	100.00	100.00	100.00	100.00	100.00	100.00
Reason: never had or used to have a bank account/card: bank is too far						
Yes	1.02	2.11	1.54	0.05	0.20	0.09
No	98.98	97.89	98.46	99.95	99.80	99.91
	100.00	100.00	100.00	100.00	100.00	100.00
Reason: never had or used to have a bank account/card: no identity document						
Yes	2.54	1.99	2.27	0.31	0.74	0.43
No	97.46	98.01	97.73	99.69	99.26	99.57
	100.00	100.00	100.00	100.00	100.00	100.00
Reason: never had or used to have a bank account/card: expensive to have a bank account						
Yes	3.06	3.06	2.89	0.73	0.88	0.77
No	96.94	97.31	97.11	99.27	99.12	99.23
	100.00	100.00	100.00	100.00	100.00	100.00
Reason: never had or used to have a bank account/card: access other people's bank account						
Yes	2.78	2.78	2.13	0.18	0.37	0.23
No	97.22	98.58	97.87	99.82	99.63	99.77
	100.00	100.00	100.00	100.00	100.00	100.00
General life statement: Find language used in financial paperwork confusing						
Yes	33.50	33.13	33.32	25.19	27.71	25.88
No	66.50	66.87	66.68	74.81	72.29	74.12
	100.00	100.00	100.00	100.00	100.00	100.00

Source: Own calculations using FinScope data.

Figures 4 and 4 show the proportion of people who used at least one of the following bank accounts in 2011 and 2016: ATM card, Mzansi Account, debit card, cheque card, Postbank savings, savings account, and current/cheque account. The results suggest that in both urban and rural areas the percentage of people who used at least one of the above-stated accounts had increased. However, the increase was relatively smaller in rural areas.

Figure 4: Use of bank account proportion 2011
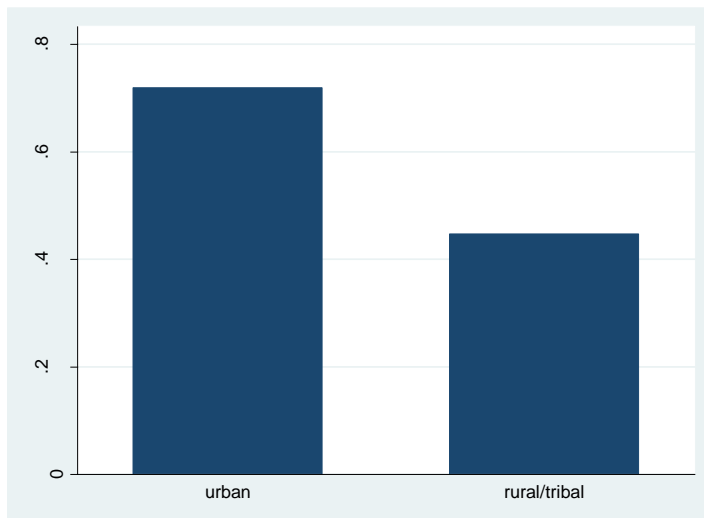
Source: Own calculations using FinScope 2011 data.

Figure 5: Use of account proportion 2016
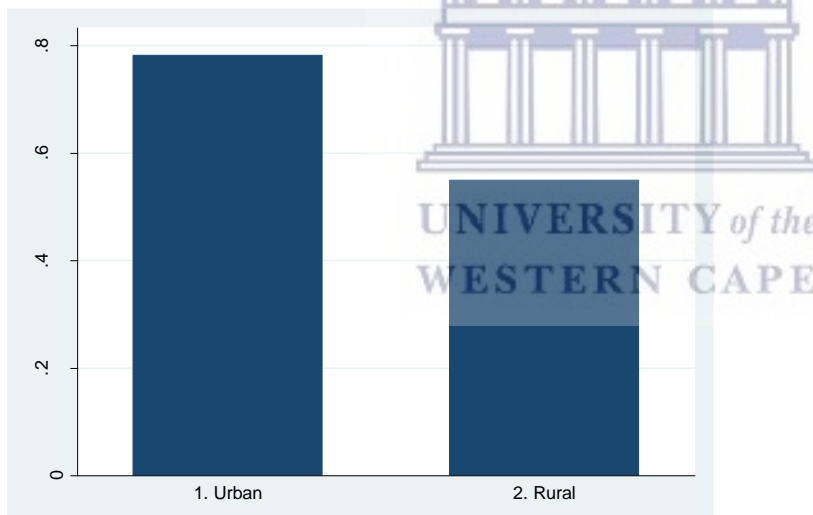
Source: Own calculations using FinScope 2016 data.

Table 4 shows a more detailed breakdown on the 'yes' proportion of each account/instrument. The results suggest that in urban areas the proportion of people who used at least one of the above-mentioned accounts was 7.1% in 2011 and increased to 7.8% in 2016. In rural areas, 4.4% of people in 2011 made use of at least one of these financial accounts. This increased to 5.4% in 2016.

Table 4: Descriptive statistics on the usage dimension of financial inclusion (%)

	2011			2016		
	Urban	Rural	All	Urban	Rural	All
Use bank account						
Yes	68.63	42.51	28.52	77.73	55.23	71.60
No	31.37	57.49	40.04	22.27	44.77	28.40
	100.00	100.00	100.00	100.00	100.00	100.00
Use savings book						
Yes	4.88	1.62	3.80	3.64	0.40	2.76
No	92.51	98.38	96.20	96.36	99.60	97.24
	100.00	100.00	100.00	100.00	100.00	100.00
Use overdraft facility						
Yes	4.01	0.82	2.95	5.05	0.00	3.67
No	95.99	99.18	97.05	94.95	100.00	96.33
	100.00	100.00	100.00	100.00	100.00	100.00
Use personal or garage card						
Yes	2.49	1.62	2.20	3.43	0.00	2.49
No	97.51	98.38	97.80	96.57	100.00	97.51
	100.00	100.00	100.00	100.00	100.00	100.00
Use credit card						
Yes	7.71	1.62	5.69	18.61	6.01	15.18
No	92.29	98.38	94.31	81.39	93.99	84.82
	100.00	100.00	100.00	100.00	100.00	100.00
Use home loan						
Yes	7.44	0.87	5.26	15.56	3.02	12.14
No	92.56	99.13	94.74	84.44	96.98	87.86
	100.00	100.00	100.00	100.00	100.00	100.00
Use car loan						
Yes	6.18	1.55	4.64	11.18	2.15	9.18
No	93.82	98.45	95.36	88.19	97.85	90.82
	100.00	100.00	100.00	100.00	100.00	100.00
Use personal loan						
Yes	7.26	2.53	5.69	3.40	0.82	2.70
No	92.74	97.47	94.31	96.60	99.18	97.30
	100.00	100.00	100.00	100.00	100.00	100.00
Use funeral policy offered by the banks						
Yes	12.78	4.95	10.19	14.67	5.04	12.05
No	87.22	95.05	89.81	85.33	94.96	87.95
	100.00	100.00	100.00	100.00	100.00	100.00
Use of credit						
Yes	33.12	23.82	30.03	22.26	8.56	18.52
No	66.88	76.18	69.97	77.74	91.44	81.48
	100.00	100.00	100.00	100.00	100.00	100.00
Have a store card						

Yes	23.13	7.54	17.96	24.56	9.96	20.58
No	76.87	92.46	82.04	75.44	90.04	79.42
	100.00	100.00	100.00	100.00	100.00	100.00
Use insurance to pay loan						
Yes	8.87	1.85	6.54	2.72	0.46	2.11
No	91.13	98.15	93.46	97.28	99.54	97.89
	100.00	100.00	100.00	100.00	100.00	100.00
Use insurance policy						
Yes	0.60	0.31	0.51	10.06	0.53	7.46
No	99.40	99.69	99.49	89.94	99.47	92.54
	100.00	100.00	100.00	100.00	100.00	100.00
Use funeral cover						
Yes	13.94	5.43	11.12	9.21	3.08	7.54
No	86.06	94.57	88.88	90.79	96.92	92.46
	100.00	100.00	100.00	100.00	100.00	100.00
Use of retirement annuity						
Yes	11.57	3.38	8.85	12.35	2.71	9.72
No	88.43	96.62	91.15	87.65	97.29	90.28
	100.00	100.00	100.00	100.00	100.00	100.00
Use of provident fund						
Yes	12.87	3.81	9.87	12.30	3.61	9.93
No	87.13	96.19	90.13	87.70	96.39	90.07
	100.00	100.00	100.00	100.00	100.00	100.00
Use of pension fund						
Yes	13.63	5.36	10.89	14.02	3.47	11.15
No	86.37	94.64	89.11	85.97	96.53	88.85
	100.00	100.00	100.00	100.00	100.00	100.00

Source: Own calculations using FinScope data.

Table 4 also depicts the statistics of the usage dimension in terms of FI. The results indicate that there was an increase in the usage of some financial services between 2011 and 2016. The percentage of people who made use of bank accounts increased from almost 67% to 78% in urban areas, and from 43% to 55% in rural areas between the period 2011 and 2016. The increase in the usage of financial services was also evident in other important services such as credit cards, home loans, car loans, funeral policies, store cards and insurance policies. Nevertheless, the usage of financial services overall still remained very low in rural areas.

Moreover, rural residents decreased their usage of most financial services between 2011 and 2016. For example, the use of credit immensely diminished by 15%. Other examples include the use of overdraft facilities, which decreased from 1% to 0%, and personal or garage card, which decreased from 2% to 0%. Correspondingly, there was a decline in the use of other

services such as savings books, personal loans, credit retirement annuities, pensions, and provident funds.

