

# **The role of education and financial inclusion in Africa: The case of selected African countries**

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Philosophy in Development Finance  
at Stellenbosch University



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## DECLARATION

I, NomfundoMzobe, declare that the entire body of work contained in this research assignment is my own, original work; that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification

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Signature:

## **ACKNOWLEDGEMENTS**

### **ALL PRAISE IS TO MY HEAVENLY FATHER**

My family, my mom, SbusisiweThelma Mzobe, my two sisters, Thandeka and Nokwazi, my brothers, Mthokozisi and Sthembiso (and family, Dee and Nande), and my nieces Sisekelo and Nomsindiso; only God knows how much I love you. Thank you for believing in me and supporting me in my masters' degree journey. Thank you for constantly reminding me that there is nothing I am not capable of achieving. Your love gives me the strength and courage not to only live an extraordinary fulfilling life, but to venture where a few have gone.

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**GOD IS LOVE**

## **ABSTRACT**

The importance of financial inclusion to a country in promoting inclusive growth cannot be over emphasised, but the role of education in fostering financial inclusion has not been well established in empirical literature. This is particular severe in Africa where only 34 per cent of the adult population have access to a bank account and about 14.8 per cent of the population aged 15 and above have no schooling. Therefore, the major objective of this study was to examine the relationship between financial inclusion and education levels in Africa. Financial inclusion indicators captured in the study are account ownership, savings and health insurance. Educational attainment was disaggregated into 'primary or less' and 'secondary or more' years of schooling, while financial inclusion data was sourced from the World Bank Global Financial Index.

The empirical results pointed out that both measures of education, primary as well as secondary, have a significant influence on financial inclusion. After controlling for other factors that equally influence financial inclusion, education has a positive and statistically significant effect on financial inclusion in all the models estimated. The effect of education on account ownership, savings and health insurance is statistically significant at one per cent level. GDP per capita has a statistically positive effect on financial inclusion, and inflation, weak law, age dependency and overhead costs have a negative and statistically significant effect on financial inclusion in all models estimated. The results emphasised the importance of macroeconomic stability and having a good institutional framework in achieving financial inclusion in Africa. This, therefore, suggested that one reason why African countries have experienced less financial inclusion was poor institutional frameworks as well as macroeconomic instability.

### **Key words**

Financial Inclusion

Education

Africa

Financial capabilities

Financial education and literacy

Educational attainment

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## CHAPTER 1

### INTRODUCTION AND BACKGROUND TO THE STUDY

#### 1.1 INTRODUCTION

“The stark reality is that most poor people in the world still lack access to sustainable financial services, whether it is savings, credit or insurance. The greatest challenge facing national governments, non-governmental and the international development organisations such as the World Bank is to address the constraints that exclude many people from full participation in the financial sector. Together, we can and must build inclusive financial sectors that help people improve their lives.” (United Nations (UN), 2006).

Financial Inclusion (FI) as a concept is not entirely new, but has recently gained recognition at international and national level as a complementary tool for the eradication of poverty. However, its definition is not clear and varies from ‘banking the unbanked’ to ‘branchless banking’. Overall, its importance stands out as it is increasingly viewed as a tool of poverty alleviation, achievement of the Millennium Development Goals, and enabling the poor to be risk averse and to invest in their health and education of their children (Arora 2011). Financial inclusion connects people with bank accounts and allows the formal financial system to play its original role of promoting economic growth. The ability of the poor to access easy, affordable and safe financial services is a pre-condition for accelerating inclusive growth (Serrao, Sequeira & Hans, 2012; Nalini & Mariappan, 2012). This is because poverty is usually synonymous with financial exclusion and those who are directly and indirectly excluded from formal financial systems are most likely to be the poor (Beck, Demirgüç-Kunt & Levine, 2007; Sarma, Pais & Nikaido, 2012; Bruhn & Love, 2014).

Lack of money, lack of trust, long distance to access points, high costs and limited knowledge of financial products are some reasons for financial exclusion (Demirgüç-Kunt & Klapper, 2012). Consumers’ lack of knowledge about financial products can be ascribed to low level of education or no education at all. Thus, given the complexity of financial products, education becomes a critical factor influencing households’ decision to use and not to use financial services. The level of education influences one’s future employment and income generation prospects, which in turn increases the likelihood of financial inclusion. Responsible financial inclusion requires that consumers of financial services should be able to make informed choices and use financial services in a manner that enhances their welfare.

Thus, education is critical to facilitate financial inclusion and further investment in education contributes to the holistic development of the individual well-being and the society at large (Fagerlind & Saha, 1989). Leading international organizations such the World Bank and the

United Nations have recommended education as a tool for poverty alleviation and the promotion of social development since it equips people with the right skills, engender the right attitudes and produce the needed knowledge for facing major life challenges (World Bank, 2009; UN, 1948). One aspect of education that is essential for financial inclusion is financial education/literacy. According to Child and Youth Finance International (CYFI) (2012), financial literacy is a broad concept, encompassing people's knowledge and skills to understand their own financial circumstances, coupled with the willingness to make an informed choice. Financial education or literacy in this context is defined as learning about financial products and services, then using the skills and knowledge more broadly in the economy. It is reasonable to believe that a certain minimum level of education is required for an individual to gain basic understanding of financial products.

However, lack of some basic level of education has been identified as one of the factors inhibiting financial inclusion. Arora (2011) argued that poor human capital development and high illiteracy levels in developing economies might prevent a large section of the population from benefiting from financial inclusion efforts, because of poor awareness and comprehension of financial services. Recent evidence from a global financial inclusion data set showed that individuals with secondary and tertiary education were more likely to own and use formal financial services compared to those with primary education (Demirgüç-Kunt & Klapper, 2012). This suggests that some level of education is required for effective use of financial services, given the complex nature and sophistication of financial products, particularly in well-developed financial systems. For example, the type of account and the implications associated with such an account. Without this basic knowledge, some individuals may be financially excluded, because they know nothing about the financial services and hence self-exclude themselves.

Jayamaha (2008) further added that the financial sector was put under pressure by the rapidly and ever changing technological developments that came with the latest and modern information age. Fresher and innovative financial products are forever emerging, some of which consumers are unable to keep up with. Formalizing and integrating financial education at an early age, from elementary education level to high school, would be beneficial to enable people appreciate the concept of money and finance from a young age and, therefore, grow with these financial concepts into their adult lives. The integration of financial education at school level should be considered alongside the definition of money (Senn, 1999 cited in Shambare & Rugimbana, 2012).

According to Edem, Mbaba, Udosen and Isioma (2011), literacy is also seen to have a further impact on both individual financial success and the efficient functioning of the financial markets. The literate consumers would be able to analyse personal financial scenarios and clearly understand their options. This coupled with access to pertinent financial information plays a fundamental role in facilitating an efficient financial market system. Financially literate consumers

would under normal circumstances plan ahead, find and use information, know when to seek advice and can understand and act on this advice, leading to greater participation in the financial services market. Furthermore, the importance of literacy deepens households' capability in terms of building wealth and capacitates them in building more economically stable neighbourhoods and communities (Apostoaie, 2013).

## 1.2 PROBLEM STATEMENT

Recent decades have seen positive developments in Africa's financial systems. Yet hundreds of millions of Africans still lack access to affordable financial services. As in other regions, careful attention is now being paid on ways in which to expand the reach of the formal financial sector to financially excluded and underserved people (Demirguc-Kunt & Klapper, 2012). However, the behaviour of households on whether to use financial services is determined by several factors, which includes level of education. Education plays a central role in holistic development and is positively related to economic opportunities such as decent employment and increased income. Better-educated persons are likely to make informed decisions about financial matters compared to less educated persons. Consequently, education plays a pivotal role in influencing household decision about obtaining access to and using financial services frequently and effectively.

Notwithstanding the central role of education in reshaping households' financial decision-making, the average level of education of the adult population (15 years and older) in Africa is quite low compared to global levels (Kwabena, 2011). Barro and Lee (2012) reported that only 17.3 per cent, 25.9 per cent, and 7.8 per cent of the adult population in the world have completed primary, secondary, and tertiary education respectively with the average years of schooling at 7.89. The reported ratios in sub-Saharan Africa are 24.3 per cent, 8.6 per cent and one per cent for primary, secondary and tertiary education respectively, with the average years of schooling at 5.23. Within Africa, there are wide variations. For example, in the Middle East and North Africa, the ratio is 13.5 per cent, 23.3 per cent and 7.1 per cent for primary, secondary and tertiary education respectively, with the average years of schooling reported at 7.25. Thus, a significant proportion of adults in sub-Saharan Africa have only basic education compared to the Middle East and North Africa where the majority of the adult population have secondary education. The MDG report (2013) showed that countries that are facing major challenges have a significantly high number of uneducated people or people with education below primary.

The increasing use and adoption of technology and innovation in the delivery of financial services to the low-income segment of the market, therefore, requires above primary education to make informed financial decisions. Several studies have shown that individuals with college education are more knowledgeable about advanced financial concepts such as risk diversification, compared to less than college education. Further evidence indicates that basic numeracy was equally lacking among the poorly educated, while financial literacy contributes significantly to improved financial decision-making (Lusardi & Mitchell, 2007a, 2011b; Christelis, Jappelli &

Padula, 2010) (cited by Lusardi & Mitchell, 2013). Other such as Mitton (2008); Demirgüç-Kunt and Klapper (2012); Kempson, Valeria & Kinnon (2013); Djankov, Miranda, Seira & Sharma (2008); and Kuri and Laha (2011) showed that financial inclusion increases with the level of education.

Despite the critical role of education, the relationship between financial inclusion and educational attainment in Africa has not been given due consideration. Consequently, an understanding of the way in which the level of education influences household financial behaviour in Africa is limited. The purpose of this study is to attempt to fill this knowledge gap by examining the effect of educational attainment on financial inclusion in Africa using the Global Findex (2011) dataset. Establishing such a relationship is essential for policy makers given the low level of financial inclusion in Africa and the potential for financial inclusion to foster quicker achievement of the MDGs. The study disaggregates financial inclusion into account ownership, insurance and saving and examines the way in which educational attainment influences access and the use of these financial products, thereby adding to the limited empirical evidence available on this relationship, particularly in the context of Africa. To the best of our knowledge and based on available evidence, this is the first attempt to analyse the effect of educational attainment on financial inclusion in Africa using this dataset. Thus, the research contributes to knowledge by establishing the way in which the level of education affects people's decision to use and not to use financial services, which will assist policy makers in the design of inclusive financial policies.

### **1.3 RESEARCH QUESTIONS**

The overarching research question of the study is:

- Does education promote financial inclusion?

### **1.4 RESEARCH OBJECTIVES**

The main objective of the study is to analyse the effect of educational attainment on financial inclusion in Africa. Specifically, the way in which the level of education can influence the level of financial inclusion. The study focused on three aspects of financial inclusion: Account ownership, savings, and health insurance in Africa. The study achieved the research objectives by pursuing the following specific objectives:

1. To examine the effect of educational attainment on financial inclusion; and
2. To ascertain which level of educational attainment has the greatest effect on financial inclusion.

The research achieved this objectives by answering the following research sub questions:

1. What is the effect of educational attainment on financial inclusion?
2. Which level of education has the greatest influence on financial inclusion?

## **1.5 SIGNIFICANCE OF THE STUDY**

The African continent is still lagging behind in terms of development when compared to other regions. There are high levels of poverty and inequality in many African countries. In addition, African countries have high populations of people who do not participate in the formal sectors of the economy. The same applies to access to financial services. However, the role-played by education and financial literacy in enhancing development and inclusive growth cannot be underestimated as documented by a number of studies. Inclusive growth is likely to reduce the high levels of poverty and inequality being experienced by many countries in Africa. Nevertheless, it is interesting to note that there are fewer studies in the case of Africa in which the role of education in enhancing financial inclusion have been examined. This study thus added to the available knowledge by studying the role that education plays in financial inclusion in Africa utilising a cross-sectional data analysis.

## **1.6 CHAPTER OUTLINE**

The study consists of six chapters organised as follows:

Chapter 1 provides a background to the study, the problem statement, research objectives and questions, as well as the significance of the study.

Chapter 2 provides the analysis of the trends in financial inclusion and in education.

Chapter 3 presents a theoretical and empirical literature review.

Chapter 4 focuses on the methodology and empirical analysis, based on multiple regression analysis.

Chapter 5 focuses on interpretation of results.

Chapter 6 provides a summary of the research findings and makes recommendations based on them. The limitations of the study and areas for further research are also discussed in this chapter.