Table 5 presents descriptive statistics of the quality dimension of FI. A positive transformation in the attitudes, behaviours, and interest of rural people towards financial services was observed. The proportion of rural residents not having or using a bank account/card because they did not feel comfortable in banks, did not understand how banks worked or did not understand technology had declined. Since quality encompasses the degree of excellence in meeting the needs of the clients, this means that there had been an improvement in the delivery of financial services over the years.

Table 5: Descriptive statistics on the quality dimension of financial inclusion (%)

	2011			2016		
	Urban	Rural	All	Urban	Rural	All
Reason: never had or used to have a bank account/card: do not feel comfortable in a bank						
Yes	0.28	1.56	0.89	0.15	0.29	0.18
No	99.72	98.44	99.11	99.85	99.79	99.82
	100.00	100.00	100.00	100.00	100.00	100.00
Reason: never had or used to have a bank account/card: do not understand how banks work						
Yes	1.20	2.85	1.99	0.01	0.38	0.11
No	98.80	97.15	98.01	99.99	99.62	99.89
	100.00	100.00	100.00	100.00	100.00	100.00
Reason: never had or used to have a bank account/card: do not understand technology						
Yes	0.41	1.99	1.17	0.14	0.36	0.20
No	99.59	98.01	98.83	99.86	99.64	0.80
	100.00	100.00	100.00	100.00	100.00	100.00

Source: Own calculations using FinScope data.

Table 6 show descriptive statistics on the welfare dimension of financial inclusion. The results suggested that there has been no improvement in the livelihood of the consumers. People who find dealing with money stressful have significantly increased in both urban (42% to 69%) and rural (44% to 56%) areas. There was also a decrease in the number of people who have ensured that they are financially secure or feel in control of their finances. The was a low proportion of people who have ensured that they are financially secure or feel in control of their finances in rural areas compared to urban areas.

Table 6: Descriptive statistics on welfare dimension of financial inclusion

	2011			2016		
	Urban	Rural	All	Urban	Rural	All
Dealing with money is stressful						
Yes	42.20	43.67	46.69	69.13	55.60	65.44
No	51.80	56.33	53.31	30.87	44.40	34.56
	100.00	100.00	100.00	100.00	100.00	100.00
You have ensured that you are financially secure						
Yes	39.28	27.14	35.25	19.47	9.80	16.83
No	60.72	72.86	64.75	80.53	90.20	83.17
	100.00	100.00	100.00	100.00	100.00	100.00
You feel in control of your finances						
Yes	73.04	56.51	67.55	50.41	32.77	45.60
No	26.96	43.49	32.45	49.59	67.23	54.40
	100.00	100.00	100.00	100.00	100.00	100.00

Source: Own calculations using FinScope data.

Table 18 of the appendix displays the supplementary results of the access dimension of FI. The results suggest that a large proportion of people did not have access to financial facilities due to the high interest rate and the excessive fees. As a result, the proportion of people with no access due to high fees more than doubled over the years (4.28% in 2011, to 41.78% in 2016). Tables 19 and 20 of the appendix provide additional descriptive statistics for usage and quality dimensions of FI. The findings are in consensus with main descriptive statistics — that is, the general usage and quality of FI had increased over the years. However, the increase remained relatively modest in rural areas.

4.2.3 Financial inclusion index

Table 7 shows the list of components used to generate the FI index. The principal components consist of the four dimensions of FI between 2011 and 2016. Under the access dimension, if the answer is 'yes' for the 'overall banking status: have a bank account/card' dummy variable, it means that having bank account/card is a good outcome for access. The results reveal that the component of this dummy is the greatest in value and has a positive sign (0.29 and 0.20), whereas if the answer is 'yes' for all other dummy variables, the components are projected to have a negative sign, meaning that they are not desirable outcomes for access. The results show that all components have a negative sign and that the 'never had a bank account' dummy variable is the greatest (0.27 and 0.18) in absolute terms.

Table 7: First principal components for deriving the financial inclusion index

	2011	2016
Access		
Overall banking status: have a bank account/card	0.2905	0.2083
Overall banking status: never had bank account/card	-0.2748	-0.1836
No proof of residence	-0.0444	-0.0248
Bank is too far	-0.0379	-0.0165
No identity document	-0.0449	-0.0383
Expensive to have a bank account	-0.0453	-0.0488
Access other people's bank account	-0.0372	-0.0261
Find language used in financial paperwork confusing	-0.1562	-0.0301
Usage		
Use of bank account	0.2922	0.2398
Use savings book	0.0854	0.0790
Use overdraft facility	0.1733	0.1900
Use personal or garage card	0.1704	0.1754
Use credit card	0.2315	0.3181
Use home loan	0.2248	0.3024
Use car loan	0.2215	0.3116
Use personal loan	0.1799	0.2046
Use funeral policy offered by the banks	0.2147	0.1689
Use of credit	0.1897	0.2656
Have a store card	0.2226	0.2223
Use insurance to pay loan	0.2366	0.2012
Use insurance policy	0.0568	0.2020
Use funeral cover	0.2022	0.1148
Use of retirement annuity	0.2626	0.2420
Use provident fund	0.2524	0.2125
Use of pension fund	0.2654	0.2218
Quality		
Do not feel comfortable in a bank	-0.0272	-0.0253
Do not understand how banks work	-0.0433	-0.0243
Do not understand technology	-0.0328	-0.0275
Welfare		
Dealing with money is stressful	0.0258	0.0768
You have insured that you are financially secure	0.1320	0.1344
You feel in control of your finances	0.1135	0.1806
Proportion (%) of variation explained by first principal components	18.31%	16.84%

Source: Own calculations using FinScope data.

The first component of the access dimension is positively correlated only with the 'have a bank account/card' variable and negatively correlated with all other dummy variables. This correlation suggests that seven variables vary together and that when one goes up, the others increase as well, except for the 'have a bank account' dummy. The component is mostly

correlated with the 'have a bank account' variable at 0.29 and 0.20 between 2011 and 2016. This could thus be considered a primarily a measure of access dimension.

If people answer 'yes' in all the dummy variables under usage dimension, it means that all the dummy variables are good usage outcome, and the dummy variables are expected to have a positive sign on the principal components. The results demonstrate that all components have positive signs that conform to theory. The first principal components that are the greatest in values in 2011 are for variables like use of a bank account (0.29 and 0.23), use of a retirement annuity (0.26), use of provident (0.25) and use of a pension fund (0.26). For 2016, the components with the largest values were use of a credit card (0.31), use of a home (0.30) and use of a car loan (0.31) dummy variables.

The first component under the usage dimension is mostly correlated with the use of bank account, retirement annuity and pension fund in a positive direction. Also, the first component is positively correlated with all other variables under this dimension, which indicates that if one variable increases, all other variables will increase too.

Turning on the quality dimension of FI, if the answer is 'yes', it means that the dummy variables are a bad quality outcome and that the principal components are expected to have negative signs. The results depict that the first principal component is the largest for variables, such as the 'do not understand how banks work' dummy variable in 2011 and the 'do not understand technology' in 2016. All the components of this dimension have the expected negative signs. The first principal component is negatively correlated with all the dummy variables and is predominantly correlated with 'do not understand how banks work' at 0.04 in 2011 and 'do not understand technology' at 0.03 in 2016.

Looking at the welfare dimension, if the answer is 'yes' on the 'dealing with money is stressful' dummy variable, it means that the dummy variable is not a good outcome for the welfare dimension and that we can expect a negative sign. Somehow, however, the dummy variable shows a positive sign. Even so, if the answer is 'yes' to the 'you have ensured that you are financially secure' and 'you feel in control of finances' dummies, the dummies imply a good welfare outcome, and we can hence expect positive signs. The results show that the components have correct and expected signs that conform to the theory, as the signs are positive as expected.

The component for the 'you have ensured that you are financially secure' dummy variable was the greatest in value in 2011, and the 'you feel in control of your finances' dummy was the greatest in 2016. In addition, the welfare dimension was largely correlated with 'you have insured that you are financially secure' at 0.13 and 'you feel in control of your finances' at 0.18 in 2016, both in a positive direction. Last, about 18% of the variation is explained by the first principal components in 2011, which decreased slightly to 17% in 2016.

Table 8 shows the FI probability by personal characteristics in each area. Concerning the province of residence, in urban areas, Gauteng (73%) and the Western Cape (72%) enjoyed the highest probability of financially included people compared to all other provinces in the 2011 final sample. In 2016, the percentage of financially included individuals increased in both provinces, with Gauteng at 79% and the Western Cape at 75%. On the other hand, in rural areas, Mpumalanga (31%) and KwaZulu-Natal (32%) had the lowest proportion of financially included people in the 2011 final sample. The percentage share, however, increased over the years to 52% in Mpumalanga and 65% in KwaZulu-Natal.

In terms of gender, in urban areas, more than 60% of both genders (67% males and 65% females) in the 2011 final sample were financially included, and this share increased to 75% for males and 74% for females in 2016. In contrast, almost three out of 10 people (39.08% of males and 38.95% of females) who resided in rural areas were financially included in the 2011 final sample. In the 2016 final sample, the percentage share increased to 46% and 47%. However, the increase still remained quite low compared to urban areas.

In 2011, about 93% of White individuals from urban areas were financially included, while only 62% of Africans were financially included. The percentage share of White and African respondents who were financially included in urban areas increased to 94% and 71%, respectively, in 2016. In rural areas, only 38% of Africans were financially included, whereas close to eight out of 10 (78%) White people were financially included the 2011 final sample. In 2016, the proportion of financially included Africans only increased by 8%, while the White population increased by almost 22%.

In terms of age cohort, in 2011, more than half (57%) of the youngest age cohort (15 to 24 years) was financially excluded in urban areas, but this decreased to 25% in 2016. Likewise, in rural areas, FE was associated more with the younger age cohort (76%) in the 2011 final sample, and this decreased to 49% in 2016. Given the education status, individuals with no formal

education as well as those with at least primary education were associated with greater FE likelihood both in urban and rural areas between 2011 and 2016.

Turning to the different main income sources, the share of financially included people in each geographical area who received income from various incomes sources increased between 2011 and 2016. This was different for individuals who were receiving income through informal employment in urban areas, as the share decreased from 55% in 2011 to 49% in 2016. Also, in rural areas, the percentage share of financially included people who were receiving income from self-employment activities decreased from 69% in 2011 to 62% in 2016.

In view of the labour market status, it is evident that there have been encouraging developments in the delivery of financial services, as the percentage of financially excluded people who declared to be unemployed and/or economically inactive decreased over the years in both urban and rural areas. Regarding marital status, the proportion of financially included people between 2011 and 2016 increased in all categories, although the share of people who stated to be widows in urban areas, as well as those who were married/living together residing in rural areas, had decreased.

Concerning the real per capita income, almost 91% of urban residents who declared to be in quintile 5 were financially included in 2011, and this increase to 93% in 2016. Contrastingly, more than half of the respondents (55%) in quintile 1 were financially excluded in 2011, and this increased to 64% in 2016. Similarly, in rural areas, more than 80% of the respondents in quintile 5 were financially included between 2011 and 2016, whereas quintile 1 had the largest percentage of financially excluded people. Last, quintile 1 and quintile 2 of the FII quintile had 0% of financially included people in both geo-types for the 2011 final sample. However, for the 2016 final sample, almost half of the respondents (49%) were financially included in urban areas, while 34% of rural residents were also financially included.

Table 8: Financial inclusion probability by personal characteristics in each area type

| | Urban | | | | | | Rural | | | | | |
| | 2011 | | | 2016 | | | 2011 | | | 2016 | | |
	Included	Excluded	All	Included	Excluded	All	Included	Excluded	All	Included	Excluded	All
All												
All	66.05	33.95	100.00	74.79	25.21	100.00	39.01	60.99	100.00	46.72	53.28	100.00
Province												
Western Cape	71.64	28.36	100.00	75.27	24.73	100.00	59.53	40.47	100.00	78.41	21.59	100.00
Eastern Cape	63.91	36.09	100.00	82.09	17.91	100.00	38.14	61.86	100.00	36.86	63.14	100.00
Northern Cape	62.65	37.35	100.00	64.12	35.88	100.00	54.95	45.05	100.00	26.99	73.01	100.00
Free State	53.43	46.57	100.00	54.89	45.11	100.00	37.78	62.22	100.00	37.35	62.65	100.00
KwaZulu-Natal	59.13	40.87	100.00	80.79	19.21	100.00	32.19	67.81	100.00	64.57	35.43	100.00
Northwest	56.62	43.38	100.00	60.99	39.01	100.00	45.02	54.98	100.00	44.40	55.60	100.00
Gauteng	72.63	27.37	100.00	79.32	20.68	100.00	66.15	33.85	100.00	21.84	78.16	100.00
Mpumalanga	61.37	38.63	100.00	68.66	31.34	100.00	31.11	68.89	100.00	52.17	47.83	100.00
Limpopo	69.75	30.25	100.00	69.14	30.86	100.00	41.42	58.58	100.00	42.57	57.43	100.00
Area type												
Urban	30.06	69.94	100.00	67.03	32.97	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Rural	0.00	0.00	0.00	0.00	0.00	0.00	62.57	37.43	100.00	92.41	7.59	100.00
Gender												
Male	67.22	32.78	100.00	75.40	24.60	100.00	39.08	60.92	100.00	45.61	54.39	100.00
Female	64.93	35.07	100.00	74.22	25.78	100.00	38.95	61.05	100.00	47.41	52.59	100.00
Race												
African	61.70	38.30	100.00	70.97	29.03	100.00	37.62	62.38	100.00	46.37	53.63	100.00
Coloured	61.73	38.27	100.00	69.44	30.56	100.00	46.90	53.10	100.00	54.40	45.60	100.00
Indian	69.15	30.85	100.00	77.33	22.67	100.00	N/A	N/A	N/A	N/A	N/A	N/A
White	92.73	7.27	100.00	93.54	6.46	100.00	78.44	21.56	100.00	100.00	0.00	100.00

Table 8: Continued

	Urban						Rural					
	2011			2016			2011			2016		
	Included	Excluded	All	Included	Excluded	All	Included	Excluded	All	Included	Excluded	All
Age cohort												
15-24 years	42.89	57.11	100.00	75.42	24.58	100.00	24.26	75.74	100.00	50.70	49.30	100.00
25-34 years	73.70	26.30	100.00	75.69	24.31	100.00	49.07	50.93	100.00	48.06	51.94	100.00
35-44 years	74.76	25.24	100.00	73.36	26.64	100.00	50.74	49.26	100.00	40.42	59.58	100.00
45-54 years	71.80	28.20	100.00	78.81	21.19	100.00	42.81	57.19	100.00	37.80	62.20	100.00
55-64 years	77.95	22.05	100.00	60.60	39.40	100.00	40.84	59.16	100.00	55.66	44.34	100.00
Education												
No formal education	50.62	49.38	100.00	35.83	64.17	100.00	20.05	79.95	100.00	38.40	61.60	100.00
Primary education	37.85	62.15	100.00	39.98	60.02	100.00	27.73	72.27	100.00	24.80	75.20	100.00
Secondary education	62.77	37.23	100.00	72.75	27.25	100.00	39.89	60.11	100.00	51.22	48.78	100.00
Vocational/Specialised training/Other	83.76	16.24	100.00	93.15	6.85	100.00	62.31	37.69	100.00	100.00	0.00	100.00
Tertiary Education	91.22	8.78	100.00	97.53	2.47	100.00	86.24	13.76	100.00	88.34	11.66	100.00
Main income source												
Farming/Fishing	N/A	N/A	N/A	61.14	38.86	100.00	48.76	51.24	100.00	26.47	73.53	100.00
Self-employed	72.87	27.13	100.00	89.29	10.71	100.00	69.22	30.78	100.00	62.02	37.98	100.00
Formally employed (Government / Private)	87.48	12.52	100.00	92.44	7.56	100.00	66.01	33.99	100.00	74.44	25.56	100.00
Informally employed	55.09	44.91	100.00	49.22	50.78	100.00	28.65	71.35	100.00	33.50	66.50	100.00
Remittance Dependent	38.15	61.85	100.00	68.87	31.13	100.00	17.60	82.40	100.00	42.66	57.34	100.00
Government Dependent	63.90	36.10	100.00	100.00	0.00	100.00	42.01	57.99	100.00	51.68	48.32	100.00
Other Income	77.08	22.92	100.00	17.67	82.33	100.00	72.74	27.26	100.00	10.85	89.15	100.00

Table 8: Continued

	Urban						Rural					
	2011			2016			2011			2016		
	Included	Excluded	All	Included	Excluded	All	Included	Excluded	All	Included	Excluded	All
Labour market status												
Employed	85.70	14.30	100.00	86.52	13.48	100.00	65.94	34.06	100.00	58.42	41.58	100.00
Unemployed	47.14	52.86	100.00	36.72	63.28	100.00	28.05	71.95	100.00	35.96	64.04	100.00
Economically inactive	47.15	52.85	100.00	64.19	35.81	100.00	26.23	73.77	100.00	38.63	61.37	100.00
Marital status												
Married/Living together	77.58	22.42	100.00	80.59	19.41	100.00	52.80	47.20	100.00	47.99	52.01	100.00
Divorced/Separated	77.42	22.58	100.00	85.31	14.69	100.00	36.56	63.44	100.00	66.66	33.34	100.00
Widowed	74.50	25.50	100.00	71.80	28.20	100.00	36.19	63.81	100.00	36.67	63.33	100.00
Single/Never married	56.99	43.01	100.00	68.46	31.54	100.00	33.04	66.96	100.00	47.98	52.02	100.00
Do not know	100.00	0.00	100.00	100.00	0.00	100.00	0.00	100.00	100.00	N/A	N/A	N/A
Real per capita income quintile												
Quintile1	45.14	54.86	100.00	36.40	63.60	100.00	25.42	74.58	100.00	30.87	69.13	100.00
Quintile2	48.55	51.45	100.00	62.97	37.03	100.00	33.69	66.31	100.00	45.66	54.34	100.00
Quintile3	54.22	45.78	100.00	78.14	21.86	100.00	45.35	54.65	100.00	54.54	45.46	100.00
Quintile4	71.45	28.55	100.00	86.47	13.53	100.00	61.30	38.70	100.00	87.64	12.36	100.00
Quintile5	90.96	9.04	100.00	93.28	6.72	100.00	83.63	16.37	100.00	86.95	13.05	100.00
Financial inclusion index quintile												
Quintile1	0.00	100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00
Quintile2	0.00	100.00	100.00	49.45	50.55	100.00	0.00	100.00	100.00	33.90	66.10	100.00
Quintile3	100.00	0.00	100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00	0.00	100.00
Quintile4	100.00	0.00	100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00	0.00	100.00
Quintile5	100.00	0.00	100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00	0.00	100.00

Source: Own calculations using FinScope data

Table 9 presents the profile of financially included and excluded individuals by area type. Looking at the provincial category, in urban areas, Gauteng (28%) had the largest share of financially excluded people, followed by 24% in KwaZulu-Natal for the 2011 final sample. In 2016, Gauteng remained in the lead with 30% of financially excluded people, followed by the Western Cape at 18%. In rural areas, the FE was more dominant in KwaZulu-Natal (26% in 2011, decreased to 14% in 2016); Limpopo (25% in 2011, increased to 31% in 2016); and the Eastern Cape (19% in 2011, increased to 25% in 2016). These findings were in consensus with earlier reviewed past empirical studies, which found FE to be more prevalent in rural households in the same three provinces.