## CHAPTER 2

### FINANCIAL INCLUSION AND EDUCATIONAL TRENDS IN AFRICA

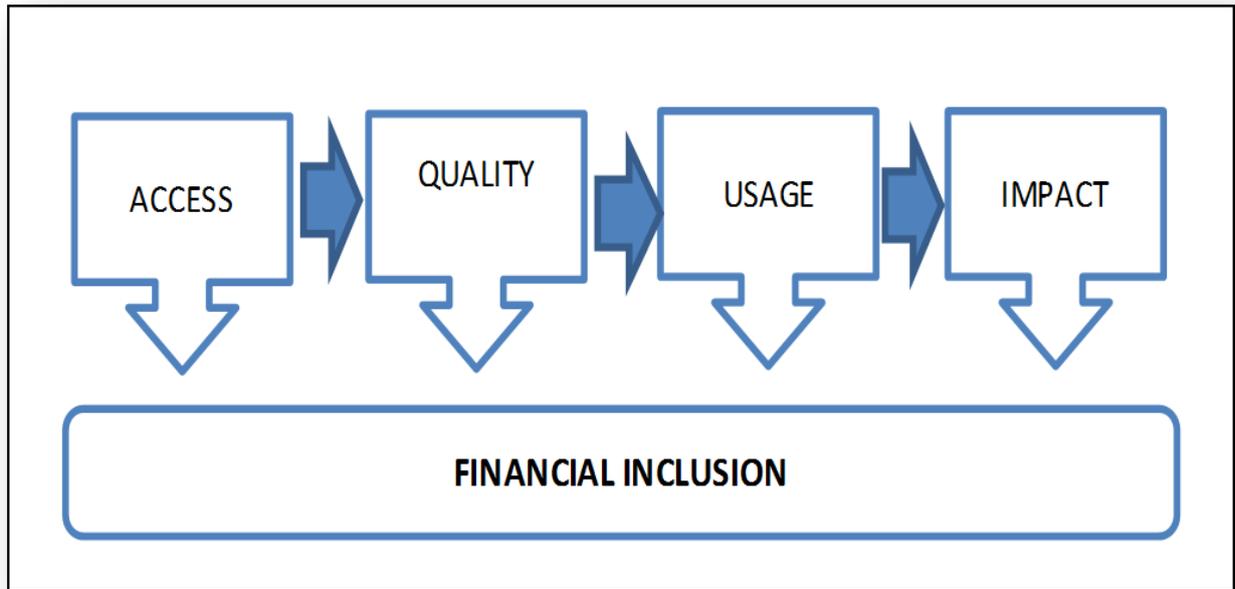
#### 2.1 INTRODUCTION

This chapter is dedicated to the contextual background of the study. Primarily the chapter gives an overview of financial inclusion in Africa using descriptive statistics. The aim is to lay the groundwork for the empirical chapter and shed some insight of the likely effect of educational attainment on financial inclusion in Africa. Before presenting and discussing the descriptive analysis, the concept of financial inclusion is defined using the various definitions that have been used in the literature. The rest of the chapter is organised as follows: Section 2.2 provides a detailed definition of Financial Inclusion (FI), Section 2.3 analyses FI trends in the world and Section 2.4 narrow the focus of the trends to Africa. Section 2.5 discusses educational attainment trends within FI in Africa, Section 2.6 explores the education trends in Africa and Section 2.7 draws conclusion.

#### 2.2 DEFINING FINANCIAL INCLUSION

There are currently few varying definitions of financial inclusion, Kapoor (2014) defines financial inclusion as facilitating the access to appropriate financial products and services needed by all sections of the society in general, and marginalized sections of society, at an affordable cost, in a fair and transparent manner, in a properly regulated manner. Triki and Faye (2013) defines Financial Inclusion (FI) as the regular use of financial products by users, if these financial products effectively satisfy the financial fundamentals of these users and if they are better off as a result. Defining and measuring usage and quality in addition to simple access would be very useful for analytical purposes. Triki and Faye (2013) states that the process of FI is not just simply offering formal financial services/products. It has a multi-dimensional definition, which is critical for FI so to avoid assumption that may lead to misconstrued interpretation. Triki and Faye (2013) characterized FI into three main elements. That is, access, usage and quality. Access referred to as the process where the customer can access financial services regularly and with ease; usage refers to frequency. Quality refers to how many times someone uses his or her account to carry out transactions such as save, draw and to pay bills quality refers to the suitability of the financial services offered to clients.

Hanning and Jansen (2010) and Serrao *et al.* (2012) added a fourth element to the definition of FI, the impact. Impact includes measurement of changes in people's lives resulting from using the financial services and its products. Thus, the importance of financial inclusion to the broader economy cannot be underestimated.

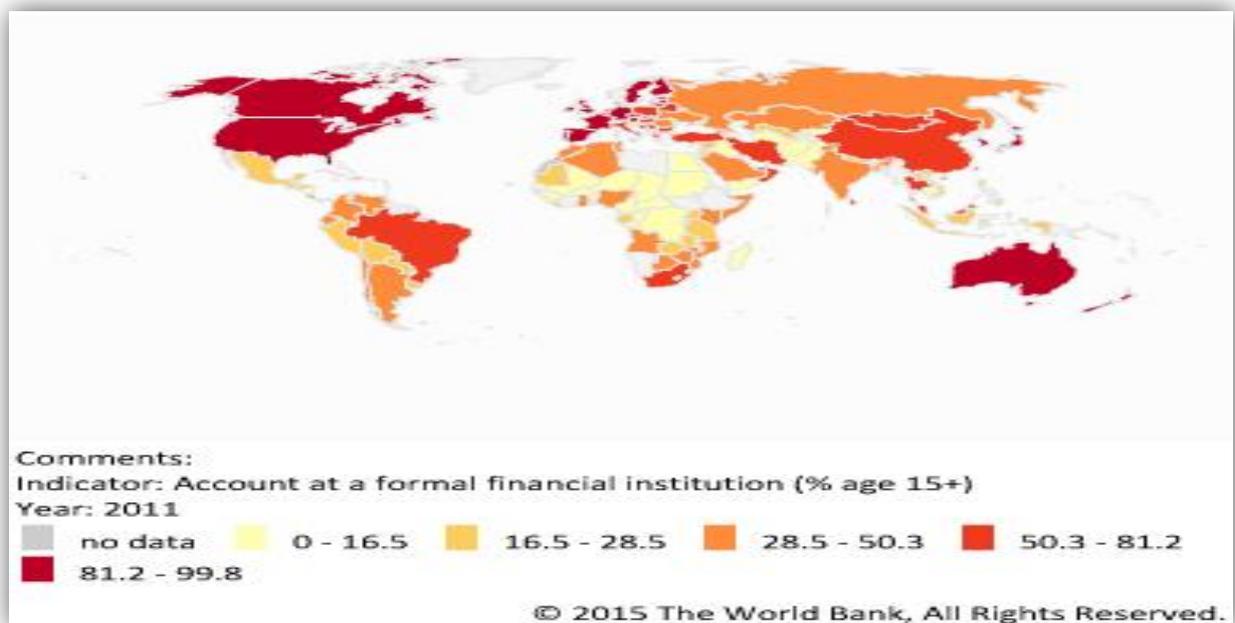


**Figure 2.1: Measures of financial inclusion**

Source: Hanning and Jansen (2010)

### 2.3 FINANCIAL INCLUSION TRENDS IN THE WORLD

Financial inclusion varies widely across the world. In 2011, the first set of data confirmed striking disparities in the use of financial services in developed and developing economies.

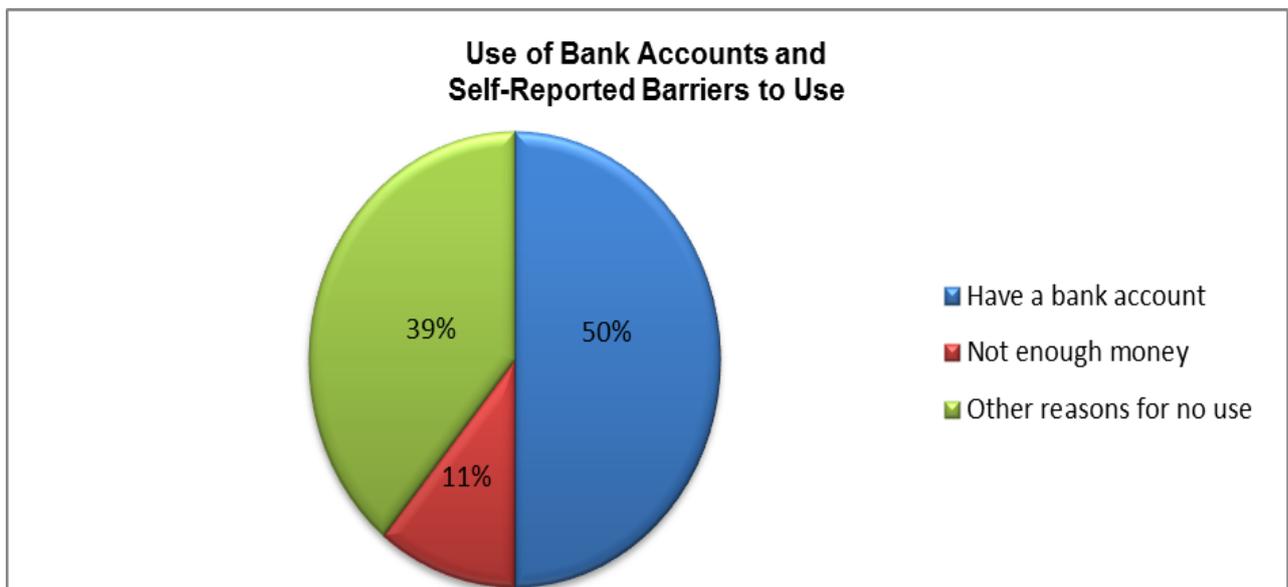


**Figure 2.2: Global account penetrations at formal financial institutions**

Source: World Bank: Demirgunc-Kunt and Klapper, 2012

Figure 2.2 sets out the distribution of the use of financial services among developed and developing economies. For instance, 16.5 per cent to 28.5 per cent range in Figure 2.2 is concentrated mainly in the lower middle economies together with the 0 per cent to 16.5 per cent range. Between 28.5 per cent and 50.5 per cent of adults who are banked represents economies in the lower middle economies, which are mainly represented in this range. Towards the upper end of developed economies is the about 50.3 per cent to 81.2 per cent of adults who have accounts at formal financial institution. Upper middle-income economies are concentrated in this range. Economies where 81.2 to 99.8 per cent of adults have accounts in the formal financial sector are present in the mainly high economies.

The evidence from Figure 2.2 above reveals that adults in high-income economies had almost 100 per cent access to financial services. However, worldwide only 50 per cent of adults had access to a bank account, while 50 per cent of adults is unbanked (Demirgüç-Kunt & Klapper, 2012). In 2015, Demirgüç-Kunt et al (2015) reported that 62 per cent (10% increase) of adults worldwide have accounts in formal financial services institutions or with a mobile money provider. Demirgüç-Kunt and Klapper (2012) reported in Findex 2011 that 11 per cent of the unbanked cited lack of money or insufficient income as the reason for not having an account, while 39 per cent cited other reasons, which could range from cultural, religious, lack of trust, physical barriers and even lack of demand for financial services (Figure 2.3). Those that cited lack of demand (no need for financial services) voluntarily excluded themselves. They may have access and decide not to use it. On the other hand, those that cited other reasons are involuntarily excluded. They need financial services, but because of certain reasons, they are unable to access these services.