Looking at the gender group, in each area type the female group was more dominant for all categories between 2011 and 2016. Similarly, in relation to race, Africans had the largest share in both categories (financially included and excluded categories). However, the African share in the financially excluded category was much higher than the financially included category between 2011 and 2016.

With regards to the age cohort, the youngest cohort accounted for the greatest share of financially excluded people in both years for each geographic area. In view of education status, people with at least primary education and secondary education represented the greatest share across all categories. Nonetheless, there was an exception with financially included people who declared to have primary education between 2011 and 2016 in urban areas as they had a lower share than those who stated to have tertiary education.

Between 2011 and 2016, the percentage of respondents who were financially included was greater for the respondents who reported to be formally employed under the main source of income in each area type. Conversely, people who declared to be remittance-dependent had the highest rate of FE across the main source of income categories between 2011 and 2016 — both in urban and rural areas. Predictably, employed people had the highest rate of FI compared to the other labour market statuses for both 2011 and 2016 periods. The unemployed members were the more financially excluded people in each geographical area.

Table 9: Profile of financially included and excluded individuals by area type

	Urban				Rural			
	Included		Excluded		Included		Excluded	
	2011	2016	2011	2016	2011	2016	2011	2016
Province								
Western Cape	16.18	18.22	12.46	17.77	3.71	1.61	1.61	0.39
Eastern Cape	10.24	9.05	11.25	5.86	18.26	16.58	18.94	24.91
Northern Cape	2.12	2.34	2.46	3.89	2.43	1.39	1.27	3.30
Free State	5.33	5.43	9.03	13.24	2.89	1.63	3.05	2.39
KwaZulu-Natal	17.67	13.22	23.76	9.33	19.05	28.15	25.67	13.54
Northwest	3.88	4.78	5.78	9.08	12.21	10.67	9.54	11.71
Gauteng	37.91	39.06	27.79	30.22	4.23	0.69	1.38	2.17
Mpumalanga	4.85	5.58	5.94	7.56	9.50	12.87	13.46	10.34
Limpopo	1.83	2.31	1.54	3.05	27.72	26.41	25.08	31.24
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Gender								
Male	49.71	48.77	47.15	47.20	45.80	37.75	45.67	39.46
Female	50.29	51.23	52.85	52.80	54.20	62.25	54.33	60.54
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Race								
African	65.28	62.53	78.83	75.91	90.95	96.75	96.47	98.13
Coloured	12.17	12.04	14.68	15.73	3.53	2.54	2.55	1.87
Indian	4.27	4.74	3.71	4.12	0.00	0.00	0.00	0.00
White	18.28	20.69	2.79	4.24	5.52	0.70	0.97	0.00
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Age cohort								
15-24 years	16.95	37.09	43.91	35.87	21.69	40.47	43.32	34.51
25-34 years	32.74	28.45	22.72	27.11	29.86	26.95	19.83	25.54
35-44 years	23.47	17.75	15.42	19.13	22.49	15.14	13.97	19.57
45-54 years	14.88	12.67	11.37	10.10	16.18	11.02	13.83	15.91
55-64 years	11.96	4.04	6.58	7.79	9.77	6.42	9.05	4.48
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 9: Continued

	Urban				Rural			
	Included		Excluded		Included		Excluded	
	2011	2016	2011	2016	2011	2016	2011	2016
Education								
No formal education	0.89	0.23	1.68	1.22	3.20	3.72	8.16	5.23
Primary education	4.32	3.75	13.79	16.71	11.66	11.23	19.44	29.84
Secondary education	68.14	71.81	78.63	79.81	73.75	76.84	71.09	64.16
Vocational/Specialised training/Other	4.76	3.06	1.79	0.67	0.51	1.56	0.20	0.00
Tertiary Education	21.90	21.15	4.10	1.59	10.87	6.65	1.11	0.77
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Main income source								
Farming/Fishing	0.00	0.04	0.00	0.10	0.26	0.22	0.17	0.61
Self-employed	4.28	7.54	3.10	3.44	4.39	3.56	1.25	2.19
Formally employed	57.32	64.19	15.96	19.96	43.03	47.55	14.17	16.37
Informally employed	3.27	6.62	5.18	25.98	3.79	12.50	6.04	24.89
Remittance Dependent	19.11	20.31	60.27	34.91	18.11	34.74	54.22	46.81
Government Dependent	11.96	0.42	13.14	0.00	26.20	0.37	23.13	0.35
Other Income	4.07	0.88	2.35	15.60	4.22	1.06	1.01	8.77
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Labour market status								
Employed	63.61	74.74	20.65	34.55	51.31	55.61	16.95	34.71
Unemployed	20.13	6.83	43.92	34.94	28.80	20.57	47.27	32.12
Economically inactive	16.25	18.43	35.43	30.51	19.89	23.82	35.77	33.17
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Marital status								
Married/Living together	43.15	45.61	24.26	32.60	39.37	29.42	22.51	27.96
Divorced/Separated	4.53	5.73	2.57	2.93	2.83	4.00	3.14	1.75
Widowed/	4.35	9.26	2.89	10.79	4.64	12.43	5.23	18.81
Single/Never married	47.88	39.27	70.28	53.67	53.16	54.15	68.92	51.48
Do not know	0.09	0.13	0.00	0.00	0.00	0.00	0.20	0.00
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 9: Continued

	Urban				Rural			
	Included		Excluded		Included		Excluded	
	2011	2016	2011	2016	2011	2016	2011	2016
Real per capita income quintile								
Quintile1	8.66	6.83	20.47	35.39	23.40	24.10	43.90	47.33
Quintile2	12.78	17.58	26.35	30.67	23.03	35.63	29.00	37.18
Quintile3	15.85	17.67	26.03	14.67	23.21	17.25	17.89	12.61
Quintile4	25.74	27.49	20.00	12.76	19.42	17.47	7.84	2.16
Quintile5	36.97	30.43	7.14	6.50	10.95	5.55	1.37	0.73
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Financial inclusion index quintile								
Quintile1	0.00	0.00	42.99	64.94	0.00	0.00	52.51	59.41
Quintile2	0.00	11.56	57.01	35.06	0.00	23.74	47.49	40.59
Quintile3	26.10	23.24	0.00	0.00	46.87	41.09	0.00	0.00
Quintile4	34.32	31.16	0.00	0.00	34.20	24.34	0.00	0.00
Quintile5	39.58	34.04	0.00	0.00	18.93	10.82	0.00	0.00
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Own calculations using FinScope data.

Approximately one-third of financially included respondents (37% for 2011 and 30% for 2016) were mostly in quintile 5 of the real per capita income quintile and from urban areas. The most financially excluded respondents were mostly in quintile 1 and quintile 2 of the real per capita income. In rural areas, a large percentage of financially included and excluded people came from mainly quintile and quintile 2 for both 2011 and 2016 — although the financially excluded portion was much higher than the financially included one.

Finally, under the financial index, quintile urban areas had the largest proportion of financially included respondents coming from quintile 5 (40% in 2011 and 34% in 2016), followed by quintile 4 (34% and 31%). The FE category was dominated by quintile 1 and quintile 2. For rural areas, quintile 1 contained the largest share (47% in 2011 and 41% in 2016) of financially included people, followed by quintile 4 at 34% in 2011 and 24% in 2016. While quintile 1 and quintile 2 dominated the financially excluded category, all other quintiles had zero financially excluded people.

4.3   Econometric findings

This section will mainly conduct the econometric analysis. It will firstly run the OLS regression on the FII, followed by the probit regression on the FI probability as previously discussed in section 3.2. The results of the OLS and probit regression are therefore presented in Table 10 and 11, respectively.

Table 10 presents the findings of the OLS regression, regressing the FII (derived by the PCA method as discussed earlier) on numerous demographics, education, and labour market characteristics. With regards to the provincial variables, the reference category is Eastern Cape. The results are somewhat mixed, as some dummies are negative and others are positive, but only a few are statistically significant. For instance, in rural areas only the Western Cape province had statistically significant coefficients in both years.

Concerning other explanatory variables, the female coefficients are positive yet insignificant between 2011 and 2016 in both geographical areas. Regarding race (with Whites as the reference category), in both areas all the dummy variables are negative and almost all statistically significant between 2011 and 2016. Moreover, in urban areas, Africans were associated with a significantly lower FII compared to other races, whereas in rural areas Coloureds were correlated with a relatively low FII.

Compared with the 55 to 64 years age reference category, those aged 15 to 24 years were associated with lower FII, while those aged 45 to 54 were associated with higher FII. As far as the labour market status was concerned, unemployed and inactive people experienced a significantly lower FII in both areas between 2011 and 2016.

With respect to educational attainment, the results suggest that the index increased as people became more educated. People with no education experienced a very low FI index compared to those with secondary education. These results were consistent with the earlier reviewed past empirical studies that associated improvement in education with increased FI likelihood (Mishi et al. 2012; Murendo and Motsonziwa 2017; Gaisina and Kaidorova 2017).