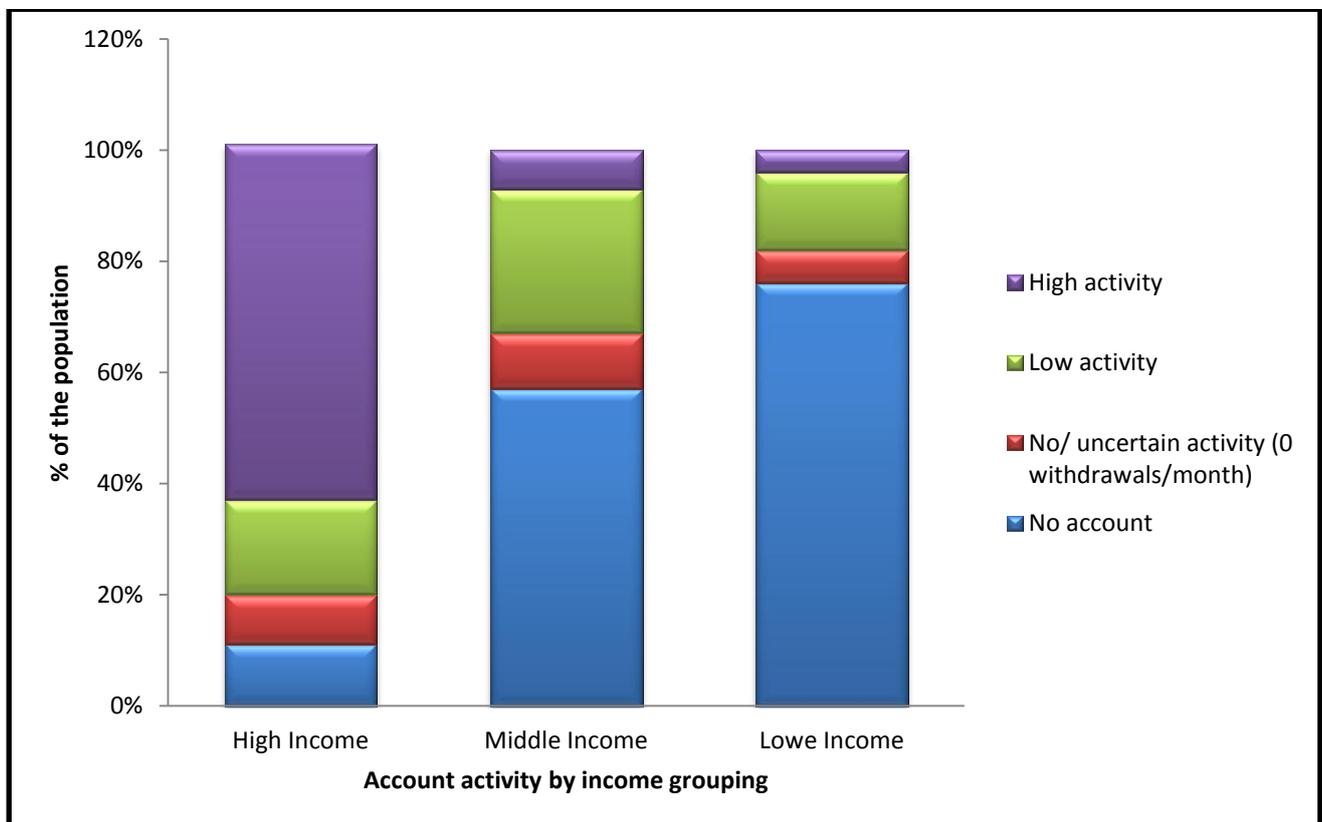


**Figure 2.3: Use of bank accounts and self-reported barriers to use**

Source: Global Financial Inclusion 2011 (Global Findex) Database, World Bank

Caution should be taken to note that mere ownership of a financial product does not result in financial inclusion, but that it is rather the usage of the financial product for economic self-reliance and growth that ultimately leads to financial inclusion (Sahrawat, 2010). A case in point, for example, is opening a bank account by an individual, which is often treated as an indicator of financial inclusion. But a better indicator of financial inclusion would be the usage intensity of the bank account by the individual as it is ultimately the quantum of transactions and interaction variety between the individual and the financial institutions(s), which reflects the value derived by the individual from participating in the mainstream financial system (Aduda & Kalunda, 2012).

The Centre for Financial Inclusion at Accion (2013) argued that the figures based on account ownership dramatically overstated the level of genuine financial inclusion. If one shifts from ownership to use of accounts, the numbers of those included fall to a fraction of the quoted levels. In rich countries, most people who have accounts use them actively (defined as making more than two withdrawals per month at 64 per cent of all adults). In developing countries, however, very few account holders use them actively in this way (Figure 2.4).



**Figure 2.4: Account Activity**

Source: Centre for Financial Inclusion, Accion (2013).

The evidence from Figure 2.4 above illustrated that four per cent of all adults in low income countries were highly active and 14 per cent not as active in the usage; six per cent were uncertain or displayed no activity on usage, whilst 76 per cent did not own bank accounts. In the

middle-income countries, seven per cent of adults were highly active in bank account usage and 26 per cent showed low activity usage. For the high-income countries, 64 per cent of adults actively used their bank accounts, and 17 per cent were in low use. There are, therefore, vast differences in account usage across the three regions.

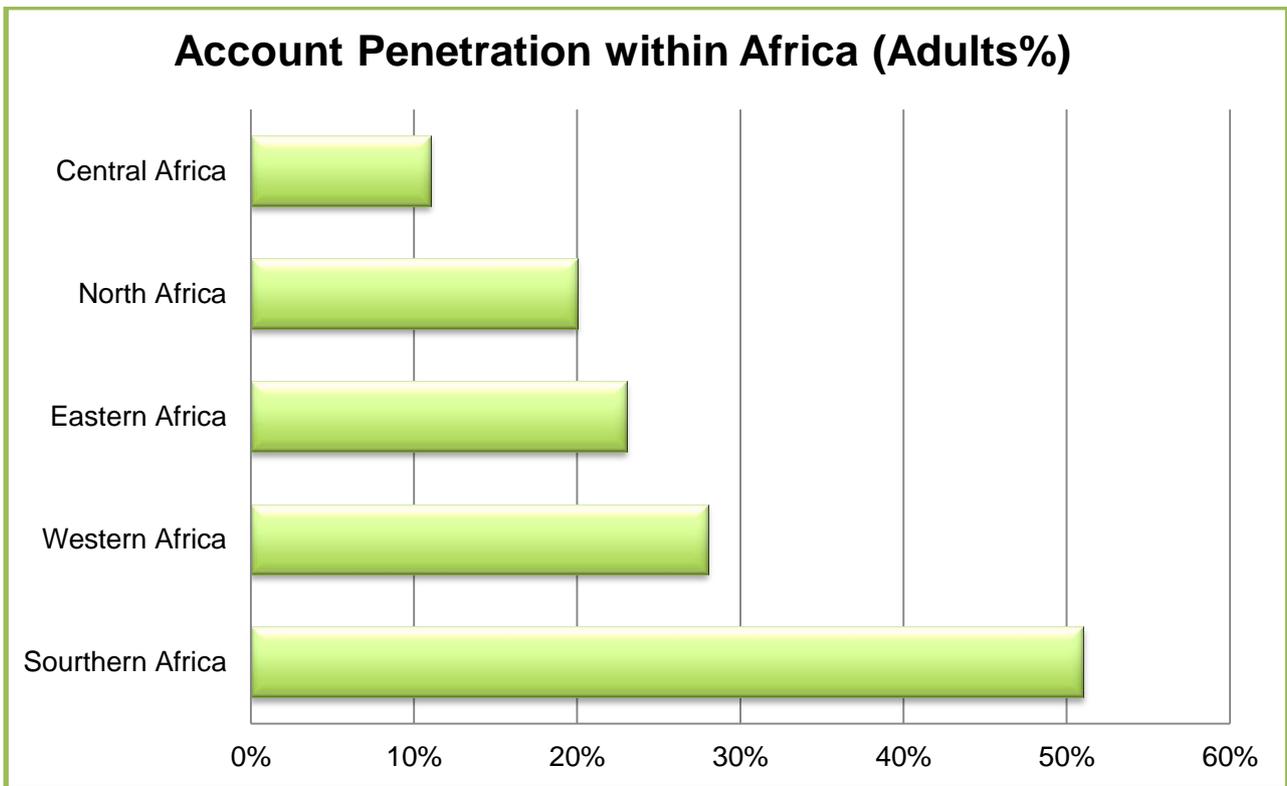
Some of the factors provided in explaining the continent's underdeveloped financial sector and its limited outreach include, but are not limited to, low and volatile income levels; inflationary environments; high illiteracy rates; inadequate infrastructure; governance challenges; and the limited competition within the banking industry as well as high cost of banking in Africa. Until recently, there has been limited knowledge on the degree of reach that the financial sector has on the continent. The changing financial landscape seen in Africa over the last two decades has prompted wide interest in as far as measuring the extent to which financial systems reach the majority, particularly those that previously have been excluded from these system. The sections that follow examine access to finance from the point of view of individuals, with the focus being on the various aspects that encompass the extent of the usage of formal financial services. Potential barriers to entry, informal sources of finance, the impact of savings behaviour on individuals as well as their borrowing needs and reasons for access to credit are discussed (Triki & Faye, 2013).

## **2.4 FINANCIAL INCLUSION TRENDS IN AFRICA**

### **2.4.1 Account ownership**

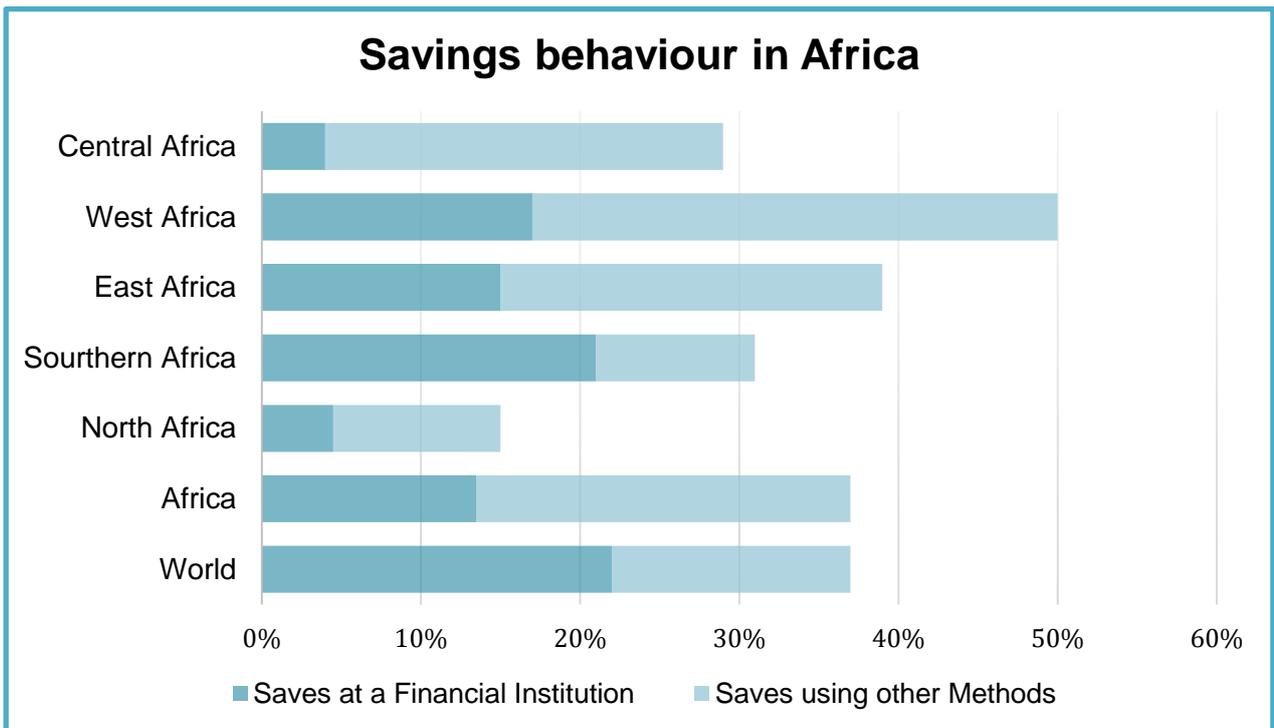
When taking a closer look at Africa, the analysis of financial inclusion becomes worrisome. Within Africa, there was a large variation in account ownership ranging from 51 per cent in Southern Africa to 11 per cent in Central Africa. In North Africa, 20 per cent of adults have an account at a formal financial institution (Figure 2.5). Demirgüç-Kunt and Klapper, (2012b) reported that the total banked population in Africa (North Africa and sub-Saharan Africa) is 23 per cent, meaning that 77 per cent of adults are unbanked.

Adults who do not have accounts at formal financial institutions use informal financial systems for saving and borrowing. In comparison to the rest of the world, many lack proper access to a bank line of credit or formal financial services. Limited access to credit stifles the growth of businesses, which is a major problem for Africa, as its expanding middle class population are unemployed and lives in a poverty-stricken situation (Demirgüç-Kunt & Klapper, 2012b). A total of 40 per cent of adults in sub-Saharan Africa save, whereas in North Africa the percentage is as low as 16 per cent of adults that save, compared to savers worldwide, which is approximately 36 per cent as shown in Figure 2.6.



**Figure 2.5: Account penetration within Africa (Adults %)**

Source: Demirgüç-Kunt and Klapper, (2012b).