Table 10: Ordinary Least Squares regressions on financial inclusion index

	Urban		Rural	
	2011	2016	2011	2016
Province: Western Cape	-0.1077	-0.6511***	0.9954*	1.5575*
Province: Northern Cape	-0.3836**	-0.8494***	0.3062	-0.1575
Province: Free State	-0.3328*	-0.7065***	0.2191	-0.3487
Province: KwaZulu-Natal	-0.2592	-0.3781**	-0.0366	0.4379**
Province: Northwest	0.0434	-0.6185***	-0.1997	-0.0953
Province: Gauteng	-0.0557	-0.1583	0.3774	-0.0813
Province: Mpumalanga	0.1508	-0.4791**	-0.0994	-0.0270
Province: Limpopo	-0.0700	-0.7055*	-0.0685	-0.0355
Gender: Female	0.1223	0.0255	0.0630	0.2122
Population group: African	-1.5318***	-1.2943***	-1.7148***	-0.2393
Population group: Coloured	-1.1550***	-1.1894***	-2.4626***	-0.4104
Population group: Indian / Asian	-1.1088***	-0.8060***	N/A	N/A
Age cohort: 15-24 years	-1.4238***	0.2772	-0.4950**	-1.2118***
Age cohort: 25-34 years	-0.8175***	0.2578	-0.2220	-1.0626***
Age cohort: 35-44 years	-0.5953***	0.1501	-0.2421	-0.9104***
Age cohort: 45-54 years	-0.3570*	0.1746	0.0047	-0.3930
Labour market status: unemployed	-1.6392***	-1.5353***	-1.3911***	-0.6189***
Labour market status: inactive	-1.8241***	-1.4689***	-1.5414***	-0.5435**
Educational attainment: no formal education	-2.2968***	-2.2215***	-2.9002***	-2.9758***
Educational attainment: primary education	-2.5370***	-2.3928***	-3.1521***	-3.3609***
Educational attainment: secondary education	-1.4149***	-1.9690***	-2.1534***	-2.7531***
Educational attainment: other	-0.5661**	-0.1447	0.6971	-1.4144
Marital status: single / never married	-0.4457	-0.7632	-0.2248	-0.0803
Marital status: divorced / separated	-0.3099	-0.1339	0.2967	-0.3918*
Marital status: widowed	-0.1586***	-0.0034***	-0.5721***	-0.1182
Lifestyle: Dissatisfied	-0.3298***	-0.5740***	-0.3881***	-0.3394**
Lifestyle: Indifferent	-0.1543	-0.1366	-0.2578*	-0.1293
Household size	0.0354	-0.0007	0.0354	0.0616**
Constant	8.1942***	8.2904***	8.1942***	7.1992***
Sample size	2 653	2 672	796	626
R-squared	0.4436	0.4228	0.4611	0.2913
F-statistic	48.39	50.27	13.71	5.67
Prob. > F-statistic	0.0000	0.0000	0.0000	0.0000

*** Significant at 1%   ** Significant at 5%   * Significant at 10%

Note: Reference categories
- Province: Eastern Cape
- Gender: male
- Population group: white
- Age cohort: 55-64 years
- Labour market status: employed.
- Educational attainment: tertiary
- Marital status: married / lived together.
- Lifestyle: Satisfied

In general, the marital status dummies between 2011 and 2016 for both geographical areas were negative and insignificant, except for people who declared themselves to be widows as they had statistically significant coefficients. With regards to the lifestyle variables, people who were dissatisfied or indifferent about their lives were associated with a significantly lower FII compared to those who were satisfied with their lives. Conclusively, between 2011 and 2016, in urban areas, household size had a negative correlation with the index, while the correlation was positive in rural areas. Such results were in line with the findings of Wentzel et al. (2016), whose findings suggested that a large number of household dependents was one of the contributing factors to FE.

Table 11 below shows the probit regression results for the likelihood of being financially excluded. In the case of provincial variables (with the Eastern Cape being the reference category), in general, the results were positive and statistically significant in urban areas between 2011 and 2016, except for a few provinces in 2011. On the other hand, the results in rural areas were somewhat mixed, as some dummies were positive and others were negative, but only a few had statistically significant marginal effects.

In terms of gender, females were less likely to be financially excluded in both geographical areas, with the FE probability being about 5.5% and 10% significantly lower in urban areas and rural areas, respectively. In urban areas, between 2011 and 2016, the Coloured and Asian groups had the greatest likelihood of being financially excluded as opposed to the African group. In 2011, the marginal effects of Africans and Coloureds residing in rural areas were similar in magnitude. However, the gap widened in 2016, with Africans having the greatest likelihood of being financially excluded.

Between 2011 and 2016, those aged 15 to 24 years were more likely to be financially excluded in both geographical areas apart from those who resided in urban areas in 2016. This may be because in South Africa, 15-year-olds are considered minors under South African law and are not yet entitled to an identity document (ID), which is a primary requirement to open a bank account. Another plausible reason for 15 to 24 years being financially excluded could be high youth unemployment.

Table 11: Probit regressions on financial exclusion likelihood (1: excluded; 0: included)

	Marginal effects			
	Urban		Rural	
	2011	2016	2011	2016
Province: Western Cape	0.0017	0 .1448***	0.1169	-0.4025*
Province: Northern Cape	0.0207	0.2398***	-0.0640	0.0276
Province: Free State	0.0988*	0.2517***	0.0869	0.0180
Province: KwaZulu-Natal	0.0853	0.0628	0.1048*	-0.2955***
Province: Northwest	0.0840	0.2152***	0.0181	-0.0825
Province: Gauteng	0.0006	0.0805*	-0.0811	0.1101
Province: Mpumalanga	0.0195	0.1733***	0.1412**	-0.1432*
Province: Limpopo	0.0211**	0.2878***	0.0234	-0.1012
Gender: Female	-0.0533	-0.0570***	-0.0948**	-0.1002*
Population group: African	0.2524***	0.1156***	0.1689	0.5942***
Population group: Coloured	0.3337***	0.1764***	0.1545	0.5161***
Population group: Indian / Asian	0.3135***	0.2476***	N/A	N/A
Age cohort: 15-24 years	0.3247***	0.0075	0.1959**	0.4468***
Age cohort: 25-34 years	0.1556***	0.0503	0.0550	0.4331***
Age cohort: 35-44 years	0.1589***	0.0641	0.0407	0.3886***
Age cohort: 45-54 years	0.1784***	-0.0986**	0.1011	0.2761**
Labour market status: unemployed	0.3045***	0.4265***	0.3390***	0.1962***
Labour market status: inactive	0.3891***	0.3242***	0.3551***	0.2186***
Educational attainment: no formal education	0.5000***	0.5960***	0.4114***	0.4512***
Educational attainment: primary education	0.5561***	0.5637***	0.4874***	0.5664***
Educational attainment: secondary education	0.2465***	0.2017***	0.4884***	0.4398***
Educational attainment: other	0.0906	0.1515	0.2874*	N/A
Marital status: single / never married	-0.0019	-0.0362	0.0921	-0.2031
Marital status: divorced / separated	-0.0498	-0.0418	-0.0201	0.1157
Marital status: widowed	0.0547	0.0651***	0.1342**	0.0157
Lifestyle: Dissatisfied	0.0564*	0.1538***	0.1088**	0.0895
Lifestyle: Indifferent	0.0368*	0.0550**	0.0920*	0.0019
Household size	-0.0039	-0.0074	-0.0017	-0.0102
Sample size	2 653	2 672	796	622
Pseudo R-squared	0.2469	0.2643	0.2057	0.1359
Observed probability	0.3395	0.2521	0.6099	0.5367
Predicted probability	0.2706	0 .1822	0.6222	0.5349
Chi-squared statistic	449.54	406.17	163.70	N/A
Prob. > Chi-squared statistic	0.0000	0.0000	0.0000	N/A

*** Significant at 1%   ** Significant at 5%   * Significant at 10%

Note: Reference categories
- Province: Eastern Cape
- Gender: male
- Population group: white
- Age cohort: 55-64 years
- Labour market status: employed
- Educational attainment: tertiary
- Marital status: married / lived together
- Lifestyle: Satisfied

Regarding the labour market status of having 'employed' as a reference category, in both geographical areas, the dummies of unemployed and inactive people showed statistically

significant and positive marginal effects between 2011 and 2016. The inactive group was most likely to be financially excluded compared to the unemployed group over the years in both geographical areas, except for the 2016 marginal effects in urban areas.

In terms of educational attainments, the results indicated that between 2011 and 2016, levels of education below secondary education were associated with a statistically significant higher likelihood of being financially excluded. This was observed in both geographical areas, except for people who resided in rural areas in 2011. In 2011, the secondary level of education had the highest statistically significant marginal effect at 0.4884 compared to other levels of education. A possible explanation for this relationship can be the strong association between education and employment likelihood (as well as earnings).

In terms of marital status, the widowed group had the greatest likelihood of being financially excluded relative to their counterparts. Additionally, all the marginal effects of this group were positive, whereas the coefficients of single/never married and divorced/separated people were mostly negative and statistically insignificant.

The lifestyle dummies were positive and statistically significant between 2011 and 2016 in both geographical areas, except for those who lived in rural areas in 2016. People who were dissatisfied with their lifestyle were significantly more likely to be financially excluded compared to the reference category (satisfied). The association of poor lifestyle and FE was consistent with the findings of Danquah et al. (2017). Additionally, between 2011 and 2016, household size had negative and statistically insignificant marginal effects in both geographical areas.

Tables 21 and 22 in the appendix provide supplementary results of the OLS regressions on FII and probit regressions on FE likelihood by including both urban and rural residents (for instance, everyone in the regression was included but the differences in area type were controlled for by including the rural area dummy as an additional explanatory variable). The results in tables 22 and 23 were highly similar to those in tables 10 and 11, as discussed earlier. However, in table 21, the rural dummy coefficient was negative and significant in both years despite the coefficient dropping in absolute terms from 0.5211 to 0.4402 (meaning rural residents still suffered significantly lower FII). Contrastingly, in table 22, the marginal effect of the rural dummy was significant but dropped from 0.1369 to 0.1229 (for example, rural

residents were catching up slightly with the urban residents in terms of FE probability, but the rural residents were still more than 10% more likely to be financially excluded).

4.4   Conclusion

Chapter four discussed the empirical findings of the study. The empirical analysis showed that the number of people residing in rural areas had decreased over the years. Rural demographics were dominated by single/unmarried female black Africans between the ages of 15 to 24 years. The results also demonstrated that people living in rural areas had become more educated, which would increase their chances of being employed and financially included. However, the increase still remained relatively low. Moreover, the most contributing factors to FE were educational attainment, income quintile, age, and geographical location.

Furthermore, the results showed that when it came to the four dimensions of FI, there had been a positive trend in the access, usage, and quality of financial services in rural areas over the years. Additionally, there had been a positive change in the attitudes, behaviours, and interest of rural people towards financial services. However, with respect to the welfare dimension, the results suggested that there had been no improvement in the livelihoods of the consumers.

The OLS regression showed that being an African single/never married female between the ages of 15 to 24, and to be economically inactive, was associated with low levels of FI index. In addition, the results were in consensus with existing past reviewed literature, that improvement in education was associated with a higher likelihood of being financially included. Last, the probit regression showed that people who were dissatisfied with their lifestyle were more likely to be financially excluded than those who were indifferent about their lifestyle. The results also demonstrated that an increase in household size increased the probability of being financially excluded.

CHAPTER FIVE: CONCLUSION

5.1   Introduction

This chapter will provide a conclusion for the study. Section 5.2 will lay out a review of the key empirical findings of this study. Based on the results, section 5.3 will discuss the possible success of existing policy measures, followed by some policy suggestions to achieve full FI in rural areas of South Africa.

5.2   Review of main findings

The access dimension of FI showed that the general access of financial services had increased substantially over the years in both urban and rural areas. Similarly, under the usage dimension of FI, the results suggested that the use of a bank account and some financial services between 2011 and 2016 increased. However, the usage of most financial services by rural residents had declined. These findings were in line with the earlier reviewed empirical studies, which had suggested that most rural residents did not make use of financial services (for example, Mishi et al., 2012).

Concerning the quality dimension of FI, the results showed that over the years people were becoming more comfortable with banks and that they had a better understanding of technology and how banks worked. This implies that the initiatives taken by the government and financial institutions to improve FI had been successful to some extent. Contrastingly, the results for the welfare dimension suggested that there had been no improvement in the livelihoods of consumers. People, more especially rural residents, found dealing with money stressful. They had not ensured that they were financially secure; neither did they feel in control with their finances. These results were in consensus with the findings of Mader (2016), De Hann & Sturm (2017), and Bateman (2019), whose findings suggested that the development of financial services did not bring about immediate benefits to the poor.

From the descriptive statistics discussed earlier, it can be concluded that rural residents living in the Gauteng, Northern Cape and Eastern Cape provinces were associated with a high probability of being financially excluded. Correspondingly, African males between the ages of 45 to 54 who resided in rural areas with primary education — and depended on farming or fishing for income — had a greater FE probability. Unemployed widows who were rural residents, belonging in the real per capita income quintile 1, were also associated with higher FE probability.

The OLS regression showed a negative correlation between African rural residents who were between the ages of 15 to 24 and FII. Moreover, inactive rural residents with low levels of education — who were divorced or separated and dissatisfied with their lifestyle — were associated with a lower FII. The probit regression on FE probability revealed that White urban residents older than the ages of 15 to 24 were less likely to be financially excluded. Finally, the findings demonstrated that being employed with a high education level reduced the chances of being financially excluded.

5.3   Conclusion and policy recommendations

If the South African government wishes to realise its vision of a nation where every citizen has an equal opportunity to participate in the mainstream economy, a full provision of financial services is a prerequisite. Rural areas tend to endure a larger extent of FE despite the fact that they require financial services the most. Ensuring FI for rural residents can unlock considerable economic potential and benefit the rural poor by increasing household income and decent work (International Labour Office, 2019). This argument justifies a strong research interest in improving FI in rural areas.

The policy implication from the findings is that FI, measured in terms of banked population in rural areas, has increased over the years. However, FI goes beyond being just being banked; it implicates all the dimensions of FI, namely: access, usage, quality, and welfare. The evidence shows that there has been an improvement in the use of bank accounts and other important financial services by rural residents, and that rural residents are slowly catching up to their urban counterparts. However, rural residents have still decreased their use of most financial services, such as credit, overdraft facilities, personal loans and so on. Rural residents mostly belong to the low-income segment or depend on seasonal income (based on agriculture or related activities), and for that reason they are likely to be denied credit or must pay high interest rates due to a low credit rating. This could be the reason for the decline in the use of the above-mentioned financial services. This study recommends that the government introduce regulations that encourage the establishment of microfinance institutions in rural areas — such as credit unions and non-governmental organisations (NGOs) — with the goal of rural residents obtaining small credit at reasonable interest rates.

Moreover, a study by Maciko (2020) shows that the access component of FI renders people the *potential* of using financial services; if access is not complemented by usage, however, then FI cannot come to realization. The results show that the progress to broaden FI in South Africa has to some degree improved. That being the case, there has been an improvement in people's overall standards of living. However, this improvement has been not rapid enough for rural residents. More attention needs to be paid to the FI initiatives directed at people living in rural areas, and the types of support or policies to improve FI in rural areas may need to be different to urban areas (that is, something that works in urban areas may not necessarily work in rural areas).

This study also found that education, source of income and employment positively correlated with FI. This suggests that an increase in any of these variables significantly increases the likelihood of FI. However, people coming from rural areas have, on balance, lower levels of education than their urban counterparts, are more likely to belong to the low-income segment and depend largely on informal employment. The study by Kehinde and Phillip (2020) in Kenya showed that education increased FI by increasing income, with little direct impact on financial capability. From a policy perspective, improving the education system in rural areas, emphasising financial literacy[3] in schools and implementing training curricula to increase the chances of rural residents securing formal employment will, in turn, raise their income levels. This can boost FI in rural areas.

Another option is extending the mobile money penetration in rural areas. Rural areas are considerably secluded from civilisation, have low population densities, and often lack infrastructure. A study conducted by Wieser et al. (2019) on the impact of mobile money on poor rural households showed that mobile money could indeed improve livelihoods even in poor and remote settings. The present study therefore recommends that the government introduce mobile money agents to rural areas so that the agents can educate customers about the different products that are offered, the benefits available to them for using mobile money and how to avoid mobile money fraud. The network providers can also ensure that they supply reliable internet facilities at affordable prices to encourage the use of mobile money among rural residents.

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[3] The capability to understand and use different financial skills efficiently including personal finance management, spending, and investing for a lifetime financial security.

Finally, this study suggests that further research investigate the financial needs of people residing in rural areas, as they have different needs from those residing in urban areas. The purpose of this further study would be for the government to implement policies and provide financial services that are specially tailored for rural areas — such as the AgBank, which is the main provider of financial services to rural areas of Mongolia. The future study can conduct a thorough research on the factors that impede the use of financial services in rural areas. Additionally, ways to increase the technical capacity of financial service providers to serve rural areas should be evaluated. Further research could also examine ways in which informal financial services can cooperate with formal financial services, because the use of informal financial services remains high in rural areas regardless of the measures that have been taken to improve FI.

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APPENDIX

Table 12: FinScope questions and possible answers in connection with access

Questions asked on the survey	Possible answers
You find the language used in financial paperwork confusing?	Disagree Strongly/ Disagree Slightly/ /Neither agree nor disagree /Agree Slightly/ Agree Strongly DK/NA/ No dealings
There are many reasons why people do not have a bank account or bank cards. You said earlier that you do not currently have a bank account or bank cards. Why is this?	1. I prefer dealing with cash only. 2. I do not feel comfortable in a bank. 3. I use someone else's bank account 4. I do not have a regular income 5. I do not have a job 6. I do not have money to save. 7. I earn too little to make it worthwhile. 8. I do not know how to open an account. 9. I do not have proof of residential address. 10. The bank is too far from where I live, work or travel to 11. I do not have an identity document 12. I do not qualify to open an account 13. I do not understand technology 14. It is expensive to have a bank account 15. Still a student 16. Too old to use 17. Prefer to keep money at home 18. I do not need a bank account
You indicated that you are not borrowing now, why is that?	1. I was declined or did not qualify 2. I do not have an ID 3. Do not know about loans or borrowing 4. Do not know how to go about getting a loan or borrowing 5. Never thought about it 6. Do not believe in it 7. The interest is too high 8. I earn too little/I do not have a job/I do not earn enough income 9. I am scared to approach a bank or place where I can borrow money 10. I do not want to have debt 11. I had it in the past but had a negative experience 12. I have too much debt 13. I have been blacklisted at the credit bureau
There are many reasons why people do not have household contents or possessions insurance. You said earlier that you do not have household contents or possessions insurance. Why is this?	1. I do not have a regular income or job 2. I earn too little to make it worthwhile 3. The premiums or fees or costs are too high 4. The excess is too high 5. Do not trust insurance companies to pay out if I had a claim 6. Do not understand how it works 7. I have never been told about it 8. I do not qualify 9. Nothing else 10. Do not know