**Figure 2.6: Savings behaviour within Africa (Adults %)**

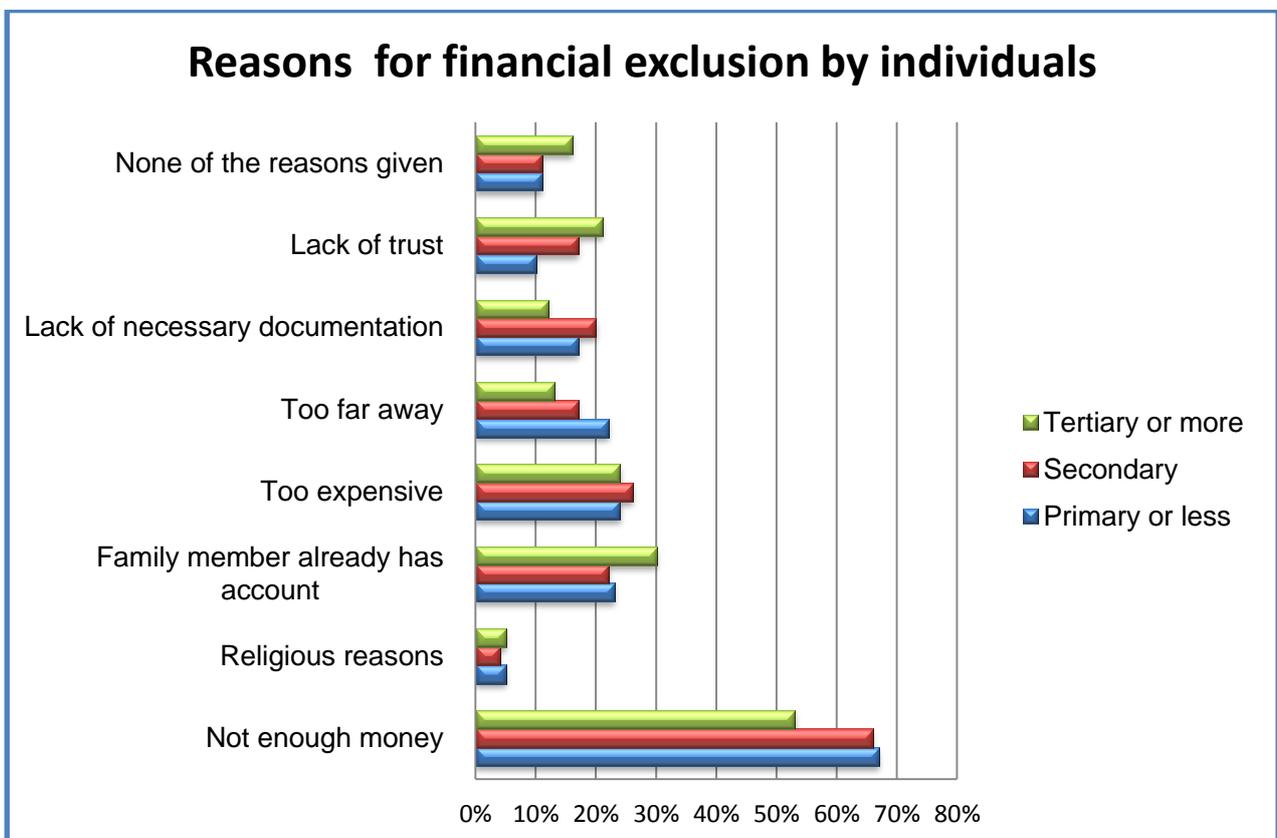
Source: Demirgüç-Kunt & Klapper, (2012b).

In sub-Saharan Africa, 14 per cent of adults (and 35 per cent of savers) report having saved at a formal financial institution in the past year, while four per cent of adults (and 27 per cent of savers) report having formally saved in North Africa. Formal savings practices are particularly common in Nigeria, South Africa and Kenya (Demirgüç-Kunt & Klapper, (2012b).

#### 2.4.2 Self-reported barriers

The financial services sector in Africa are still poorly developed in comparison to other developed regions, which leads to exclusion of marginalized groups of society “marginalised” refers to groups such as the poor, women, disable and youth. Demirguc-Kunt and Klapper (2012b) argued that the significant number of adults that were bankable were those with education levels higher than primary education. This leaves the majority of adults with a low level of education out of the formal financial services system.

Both in sub-Saharan Africa and North Africa, the most frequently cited reason for not having a formal account is lack of enough money to use one. This is the response given by more than 80 per cent of adults without a formal account, with 30 per cent citing it as the only reason in sub-Saharan Africa and more than 60 per cent of respondents citing it as the only reason in North Africa (Demirguc-Kunt & Klapper, 2012b).



**Figure 2.7: Reasons for financial exclusion by individuals**

Source:Demirgüç-Kunt and Klapper (2012).

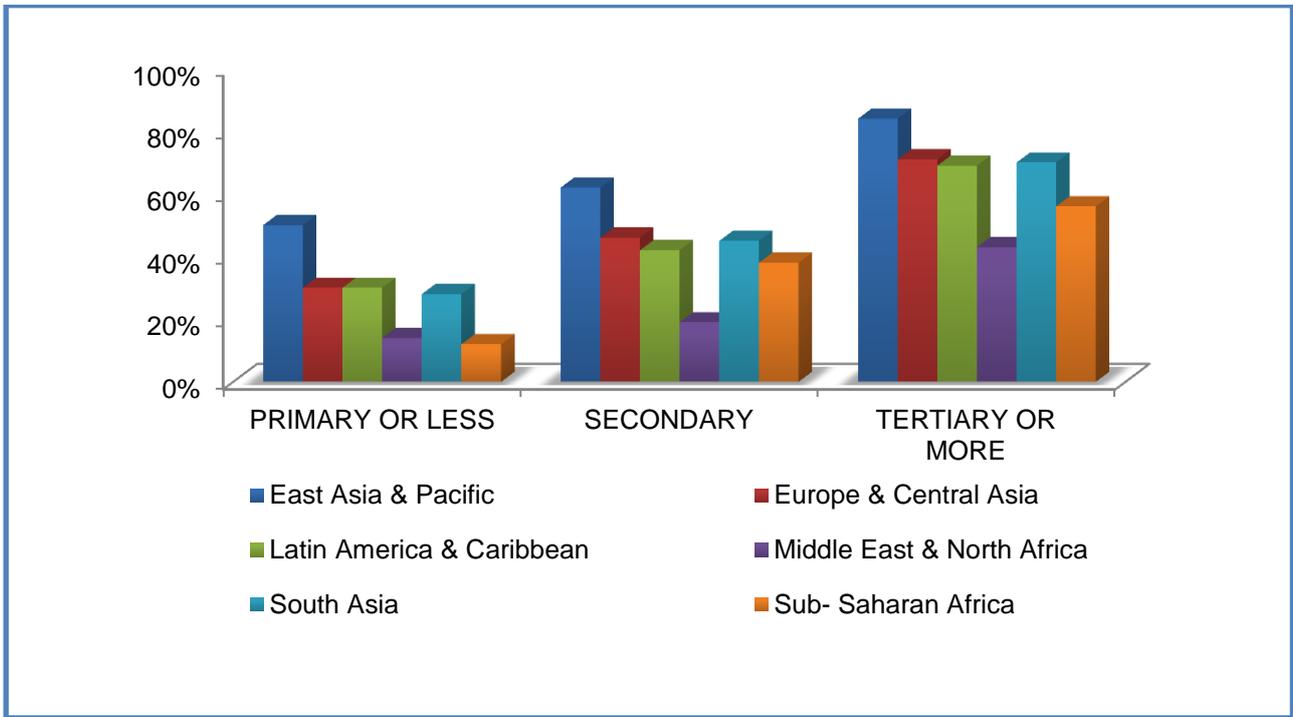
The problem of financial exclusion is further aggravated by high levels of poverty in Africa. Guièze (2014) argued that poverty was obviously an obstacle to formal banking and found that about 30 per cent of those questioned said that they did not have enough money to use a bank account. Moreover, although the proportion of adults with a bank account is already very low in sub-Saharan Africa, effective account utilisation rates are even lower due to the lack of disposable income or the resources to cover the large distances separating people from bank branches, especially in rural areas.

The most frequently cited reason for lack of account ownership is lack of money – globally, 65 per cent cited this reason and 29 per cent cited this as the only reason (Demirgüç-Kunt and Klapper, 2013). Of these, 67 per cent were those with less than primary education and 66 per cent, secondary education compared to 53 per cent for those with tertiary education who cited no money as the reason for not owning a bank account (Figure 2.7). This means that income is positively correlated with account ownership. People need an income source in order to make use of an account (Demirgüç-Kunt and Klapper, 2012).

## **2.5 EDUCATIONAL ATTAINMENT TRENDS WITHIN FINANCIAL INCLUSION: AFRICA**

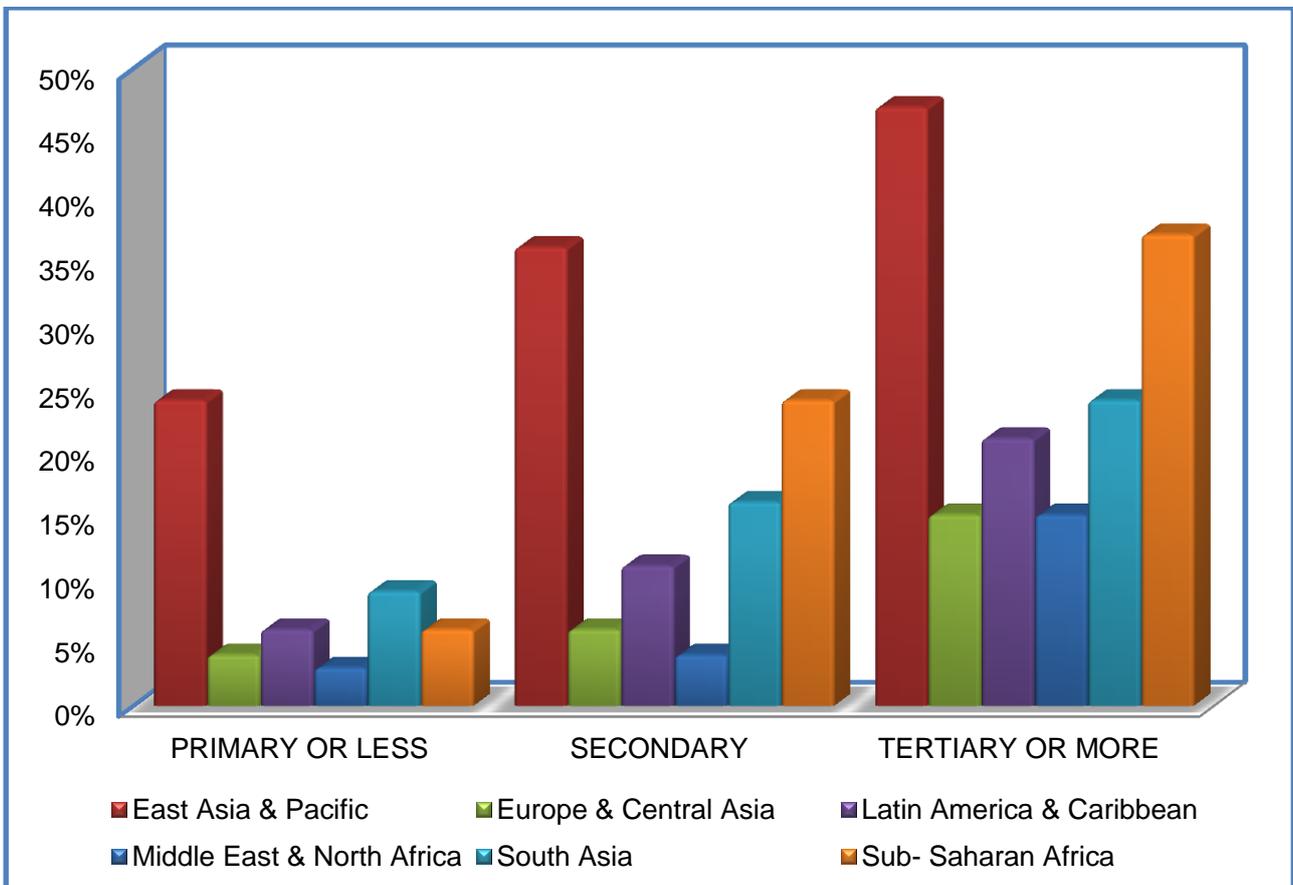
The variations within education attainment assist in explaining the large variation in the use of formal accounts. In developing economies adults with a tertiary or higher education are on average more than twice as likely to have an account as those with a primary education or less. The difference is particularly stark in sub-Saharan Africa: Adults with a tertiary or higher education are more than four times more likely to have an account than those with a primary education or less, although only three per cent of adults in the region reports completing tertiary education (Demirgüç-Kunt and Klapper, 2012). Such disparities emphasise the importance of financial literacy/financial education when expanding financial inclusion to the unbanked and the underbanked.

Throughout Africa, adults with a tertiary education are more likely than those with a secondary and primary education to report having a formal account at a formal financial institution (Triki & Faye, 2013). In sub-Saharan Africa, 12 per cent adults with primary education, 38 per cent adults with secondary education compared to 56 per cent adults with tertiary education have accounts at a formal financial institution. The trends are similar to the Middle East and North Africa where 14 per cent with primary education or less, 19 per cent with secondary education, and 43 per cent with tertiary education are adults who have accounts at a formal financial institution (Figure 2.8). These trends are similar worldwide where adults with primary education or less have the least inclusive number of account penetration, 37 per cent with primary education, and 62 per cent with secondary education, while those with a tertiary education have the highest percentage at 87 per cent (Demirgüç-Kunt & Klapper, 2012).