There are many reasons why people do not have life insurance or life cover. You said earlier that you do not have life insurance or life cover. Why is this?	1. I do not have a regular income or job 2. I earn too little to make it worthwhile 3. The premiums or fees or costs are too high 4. The excess is too high 5. Do not trust insurance companies to pay out if I had a claim 6. Do not understand how it works 7. I have never been told about it 8. I do not qualify 9. Nothing else 10. Do not know
There are many reasons why people do not have retirement savings or a pension. You said earlier that you do not have retirement savings or a pension. Why is this?	1. Do not believe in it 2. I do not have money to invest 3. I do not have a job 4. Still a student 5. Do not know
There are many reasons why people do not save or put money away. You said earlier that you have never had investments or savings. Why is this?	1. Do not know about investments or savings 2. I do not have money to save or invest 3. I do not have a bank account 4. It is too expensive 5. I do not have a job 6. I will not be able to access my money if I need it 7. Do not know 8. Other

Table 13: FinScope questions and possible answers in connection with usage

Questions asked on the survey	Possible answers
You save money regularly? You prefer to finance your immediate needs with credit	Disagree Strongly/ Disagree Slightly/ /Neither agree nor disagree /Agree Slightly/ Agree Strongly DK/NA/ No dealings
Please tell me how often you would normally make the following transactions? 1. Money transfers between my bank accounts and someone else's. 2. Electronic bank transfer. 3. Get cash at retail store at till 4. Purchase items using your cheque /debit card 5. Buying items using a Credit card 6. Using a Credit card for re-payments	Daily/ At least once a week/ At least once a month/ Less often/ Never or Do not know.
Please tell me where or at which organisation(s) you have your: 1. Mzansi account 2. ATM card 3. Debit card 4. Cheque card 5. Post Office / Postbank savings or transaction account 6. Savings or Transaction account 7. Current or Cheque account 8. Savings book at a bank. 11. Overdraft facility 12. Personal garage card or Petrol card 13. Credit card.	1. Never had 2. Used to have in the past but do not have now 3. Have now

14. Home loan, bond, or mortgage to buy, build, extend or improve a house. 15. Car or vehicle loan from a bank. 16. Personal loan from the big banks. 217. Funeral policy with a bank	
Mzansi is the first bank account you have ever opened?	Yes/No
Which of these statements are true to you?	1. Have borrowed in the past 12 months 2. Taken goods on credit in the past 12 months 3. Owe money that must be repaid 4. I am not currently borrowing
We want to talk about places where people borrow money and take loans. Which of the following have you done in the past 12 months?	1. Home loan, bond, or mortgage to buy, build, extend or improve a house. 2. Car or vehicle loan from a bank.
Do you have a store card?	Yes/No
You said you had some form of borrowing, credit or store card or a loan. Can you tell me if you currently have insurance that will pay off your loan if you die, lose your job, or are disabled in any way?	Yes/ No/Do not know
Please indicate whether the respondent took out the policy in the last 12 months.	Yes/No
Please tell me about your experience with each of the following: Funeral cover from a shop or store. 2. Funeral cover from a cell phone provider, with an administrator or with an intermediary. 3. Funeral cover through an undertaker or funeral parlour 4. Funeral cover or insurance from your current employer or a union. 5. Funeral policy with an insurance company 6. Funeral policy with a bank. 7. Funeral cover from a funeral home. 8. Funeral cover from any other. 9. Belong to a burial society	1. Never had 2. Have it in my name 3. Covered by somebody else 4. Do not know
Please tell me about your use of each of the following, using the options I am about to show you. 1. Retirement annuity 2. Provident fund 3. Pension fund	1. Do not have 2. Have now 3. Do not know
There are many reasons why people do not save or put money away. You said earlier that you have never had investments or savings. Why is this?	1. Do not know about investments or savings 2. I do not have money to save or invest 3. I do not have a bank account 4. It is too expensive 5. I do not have a job 6. I will not be able to access my money if I need it 7. Do not know
What, if anything, are you currently saving for?	1. In case of an emergency or unplanned cost 2. For funeral costs 3. For medical expenses 4. For food 5. For school fees or education 6. For retirement or old age 7. For future holidays or to go overseas

	8. For buying household goods e.g. furniture or appliances 9. For a car or vehicle 10. To provide for my family if I die 11. Saving for a deposit on a house 12. Saving for a deposit to improve or extend house 13. To leave a legacy for my children 14. For nothing specific or in particular 15. Other
Do you mostly send by? 1. Paid into a bank account 2. Post Office, Money-gram, or Western Union 3. Cash with a relative or friend 4. Taxi, bus, another vehicle for a fee 5. Internet transfer 6.Cellphone 7. Other	Yes/No
Do you mostly receive by? 1. Paid into a bank account 2. Post Office, Money-gram, or Western Union 3. Cash with a relative or friend 4. Taxi, bus, another vehicle for a fee 5. Internet transfer 6.Cellphone 7. Other	Yes/No
Which of the following do you own? 1. Cell phone 2. Landline telephone at home 3. Computer at home 4. Internet at home	Yes/No

Table 14: FinScope questions and possible answers in connection with quality

Questions asked on the survey	Possible answers
You prefer a one stop financial provider to deal with all your financial needs?	Disagree Strongly/ Disagree Slightly/ /Neither agree nor disagree /Agree Slightly/ Agree Strongly DK/NA/ No dealings
There are many reasons why people do not have a bank account or bank cards. You said earlier that you do not currently have a bank account or bank cards. Why is this?	1. I prefer dealing with cash only 2. I do not believe in it 3. Too old to use 4. Prefer to keep money at home
There are many reasons why people do not have household contents or possessions insurance. You said earlier that you do not have household contents or possessions insurance. Why is this?	1. The contents or possessions I have does not need to be insured because the value is too low 2. I do not think anything will happen to my possessions 3. It is cheaper to replace the possessions myself 4. Do not believe in insurance 5. I do not need insurance 6. Do not want it
There are many reasons why people do not have life insurance or life cover. You said earlier that you do not have life insurance or life cover. Why is this?	1. Do not believe in life insurance 2. Never thought about it 3. I do not need it – do not have any loans 4. I do not need it – do not have any dependants 5. I prefer to use funeral or burial cover 6. Do not want it 7. Do not see the benefits

There are many reasons why people do not have funeral or burial cover. You indicated that you do not have funeral or burial cover. Why is this?	1. Never thought about it 2. It only pays out when you are dead 3. I prefer to spend money on other things I need more 4. I do not need it 5. Do not want it or do not need it 6. It is somebody else's responsibility after I am dead.
There are many reasons why people do not have retirement savings or a pension. You said earlier that you do not have retirement savings or a pension. Why is this?	1. Never thought about it 2. Do not believe in it 3. Do not trust it 4. The government will provide me with an old age pension 5. I do not like long-term saving 6. I was declined or did not qualify 7. Do not know about retirement savings
There are many reasons why people do not save or put money away. You said earlier that you have never had investments or savings. Why is this?	1. Never thought about it 2. I prefer to spend money on other things I need more 3. I prefer to invest in other 4. My children will look after me, so I do not need it 5. I save in other ways 7. Do not want it 8. Do not need it

Table 15: FinScope questions and possible answers in connection with welfare

Questions asked on the survey	Possible answers
1. Dealing with personal finances is stressful and a real burden	Disagree Strongly/ Disagree Slightly/ /Neither agree nor disagree /Agree Slightly/ Agree Strongly /DK/NA/ No dealings
2. You have ensured that you are financially secure?	
3. You like to be in control of your finances and money matters?	
4. Your current financial situation is far from ideal?	

Table 16: Percentage of working-age population in each household income category, before and after imputations (%), 2011

	Before imputations	After imputations
No income	0.20	0.20
R1-249 per month	0.93	0.93
R250 – 499 per month	1.25	1.25
R500 – 749 per month	2.17	2.68
R750 – R999 per month	1.85	2.77
R1 000 – 1 249 per month	4.70	6.26
R1 250 – 1 499 per month	2.53	4.82
R1 500 – 1 749 per month	2.77	5.79
R1 750 – 1 999 per month	2.08	5.21
R2 000 – 2 249 per month	3.62	6.68
R2 250 – 2 499 per month	1.84	5.78
R2 500 – 2 749 per month	1.84	4.42
R2 750 – 2 999 per month	1.37	4.41
R3 000 – 3 999 per month	4.10	7.02
R4 000 – 4 999 per month	3.83	6.53
R5 000 – 5 999 per month	3.28	5.99
R6 000 – 6 999 per month	1.74	4.27
R7 000 – 7 499 per month	1.49	3.47
R7 500 – 7 999 per month	1.13	2.72
R8 000 – 8 999 per month	0.86	1.96
R9 000 – 9 999 per month	1.08	1.94
R10 000 – 10 999 per month	1.24	2.26
R11 000 – 11 999 per month	0.51	1.21
R12 000 – 12 999 per month	1.10	1.75
R13 000 – 14 499 per month	0.40	1.16
R14 500 – 16 999 per month	0.91	1.71
R17 000 – 19 499 per month	0.99	1.37
R19 500 – R21 999 per month	0.94	1.49
R22 000 – 24 999 per month	0.35	0.82
R25 000 – 29 999 per month	0.80	1.09
R30 000 – 34 999 per month	0.56	0.88
R35 000 – 41 999 per month	0.33	0.47
R42 000 – 49 999 per month	0.45	0.46
R50 000 – 61 999 per month	0.06	0.06
R62 000 per month or more	0.13	0.13
Refuse to answer	*28.94*	*0.00*
Uncertain or Do not know	*14.60*	*0.00*
Irregular monthly income	*2.43*	*0.00*
I get money, however not monthly	*0.59*	*0.00*
	100.00	100.00
% with unspecified income	*46.56*	*0.00*

Table 17: Percentage of working-age population in each household income category, before and after imputations (%), 2016

	Before imputations	After imputations
No Income	0.21	0.21
R1 - R999	4.32	4.32
R1 000 - R1 999	12.10	12.10
R2 000 - R2 999	10.19	10.19
R3 000 - R5 999	18.00	18.00
R6 000 - R7 999	7.35	7.35
R8 000 - R9 999	4.46	4.46
R10 000 - R11 999	3.80	3.80
R12 000 - R16 999	4.65	4.65
R17 000 - R24 999	3.67	3.67
R25 000 - R29 999	1.69	1.69
R30 000 - R39 999	2.23	2.23
R40 000 or more	2.10	2.10
Do not know	*2.88*	*0.00*
Refuse to answer	*22.33*	*0.00*
No income		1.21
R1 – R999		1.53
R1 000 - R2 999		2.57
R3 000 - R7 999	N/A	5.87
R8 000 - R11 999		2.73
R12 000 - R29 999		3.88
R30 000 or more		7.41
	100.00	100.00
% with unspecified income	*25.21*	*0.00*

Note: The after-imputations household income category variable is already available in the dataset, derived by FinMark Trust. However, the categories are not the same as the original categories, as shown in the last few rows of the above table.