**Figure 2.8: Account ownership and level of education (Adults %)**

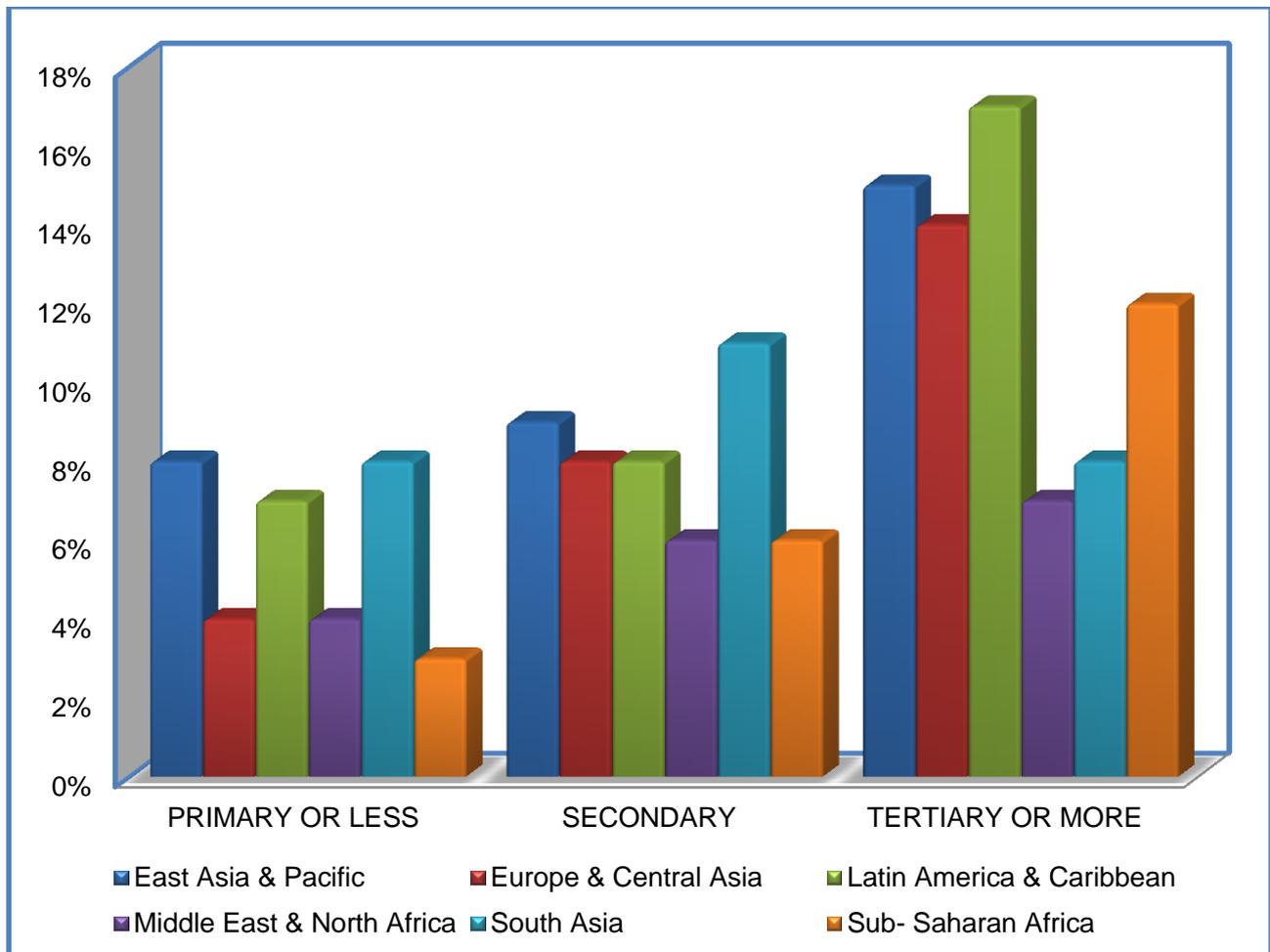
Source: Demirgüç-Kunt and Klapper (2012).



**Figure 2.9: Savings and the level of education (Adults %)**

Source: Demirgüç-Kunt and Klapper (2012).

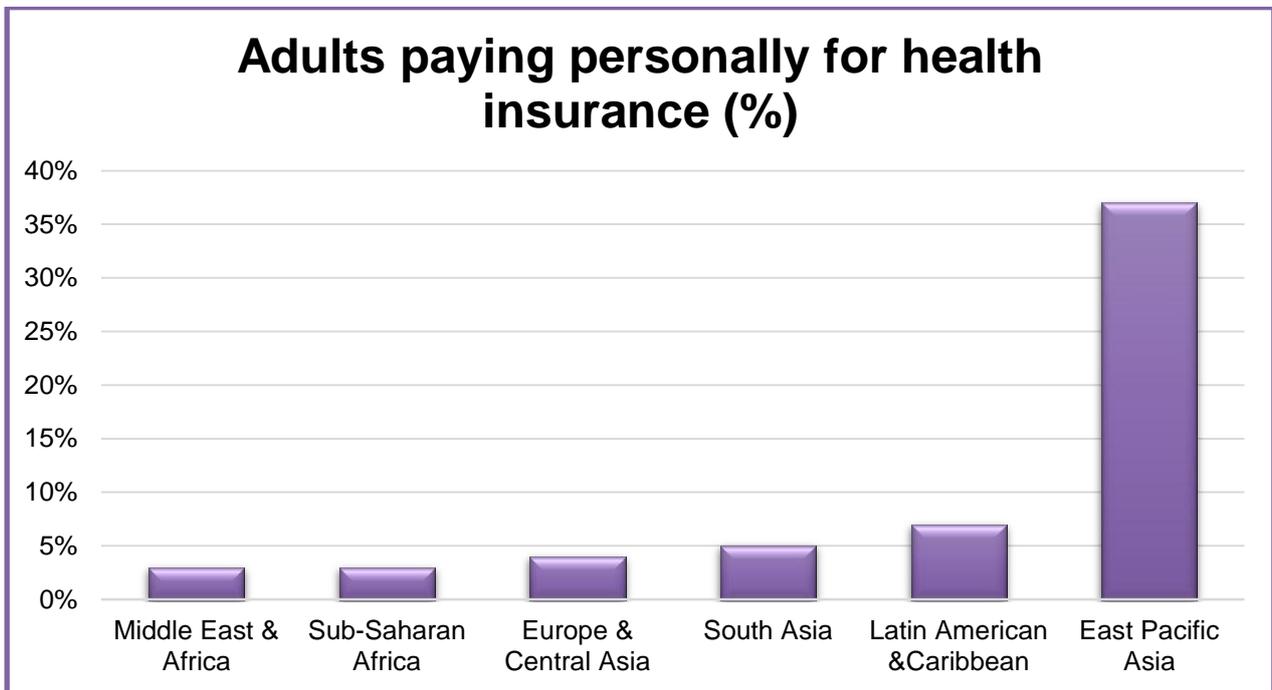
Figure 2.9 shows that in North Africa and sub-Saharan Africa only three per cent and six per cent respectively of those with primary or less education save compared to four per cent and 24 per cent of those with a secondary education. The higher education has a greater role to drive financial inclusion in sub-Saharan Africa than in North Africa. For example, adults with tertiary education in sub-Saharan Africa are highly included 37 per cent compared to 15 per cent in North Africa, confirming the assertion that educational attainment has a differential effect on financial inclusion.



**Figure 2.10: Access to loans and the level of education (Adults %)**

Source: Demirgüç-Kunt and Klapper (2012).

The evidence from Figure 2.10 revealed that adults with primary education or less in sub-Saharan Africa were three per cent, whilst in the Middle East and North Africa it is four per cent. Adults with secondary education in sub-Saharan Africa are 6 per cent, whilst in the Middle East and North Africa it was 11 per cent. Those with a tertiary education in sub-Saharan Africa were 12 per cent, whilst in the Middle East and North Africa, 8 per cent borrowed money in the past 12 months at the formal financial institution. Compared to other regions, East Asia and the Pacific had the highest number of adults that utilised credit in the past 12 months.



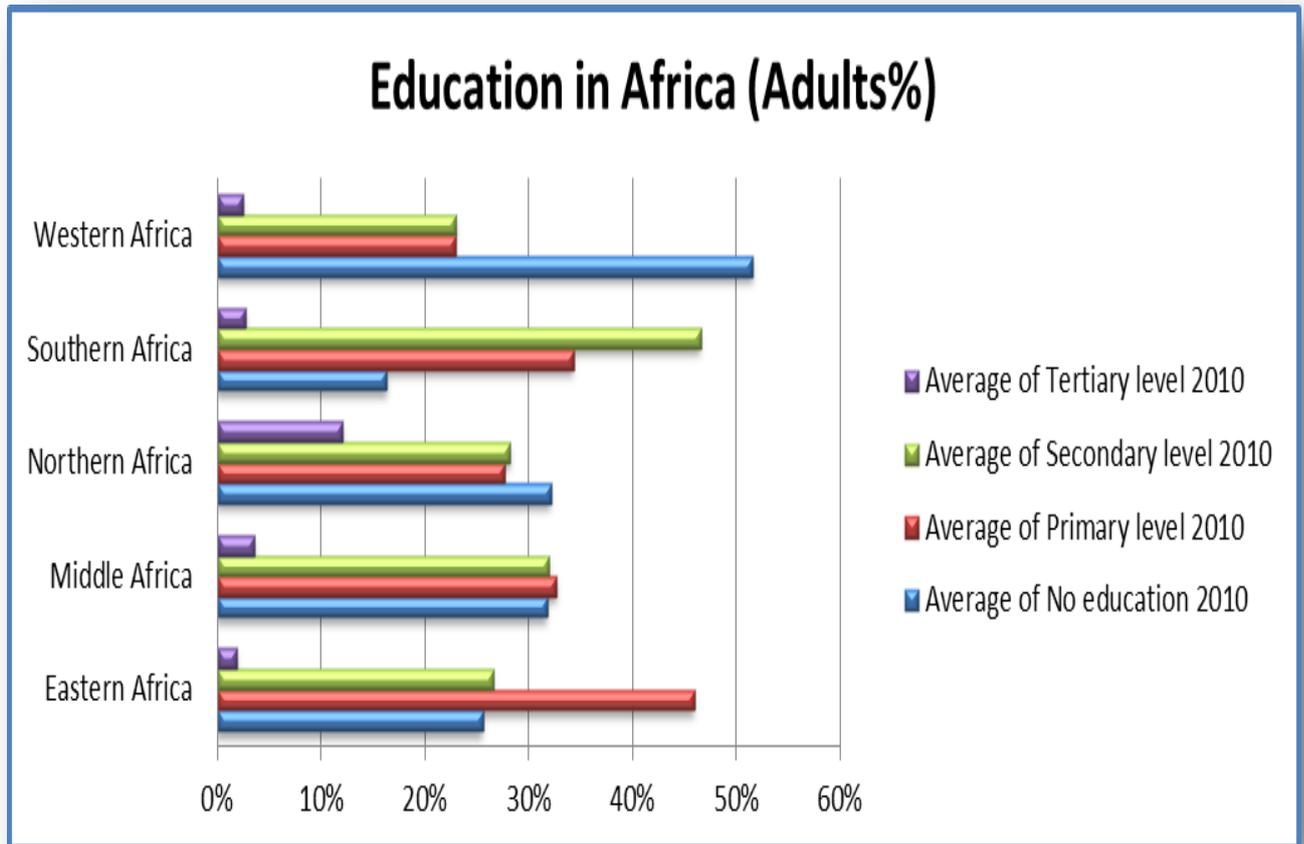
**Figure 2.11: Purchase of Health Insurance (Adults %)**

Source: Demirgüç-Kunt and Klapper (2012).

The use of insurance products in Africa is very limited. Demirgüç-Kunt and Klapper (2012) reported a percentage as low as three per cent of adults in sub-Saharan Africa having personally paid for health insurance, whilst six per cent reported using farming, forestry, or fishing insurance in the past 12 months (Figure 2.11). Triki and Faye (2013) reported that the likelihood of adults (as shown in Figure 2.11) with a higher education, i.e. tertiary education or more, have taken out health insurance in the past 12 months was seven times higher than those adults with a primary education or less.

## 2.6 EDUCATION TRENDS IN AFRICA AND THE REST OF THE WORLD

Educational attainment in Africa is low by all standards and lags behind educational attainment in the rest of the world. According to Kwabena (2011), 14.8 per cent of population aged 15 and above, had no schooling, whilst 23.8 per cent and 32.2 per cent in the Middle East and North Africa and in sub-Saharan Africa respectively had no schooling. Other regions such as Latin America and the Caribbean, East Asia and Pacific, South Asia and Europe, and Central Asia reported in 2010 that 8.2 per cent, 7.9 per cent, 33.3 per cent and 1.1 per cent respectively had reported no schooling (Barro & Lee, 2012). With the exception of South Asia, sub-Saharan Africa and the Middle East and North Africa reported the highest number of population without schooling.



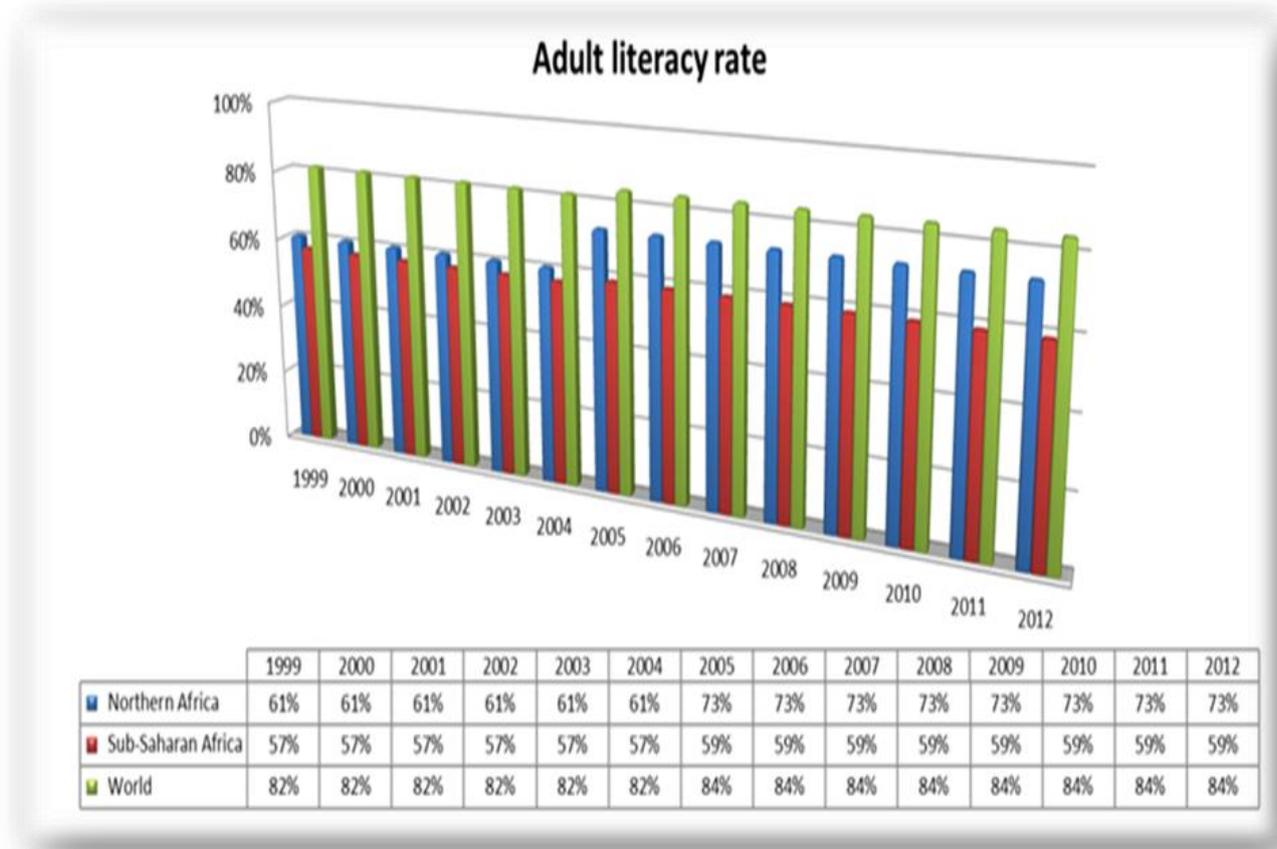
**Figure 2.12: Education attainment in Africa in year 2010**

Source: Barro and Lee (2012).

Barro and Lee (2010) showed that the numbers of illiterates adult and those who had not completed primary education continued to rise. For example, as of 2010 there were more than 32.2 per cent and 23.8 per cent illiterate adults in sub-Saharan Africa and Middle East and North Africa respectively. While the average adult literacy rate increased from 53 per cent in 1985-1994 to 62 per cent in 2005–2008, and it rose too slowly to counteract the effects of population growth. The upshot is that the absolute numbers of adults lacking basic literacy and numeracy skills had increased by 25 per cent.

Figure 2.12 above revealed great variety at regional level in school attainment by 2010. West Africa recorded the highest average number of those without education (52 per cent) whereas Southern Africa had the highest average number of secondary attainment level (48 per cent). East Africa dominates in primary school attainment. When it comes to tertiary school attainment, North Africa has the highest attainment (12 per cent) whereas the other regions have less than five per cent attainment. Great variation in the adult literacy rate at international level was also observed. The adult literacy rate in sub-Saharan Africa has remained almost constant from 1999 to 2012 at about 68 per cent, while North Africa has experienced some growth over the same period. The rate increased from about 60 per cent in the period 1999 to 2004 to about 75 per cent

from 2005 to 2012. (Figure 2.13) Therefore, compared to the world average adult literacy rate of 82 per cent by 2012, Africa lags behind, particularly in the sub-Saharan Africa region.



**Figure 2.13: Comparison of world literacy rates**

Source: Unesco Edstat (2013)

## 2.7 CONCLUSION

This chapter discussed some conceptual definitions of financial inclusion and descriptive analysis of the trends in financial inclusion and education in Africa. Following the analysis it was seen that Africans lag behind other regions in terms of financial inclusion and education, which emerged as a key determining factor influencing access to and use of financial services. Therefore, it is expected that the level of education will have a differential effect on people's decision to save, borrow and pay for insurance.

## **CHAPTER 3**

### **REVIEW OF LITERATURE**

#### **3.1 INTRODUCTION**

This chapter reviews both theoretical and empirical literature, which examines the link between financial inclusion (FI) and education. In the absence of specific theories on financial inclusion and education, the study will rely on other closest theories such as financial capability, institutional theory and financial literacy theories. These theories will be reviewed in an attempt to establish how education relates to financial inclusion. The rest of the chapter is organised as follows: Section 3.2 reviews the theoretical literature and Section 3.3 discusses the empirical evidence. Lastly, Section 3.4 draws the conclusion of the chapter.

As mentioned earlier most of the theories that explain the link between financial inclusion and education are based on financial education, financial literacy and financial capability. Broadly financial inclusion refers to access to financial products while education refers to the process by which financial consumers improve their understanding of financial products. Financial capability on the other hand refers to successfully managing those products and making informed choices about personal finances (Aynsley, 2011). The next section will discuss some of these theories and try to establish the link with financial inclusion.

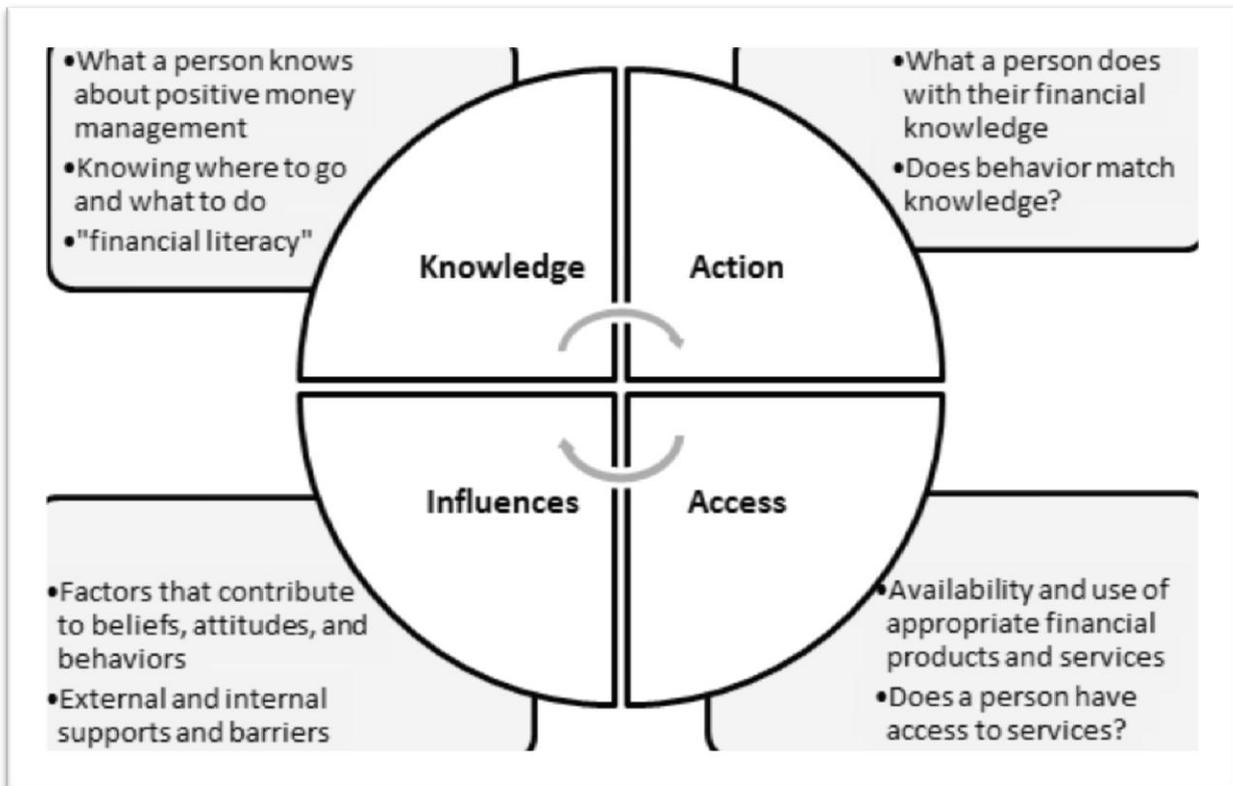
#### **3.2 THEORETICAL LITERATURE ON EDUCATION AND FINANCIAL INCLUSION**

##### **3.2.1 Theory on financial capability**

The financial capability approach emphasizes the role that access to beneficial financial products and services plays in households' financial wellbeing. A lack of access might manifest as frequent use of often-costly non-bank borrowing services (Sherraden, 2010). Knowledge and skills alone do not necessarily translate into behaviour. Financial capability is not a rejection of financial literacy, but instead a recognition of other considerations such as access to quality banking products and services as illustrated below.

In Figure 3.1, Collins (2013) briefly explained the concepts of financial capability. Financial capability encompasses four main aspects: Knowledge, influence, access and action. The knowledge quadrant in the diagram covers what is typically termed 'financial literacy', and the influences quadrant takes into consideration the existence of knowledge and skills that do not automatically translate into specific actions with outcomes. This is because other things such as behavioural patterns including, but not limited to, procrastination influences the way in which individuals apply their knowledge. The access quadrant is perhaps the most important difference between financial literacy and financial capability as it relates to the extent to which an individual

has access to financial services and the extent to which he/she uses the services (Aynsley, 2011).



**Figure 3.1: Financial capability**

Source: Collins (2013).

According to Sherraden (2010), financial knowledge and skills (from economic socialization and financial education) resulted in improved financial literacy. On the other hand, accessible, affordable, financially attractive, easy to use, secure, and reliable financial products certainly influence financial inclusion. Thus, it is fair to say financial literacy coupled with financial inclusion results in financially capable households. The resulting increases in financial capability leads to greater financial well-being, and more opportunities for financial development (Sherraden, 2010).

Financial education and financial capability are concepts that have received wider academic attention as compared to financial literacy. Financial literacy is one component of financial capability, but financial capability includes additional considerations. Financial literacy typically refers to the knowledge and skills needed to make sound financial decisions. Financial capability includes financial literacy, but adds access to financial services, behavioural factors, social influences, and emotions (Sherraden, 2010).

Undisputedly, people make financial decisions based on their ability, knowledge, and skills, but also based on their present economic circumstances. Thus, individual motivation or self-confidence in dealing with household finances not only depends on individual ability and skill in

making financial decisions, but also on the individual's economic and social position and other influences in relation to mainstream financial institutions. It is this link between individual and structure that influences people's attitudes, motivation, confidence, self-efficacy, and behaviour. In this way, the environment, or 'external conditions', are internalized in people's perceptions, expectations and behaviour (Reynolds & Pemberton, 2001).