Table 18: Additional descriptive statistics on the access dimension of financial inclusion

	2011			2016		
	Urban	Rural	All	Urban	Rural	All
Reason: Not borrowing currently: Loan was declined						
Yes	1.67	1.22	1.45	0.68	0.15	0.53
No	98.33	98.78	98.55	99.32	99.85	99.47
	100.00	100.00	100.00	100.00	100.00	100.00
Reason: Not borrowing currently: Do not know about loans						
Yes	1.23	0.69	1.05	0.00	0.00	0.00
No	98.77	99.31	98.95	100.00	100.00	100.00
	100.00	100.00	100.00	100.00	100.00	100.00
Reason: Not borrowing currently: Interest rate is high						
Yes	4.62	4.97	4.79	10.26	7.46	9.50
No	95.38	95.03	95.21	89.74	92.54	90.50
	100.00	100.00	100.00	100.00	100.00	100.00
Reason: Not borrowing currently: Have negative experience						
Yes	0.87	1.29	1.07	0.80	0.18	0.63
No	99.13	98.71	98.93	99.20	99.82	99.37
	100.00	100.00	100.00	100.00	100.00	100.00
Reason: Do not have insurance: Fees are high						
Yes	5.00	3.50	4.28	37.09	54.28	41.78
No	95.00	96.50	95.72	62.91	45.72	58.22
	100.00	100.00	100.00	100.00	100.00	100.00
Reason: Do not have insurance: Do not understand language						
Yes	4.98	4.35	4.68	0.22	0.62	0.33
No	95.02	95.65	95.32	99.78	99.38	99.67
	100.00	100.00	100.00	100.00	100.00	100.00
Reason: Do not have insurance: Do not qualify						
Yes	0.39	0.00	0.21	0.22	0.34	0.25
No	99.61	100.00	99.79	99.78	99.66	99.75
	100.00	100.00	100.00	100.00	100.00	100.00
Reason: Do not have investment or savings: Do not have a job						
Yes	55.25	48.21	51.87	12.45	20.27	14.58
No	44.75	51.79	48.13	87.55	79.73	85.42
	100.00	100.00	100.00	100.00	100.00	100.00
Reason: Do not have investment or savings: do not have bank account						
Yes	8.18	9.95	9.03	0.73	0.88	0.77
No	91.82	90.05	90.97	99.27	99.12	99.23
	100.00	100.00	100.00	100.00	100.00	100.00
Reason: Do not have investment or savings will not have access to money when I need it						
Yes	0.57	1.42	0.98	0.67	0.37	0.59
No	99.43	98.58	99.02	99.33	99.63	99.41
	100.00	100.00	100.00	100.00	100.00	100.00

Table 19: Additional descriptive statistics on the usage dimension of financial inclusion

	2011			2016		
	Urban	Rural	All	Urban	Rural	All
Are you currently saving						
Yes	37.72	21.98	32.50	57.10	42.62	53.15
No	62.28	78.02	67.50	42.90	57.38	46.85
	100.00	100.00	100.00	100.00	100.00	100.00
Are you currently sending money via bank						
Yes	5.18	4.71	5.03	7.81	6.00	7.31
No	94.82	95.29	94.97	92.19	94.00	92.69
	100.00	100.00	100.00	100.00	100.00	100.00
Are you currently receiving money via bank						
Yes	7.18	6.67	7.01	4.35	7.27	5.15
No	92.82	93.33	92.99	95.65	92.73	94.85
	100.00	100.00	100.00	100.00	100.00	100.00

Table 20: Additional descriptive statistics on the quality dimension of financial inclusion

	2011			2016		
	Urban	Rural	All	Urban	Rural	All
Reason: Do not have insurance: do not believe in in						
Yes	4.77	2.77	4.11	2.99	4.98	3.53
No	95.23	97.23	95.89	97.01	95.02	96.47
	100.00	100.00	100.00	100.00	100.00	100.00

Table 21: Ordinary Least Squares regressions on financial inclusion index by including all individuals from both urban and rural areas

	2011	2016
Province: Western Cape	0.0147	-0.3885***
Province: Northern Cape	-0.2761*	-0.5770***
Province: Free State	-0.3422**	-0.3900***
Province: KwaZulu-Natal	-0.1079	-0.0408
Province: North West	-0.2461*	-0.5204***
Province: Gauteng	0.0008	0.0375
Province: Mpumalanga	0.2290	-0.2879*
Province: Limpopo	-0.0353	-0.3778**
Geographical area: Rural	-0.5211***	-0.4402***
Gender: Female	0.0780	0.1559**
Population group: African	-1.2797***	-1.1427***
Population group: Coloured	-0.9656***	-1.0442***
Population group: Indian / Asian	-1.0746***	-1.0552***
Age cohort: 15-24 years	-1.2810***	-0.1123
Age cohort: 25-34 years	-0.6720***	-0.0569
Age cohort: 35-44 years	-0.4246***	-0.1019
Age cohort: 45-54 years	-0.2548*	-0.0204
Labour market status: unemployed	-1.7311***	-1.4405***
Labour market status: inactive	-1.7527***	-1.3599***
Educational attainment: no formal education	-2.7983***	-2.4724***
Educational attainment: primary education	2.9419***	-2.7940***
Educational attainment: secondary education	-1.7060***	-2.2171***
Educational attainment: other	-0.4910**	-0.0151***
Marital status: single / never married	-0.2712*	-0.2208
Marital status: divorced / separated	0.0233	-0.0891
Marital status: widowed	-0.5088***	-0.6680
Household size	0.0439***	0.0213***
Constant	8.2874	8.1652
Sample size	3 449	3 298
R-squared	0.4602	0.4185
F-statistic	108.02	87.17
Prob. > F-statistic	0.0000	0.0000

*** Significant at 1%   ** Significant at 5%   * Significant at 10%

Note: Reference categories
- Province: Eastern Cape
- Gender: male
- Population group: white
- Age cohort: 55-64 years
- Labour market status: employed
- Educational attainment: tertiary
- Marital status: married / lived together

Table 22: Probit regressions on financial exclusion likelihood (1: excluded; 0: included) by including all individuals from both urban and rural areas

	2011	2016
Province: Western Cape	0.0306	0.0558
Province: Northern Cape	0.0468	0.1699***
Province: Free State	0.1225***	0.1420***
Province: KwaZulu-Natal	0.1061***	-0.0519
Province: North West	0.1020**	0.1336***
Province: Gauteng	0.0039	0.0220
Province: Mpumalanga	0.0415	0.0249
Province: Limpopo	0.0361	0.0503
Geographical areas: Rural	0.1369***	0.1229***
Gender: Female	-0.0541***	-0.0487***
Population group: African	0.2310***	0.1603***
Population group: Coloured	0.2424***	0.1769***
Population group: Indian / Asian	0.1980***	0.3499***
Age cohort: 15-24 years	0.3116***	0.1134**
Age cohort: 25-34 years	0.1240***	0.1368***
Age cohort: 35-44 years	0.1069***	0.1743***
Age cohort: 45-54 years	0.1331***	0.0207
Labour market status: unemployed	0.3120***	0.3616***
Labour market status: inactive	0.3475***	0.2777***
Educational attainment: no formal education	0.5455***	0.5577***
Educational attainment: primary education	0.5422***	0.6085***
Educational attainment: secondary education	0.2516***	0.2584***
Educational attainment: other	0.1137	0.0520
Marital status: single / never married	0.0056	-0.0100
Marital status: divorced / separated	-0.0378	0.0002
Marital status: widowed	0.0496**	0.0812***
Lifestyle: Dissatisfied	0.0881***	0.1030***
Lifestyle: Indifferent	0.0586**	0.0492**
Household size	-0.0076*	-0.0061
Sample size	3 449	3 298
Pseudo R-squared	0.2581	0.2534
Observed probability	0.3697	0.3026
Predicted probability	0.3098	0.2350
Chi-squared statistic	1172.66	1024.74
Prob. > Chi-squared statistic	0.0000	0.0000

*** Significant at 1%   ** Significant at 5%   * Significant at 10%

Note: Reference categories
- Province: Western Cape
- Gender: male
- Population group: white
- Age cohort: 55-64 years
- Labour market status: employed
- Educational attainment: tertiary
- Marital status: married / lived together
- Lifestyle: Satisfied