Several theoretical perspectives further inform the definition of financial capability. These *inter alia* include the theory of planned behaviour, developmental perspective, social learning theory, behavioural economic perspective, 'possible selves' theory, and institutional theory. These theories reflect the central idea that child and youth financial behaviour and well-being is affected by a host of factors. The next section reviews two of these theories.

### **3.2.1.2 Planned behaviour**

The intention to behave in certain ways is influenced mainly by attitudes about the behaviour, subjective norms, and perceived behavioural control (Ajzen, 1991). This theory applied to financial behaviour suggests that children and youth may be ready and inclined to save money, for example, if they think a) saving money is a good idea and will benefit them or their families; b) their parents, teachers, and other influential persons approve of saving; and c) they are capable of saving money and face no constraints in doing so. According to the theory of planned behaviour, financial education, for example, may help children and youth to form favourable attitudes about making wise spending choices and saving money whilst efforts to increase their access to savings products may help reduce perceived constraints to saving (Sherraden (2010). This process of developing a saving culture at youth age increases the demand for saving products and other financial services from the mainstream financial system.

### **3.2.1.2 Institutional theory**

To a large extent the socio-economic context also shapes economic beliefs, attitudes, and values, which leads to different levels of knowledge and financial behaviour among different social groups (Leiser & Ganin, 1996). These social institutions have a huge influence in shaping the social context. Institutional theory suggests that financial actions are not simply the result of individual behaviour, but rather a cumulative result of social institutions and the organizations that comprise them and help to shape as well as give meaning to human behaviour (Hall & Taylor, 1996), (cited by Child and Youth Finance International 2012). These institutions play an important role, because they are the principal conduits for external social economic and political conditions that constrain human behaviour. Expanding financial capability, especially among 'un-banked' and 'under-banked' groups like children and youth, requires more than a better designed product (although 'choice architecture' is important). It also requires changing the ways that financial institutions include financially vulnerable populations, such as banking practices, outreach programmes, policies and regulations.

Institutional theory provides a way to think about ways in which to expand access to children, youth and adults. Sherraden, Johnson, Guo and Elliott III (2010) in their work on saving and asset building in low-income households, found that a bundle of institutional constructs shaped the saving patterns of households. These included access, information, incentives, facilitation, expectations, restrictions, simplicity and security. These situations may also provide a way to examine and measure how well policy and financial institutions serve financially vulnerable populations. Cross-cultural research in various countries suggests that children who receive more education are knowledgeable at an earlier age about economic concepts and are in a position to make rational decisions (Furnham & Argyle, 1998; Holden, Kalish, Scheinholtz, Dietrich & Novak. 2009; Roland-Levy, 1990).

### **3.2.2 Theory of financial literacy**

The conventional microeconomic approach to saving and consumption decisions posits that a fully rational and well-informed individual will consume less than his/her income in times of high earnings, thus saving to support consumption when income falls or after retirement. Starting with Modigliani and Brumberg (1954) and Friedman (1957) (cited by Lusardi & Mitchell, 2013), the consumer is posited to arrange his/her optimal saving and decumulation patterns to smooth marginal utility over his lifetime. Many studies have shown how such a life cycle optimization process can be shaped by consumer preferences (such as risk aversion and discount rates), the economic environment (for example risky returns on investments and liquidity constraints), and social safety net benefits (for example the availability and generosity of welfare schemes and social security benefits), among other features. Thus, even though the theory does not significantly address education and financial inclusion, it stresses the importance of education that well-informed individuals will engage in rational decisions, which will help them to make financial decisions which sustains them in the long-run.

### **3.3 REVIEW OF EMPIRICAL LITERATURE**

Although the financial exclusion of the poor and unemployed is an old phenomenon in a market economy, the concept of financial inclusion is new and empirical evidence is still in an initial phase. The few available studies are mostly from developed and developing economies with very few studies from Africa. Since there are limited studies that have actually examined the effect of education on financial inclusion, this study also reviews related studies that examined the effect of financial literacy and financial capability on financial inclusion. The empirical review is divided into two sections: First, the scant available empirical evidence in Africa is discussed, and following on that, evidence from other parts of the world.

Literature suggests that the level of education influences financial inclusion mainly in three ways. Firstly, poor performance in mathematics and related quantitative subjects can leave students with poor skills in those areas and other related academic areas, thus increasing their risk of

financial exclusion in the future. Secondly, failing to perform reasonably well at school has a direct impact on future employment and income prospects, which often increases the likelihood of financial exclusion in the long run. However, financial education is as much about getting skills and knowledge as it is to gain an understanding of the various financial products and services. While it is possible to gain these skills without completing high school level mathematics, literacy is also important for financial education, especially because the language of finance is not always 'jargon' free (Khan, 2008). Thus, education plays a key role in determining who accesses and uses formal financial services. For example, Kumar, Haapala, Rivera, Hutchins, Endres, Gershenson, Michalek and Sutherland (2005) examined the role of education and other socio-economic characteristics on access to finance in the case of Ghana. Their results showed that education, income and wealth were major determinants of financial access. That is, people with a higher education used private banks more than the public sector banks and other public payment outlets such as banking agents. In addition, the percentage of the population holding bank accounts varied with educational level. Similarly, in a study on Kenya, Beck, Cull, Fuchs, Getenga, Gatere, Randa and Trandrafir. (2010) established that education played a role in determining the extent to which one used financial products. The study established that those with a formal education used financial services more compared to those without education. The study also established that location played a role as well. It was found that people in urban areas used financial services more compared to people in rural areas. This could in part imply that location determined the availability of financial services.

In a related study in South Africa, Mishi, Vacu and Chipote (2012) assessed the way in which literacy levels related and impacted on access to banks in South Africa, focusing on the Eastern Cape Province. Survey questionnaires were distributed to three local municipalities in the Eastern Cape, namely Peddie, Willow Vale (Idutywa) and Cholumna. These areas had been targeted by various forms of financial literacy programmes mainly for the youth, women and school children. The focus was on testing the impact of literacy level on access to banking. The study concluded that level of literacy was significantly and positively related to access to banking by individuals, with as much impact coming from literacy as measured by ability to read English. In a separate study, Oseifuah and Gyekye (2014) examined the relationship between financial literacy and demographic and other socioeconomic factors of a sample of undergraduate students. They also evaluated the way in which undergraduate students' financial knowledge correlated with their attitude and behaviour towards personal finance issues. The study used the measure of financial knowledge (literacy), and found that surprisingly low levels of financial literacy existed even among accounting students at the University of Venda, with only 38 per cent of the participating students being financially literate. At the same time, the study revealed that students who took money management course were more likely to be financially literate.

Wachira and Kihui (2012) examined the effect of financial literacy on access to financial services in Kenya using the 2009 National Financial Access survey data. Using a multinomial logit

approach to explain access the four major financial service access strands, the study found that financial literacy remained low in Kenya. Besides, regression results indicated that households' access to financial services was not based on levels of financial literacy, but rather on factors such as income levels, distance from banks, age, marital status, gender, household size and level of education. However, the study established that the probability of a financially illiterate person remaining financially excluded was significantly high, calling for increased investment in financial literacy programmes to reverse the trend. The study recommended the development of a curriculum on financial education and administration in conjunction with the local, middle level and higher learning institutions.

Wachira and Kihiu (2012) also found that financial literacy remained low in Kenya. The study also established that there were high chances of consumers to be financial excluded due to financial illiteracy. Another study in Kenya and Uganda examined the impact of a savings, financial and health education and mentoring programme designed for vulnerable adolescent girls. The study found that girls on the programme were more likely to have long-term goals, have a bank account and use them to save on a weekly basis compared to girls in a comparison group (Austrian, 2011).

In another related study, Aterido, Beck and Iacovone (2011), found some similarities in formal service use for male and female-owned business in sub-Saharan Africa. According to the authors, the relatively lower levels of financial inclusion for women compared to their male counterparts reflected variations in income/earnings, educational attainment and formality status rather than discrimination within the financial sector against women. Put differently, the active inclusion of women in the financial sector was constrained by their relatively lower income levels and the fact that they were less educated than their male counterparts. Although this has traditionally been the case, this picture has been gradually changing as governments in the developing world have continued to prioritise equal opportunities for male and female as far as policies geared towards access to education are concerned.

Compared to Africa, more studies have been carried out in developed and developing countries to examine the effect of education on financial inclusion. For example, Fungacova and Weill (2014) investigated the level and individual determinants of financial inclusion in China and found that education was positively associated with the ownership of a formal account. Evidence also revealed that the relationship between education and financial inclusion was positive and significant when considering formal credit, but that education seemed to have little influence on formal savings. The study further investigated individual characteristics to ascertain reasons for not owning formal accounts. The author found that educated people were not necessarily influenced by the same motives, as were high-income individuals in China. The evidence suggested that highly educated individuals cared more about the pricing of the financial services, and were more sensitive to trust in banks as regards having an account. These findings are

important and suggest that increasing the level of education in China can contribute to major changes in the relation between citizens and financial institutions.

Gupta and Singh (2013) assessed the correlation between the usage dimension of the financial inclusion index and literacy level in India. The results revealed that overall basic literacy rate did not have a relationship with financial inclusion. There was, however, low positive correlation at the country level, meaning that FI had a very low impact on literacy rate. Also, there were large variations in the correlation between the financial Inclusion index and literacy rate in different states, indicating that financial exclusion in India was not mainly due to the lower literacy rates. The authors recommended that instead of the Indian government focusing on literacy as the main determinant for full inclusion, the government should rather focus on financial services such as biometric ATM, mobile based payment system, smart card, and Tele-centres, which were innovative models that allowed even the illiterate to be able to access and use quality financial services, thus achieving its goals.

Similarly, Gowri (2013) examined the level of financial literacy among young employees in India. The study found that financial literacy was of great importance, because it helped consumers plan well for life retirement, gradual wealth accumulation and improved sound financial decision-making. The study established that the level of financial literacy was low and that large sections of the population were financially excluded from the formal financial system. Thus, the evidence indicated that financial literacy promoted financial inclusion. Sarma (2008) on a cross-country study involving 49 countries also found that literacy rate increased financial inclusion.

Sajeev and Thangavel (2012) did a study that assessed the impact of self-helping groups on financial inclusion in nine districts in India using clustering techniques. The empirical results revealed that there was a positive link between the self-helping groups and financial inclusion in the districts studied. The empirical results also revealed that financial education enhanced the link between the self-helping groups and financial inclusion through encouraging more individuals, especially those who did not have bank accounts, to take membership on the self-helping groups. Cole, Sampson & Zia (2011) explored the determinants of demand for financial services in the emerging markets. They used household surveys from India and Indonesia supplemented with a randomised field experiment among unbanked households in Indonesia, to examine the relative importance of financial literacy and prices in determining demand for financial services. Their results showed that financial literacy had no impact on the opening of bank accounts, although initial levels of education, though low, somehow influenced the decision to open an account. Financial subsidy, however, was found to be a significant incentive in opening the bank accounts and a follow-up survey two years later found that people who opened their bank accounts following the interventions had kept them open. Thus, suggesting that education is an important factor influencing people's financial decisions.

Rojas-Suarez (2014), building on existing research and new databases, sought to determine the relevant factors that would explain the lower ratios of financial inclusion in Latin America relative to comparable countries in terms of income per capita. The author analysed individual level characteristics, and empirical evidence suggested that the probability of being financially included was significantly lower for individuals in Latin America than for someone in comparator countries. The study found that the relative exclusion of the poorest individuals in Latin America was higher for those with lower levels of education than in comparator countries. However, when analysing Latin America's Financial Inclusion Gap, Rojas-Suarez (2014) found that the effect of attaining secondary education on the probability of being financially included was significantly higher in Latin America than in its comparators.

In the United States of America, Garrett, Maki and Bernheim (2001) found that middle-age adults who had received state-mandated financial education in high school had higher savings amounts than those in states where financial education was not mandatory. However, a replication of the same study using US census data failed to find any association between state-mandated financial education in high school and higher savings (Cole and Shastry, 2009).

### **3.4 SUMMARY OF LITERATURE REVIEW**

The chapter focused on discussing the theoretical and empirical literature on the link between financial inclusion, financial capability, financial education and education in general. However, there is no consensus regarding the relationship between financial inclusion and education. There are studies, which suggest that financial literacy to some extent results in financial inclusion in a country. These studies indicated that education played a very important role in determining inclusion as well as the extent to which people participated in economic activities. On the other hand, there are also studies, which have highlighted that financial inclusion can also have negative effects as policies might result in people indulging in excessive debt. In other words, policies on financial literacy may encourage more consumption expenditure instead of capital expenditure. The review of literature has formed the basis the methodology, which is indicated in the next chapter.

## CHAPTER 4

# RESEARCH METHODOLOGY

### 4.1 INTRODUCTION

This chapter describes the methodology used in this study. The methodology was selected to achieve the researcher's objective of exploring of the relationship between education and Financial Inclusion (FI), based on the data from Global Financial Index (Findex). The remainder of the chapter is organised as follows: Section 4.2 discusses the data sources and Section 4.3 defines variables used in the regression analysis, also providing their expected signs. Section 4.4 specifies the functional form of the model to be estimated, while Section 4.5 discusses the econometric technique used to estimate the model as specified in Section 4.4. Finally, Section 4.5 sets out the conclusions drawn.

### 4.2 DATA SOURCES

The study used secondary sources to collect data. The main data source was the global financial inclusion database (Global Findex). The entire financial inclusion data used in the analysis was collected from this source. The study also used the World Bank World Development Indicators (WDI), IMF Economic Outlook, and the World Bank Governance indicator to collect data on other variables that were used in the analysis. A detailed description of these variables is provided in the subsequent section.

### 4.3 DEFINITION OF VARIABLES AND A *PRIORI* EXPECTATIONS

#### 4.3.1 Financial inclusion

To provide insight on the level of financial inclusion in Africa, the study measured Financial Inclusion (FI) from different perspectives. The study focused on three main indicators of financial inclusion in line with Demirgüç-Kunt and Klapper (2013).

The first multidimensional indicator of FI is the ownership of an account in a formal financial institution (*formal account*). The definition used for the survey was in the form of the question;

- Do you currently have a bank account at a formal financial institution?

The second multidimensional indicator was based on saving behaviour in a formal financial institution (*formal saving*). The survey question used in this case was:

- Have you saved money in a bank account in the past 12 months?

This question only concerned those who said they had saved money in the past 12 months.

The third multidimensional indicator considered usage of health insurance (*formal health insurance*). The question asked in this case aimed to uncover whether an individual had health insurance:

- Have you taken up health insurance from a financial institution in the past 12 months?

(Fungacova and Weill, 2014).

#### **4.3.3 Education (primary and secondary)**

The study sought to investigate the extent to which the level of education influenced financial inclusion. This was achieved by disaggregating education into primary or less and secondary or more, thus allowing investigation of the different levels of education on the different multidimensional characters (as mentioned in Chapter 1) of FI. The objective was to determine whether education had a significant effect on the multidimensional character of FI. A positive sign was expected between education and financial inclusion, which is in line with the prior studies such as Arora (2011) and Demirgüç-Kunt and Klapper (2012).

#### **4.3.4 Inflation**

Inflation is the coefficient of variation of inflation, measured as the ratio of the standard deviation of annual inflation (end of period) to average inflation, for the period 2011. This variable was constructed using the IMF World Economic Outlook database and represents the category *macroeconomic constraints*. A negative relationship was expected between inflation and financial inclusion. High levels of inflation makes it difficult for people to invest in financial products as the purchasing power of money is eroded. Thus, people may not be interested in participating in the financial system.

#### **4.3.5 Weak law**

This variable represents the lack of enforcement of the Rule of Law, an indicator taken from the Worldwide Governance Indicators for the year 2010. The rule of law “reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.” The original variable, rule of law, was rescaled to a range from 0 to 100, and the variable *weak law* was calculated by multiplying the rescaled variable by minus 1. This variable belongs to the category *institutional factors*. Weak law was expected to have a negative relationship with financial inclusion. Weak law makes people to have less confidence in the financial system. This is consistent with Rojas-Suarez (2007).

#### **4.3.6 Overhead costs**

Overhead costs is an indicator of banking operational inefficiencies, measured as the ratio of overhead costs to total assets. This variable was taken from the Fitch BankScope database. The variable used in the regression is for 2010 and is within the category of *financial sector*

*inefficiencies*. A negative relationship between overhead costs and financial inclusion was expected. High costs act as a hindrance to people to participate in the financial system. This again is in agreement with Rojas-Suarez (2007).

#### 4.4 MODEL SPECIFICATION

The study utilised a model specified by Rojas-Suarez and Gonzales (2010). The model specifies financial inclusion (*Fin\_inclusion*) as a function of a number of explanatory variables. The model can be specified as follows:

$$Fin\_inclusion = f(Secondary\ or\ more, GDP\ Per\ Capita, Inflation, Age\ Dependency\ Ratio, Weak\ Law, Overhead\ Cost) \quad 4.1$$

The model can be empirically stated as follows:

$$Fin\_inclusion_i = \beta_0 + \beta_1 Secondary_i + \beta_2 Primary_i + \beta_3 GDP\_per\_capita_i + \beta_4 Inflation_i + \beta_5 Age_i + \beta_6 Weak\_law_i + \beta_7 Overhead\_Cost_i \quad 4.2$$

Where:

*Fin\_inclusion* is financial inclusion as measured by account ownership;

*Secondary* is whether an individual has at least a secondary education;

*Primary* is whether an individual has a primary education;

*GDP\_per\_capita* is a measure of economic growth;

Inflation is inflation;

Age represents age dependency ratio;

Weak law represents lack of governance; and

Overhead cost is an indicator of banking inefficiency.

These variables will be defined and explained in the next section.

#### 4.5 ESTIMATION TECHNIQUES

Since there is no time series data available for the dependent variable, *FI*, the restriction was that only a cross-section data set could be used in the estimation of equation 4.2. Data for the dependent variable corresponds to 2011. The linear regression model was utilised in the study. The model expresses a dependent variable as a linear function of independent variables and an error term. The model can be presented as follows:

$$Y_i = \beta_1 x_i + \beta_2 x_i + \dots + \beta_k x_k + \varepsilon_i \quad 4.3$$

Where:

$y_i$  is the regress and the  $k$  variables are the regressors. The  $\beta_1, \beta_2, \dots, \beta_k$ , are the regression coefficients with the  $\varepsilon_i$  known as the innovation or shock. The multiple linear regressions allow coefficients to be interpreted as partial effects holding other variables constant. Specifically, the effect of a change in one variable can be examined without changing the others. However, prior to analysis, the variables were analysed to check for the possibility of multi-collinearity between the explanatory variables.

## 5 CONCLUSION

The chapter focused on a discussion of the methodology utilised in the study. The study used the Global Findex dataset 2011 and cross-sectional econometric techniques were used to investigate the relationship for a group of African countries that participated in the survey. The data was analysed using the simple regression model; however, prior to the analysis, the relationship between the variables was analysed utilising the correlation matrix.

## CHAPTER 5

### PRESENTATION OF EMPIRICAL RESULTS

#### 5.1 INTRODUCTION

The chapter presents and discusses the empirical results of the regressions analysis in Chapter 4. The chapter first analyses the behaviour of the data prior to estimation. A simple correlation matrix is first performed to establish if there is problem of multi-collinearity between the independent variables of interest. The remainder of the chapter is presented as follows: Section 5.2 presents the simple correlation matrix of independent variables, while Section 5.3 present and discusses the empirical results. Finally, Section 5.4 draws conclusion from the empirical results.

#### 5.2 SIMPLE CORRELATION ANALYSIS

**Table 5.1 Correlation matrix**

	<i>GDP per CAPITA</i>	<i>INFLATION</i>	<i>AGE DEPENDENCY RATIO</i>	<i>WEAK LAW</i>	<i>OVERHEAD COST</i>	<i>BRANCH CONCENTRATION</i>
GDP per CAPITA	1					
INFLATION	-0.077	1				
AGE DEPENDENCY RATIO	-0.635	0.135	1			
WEAK LAW	0.473	0.102	-0.401	1		
OVERHEAD COST	-0.247	0.153	0.439	-0.102	1	
BRANCH CONCENTRATION	0.608	0.039	-0.685	0.503	-0.273	1

The correlation matrix presented in Table 5.1 shows evidence of multicollinearity between GDP per capita and branch concentration with a correlation of 61 per cent. This is likely to affect the efficiency of the regression. Therefore, since the majority of the studies reviewed have utilised GDP per capita, bank concentration is not included in the same regression with GDP per capita. The other variables were considered in the regression with the exception of bank branch concentration. Six regression equations were estimated and the main results are presented in Table 5.2, 5.3 and 5.4 respectively with other subsidiary results reported in the appendix.

### 5.3 PRESENTATION AND DISCUSSION OF RESULTS

Table 5.2: OLS Regression – Dependent variable: Account ownership

Variable	Model 1	Model 2
Secondary or more	0.74897*** (0.05623) [13.318]	
Primary or less		1.06161*** (0.08305) [12.782]
GDP per Capita	0.00121*** (0.0004) [2.8744]	0.00034*** (0.00005) [6.7448]
Inflation	-0.06115* (0.02086) [-4.3801]	-0.23253* (0.16396) [-1.81817]
Age	-0.18038 (0.0356) [-1.9696]	-0.09833** (0.04840) [-2.4352]
Dependency		
Weak law	-0.03029* (0.00261) [-3.5757]	-0.02340** (0.00569) [-2.4202]
Overhead costs	-0.53782** (0.04335) [-12.1043]	-0.43089** (0.04534) [-9.5037]
Constant	-3.58764 (6.49026) [-0.55277]	3.16056 (6.5874) [0.4798]
No. of observations	41	41
Adjusted R <sup>2</sup>	0.8836	0.8914

**Notes:**

\*\*\*, \*\*, \* indicates 1%, 5% and 10% level of Significance.

( ) Standard Errors, [ ] t-statistics

The results in Table 5.2 above presents the estimated results using account ownership as the dependent variable and educational attainment (primary or less and secondary or more) as the independent variable. The results show a positive relationship between financial inclusion and the attainment of secondary education or more. The same applies to primary education as well. Both secondary and primary education is statistically significant at one per cent level. The magnitude of the effect of education on account ownership is higher for primary education, less than for secondary education, or more. The results suggest that one additional year of schooling after

primary education will result in a 1.06 per cent increase in account ownership holding other things else constant. This is consistent with the a priori expectations and theory. Thus, those with primary or less education are at a greater risk to be excluded and unemployed. Further education will increase their chances to secure a job and increase the likelihood to own a bank account for receipt of wages or salary. Thus, the results strongly suggest that education is a very important ingredient as far as financial inclusion is concerned in Africa. This is consistent with the findings of Kumar *et al.* (2005) and Mishi *et al.* (2012).

The empirical results also suggest that GDP per capita has a positive impact on financial inclusion in Africa. On average, the majority of countries in Africa have been experiencing reduced growth resulting in high unemployment. The positive effect of GDP per capita is consistent with one of the reasons for not owning an account cited by individuals, namely "lack of enough money", in the Global Findex 2011 survey. These results are supported by Demircuc-Kunt and Klapper (2013) and Fungacova and Weill (2014).

Apart from the level of education and GDP per capita, financial inclusion is determined by other factors. A set of control variables was included in the analysis and the results presented in Table 5.2 above indicate that inflation, weak laws, age dependency, and overhead costs have a negative effect on financial inclusion. This is consistent with the *a priori expectation* set out in Section 4.3 as well as the findings by Rojas-Suarez (2007). Therefore, the high levels of inflation experienced by some Africa countries are partly responsible for the high financial exclusion. A high level of inflation in part discourages people from using banks as the purchasing power of the money diminishes as was experienced in Zimbabwe during the hyperinflation era.

The relationship between Financial Inclusion and the age dependency ratio is -0.1803. This implies that a high age dependency ratio reduces the likelihood for an individual to have an account. For example, where only one person in a family is working the chances to save money will be very slim and this is typical of large rural families. Weak law, which is a measure of institutional framework, indicates that there is a negative relationship between weak law and financial inclusion in Africa. This is in line with the appropriate expectation. This variable suggests that weak institutions such as law enforcement, bankruptcy laws, regulation and corruption have a negative impact on financial inclusion. In other words, when institutions are weak, people will not have confidence in the system. However, weak laws are marginally statistically significant at ten per cent level. This in part could explain the reason why African countries have experienced low levels of financial inclusion given the weak institutional framework in most African countries. These results are supported by Rojas-Suarez (2007) and Rojas and Gonzales (2010).

The empirical results also suggest that there is a negative relationship between overhead costs and financial inclusion in Africa. Again, this variable is of great importance given that it measures the inefficiencies in the financial sectors in Africa. Given that African countries have underdeveloped financial sectors, this is likely to be associated with high administrative costs.

These may manifest in the form of high costs of opening and maintaining an account in a financial institution as well as high minimum balance requirements.

**Table 5.3: OLS regression – Dependent variable: Savings**

Variable	Model 1	Model 2
Secondary or more	0.90949*** (0.05514) [5.4620]	
Primary or less		0.57479*** (0.10997) [5.2288]
GDP per capita	0.00062** (0.00027) [3.82139]	0.00038** (0.0007) [2.3304]
Inflation	-0.17632** (0.09920) [-2.1929]	-0.6871** (0.23155) [-2.7776]
Age	-0.03254** (0.01215) [-3.0996]	-0.0983** (0.0784) [-2.6756]
Weak law	-0.03029** (0.00262) [-2.4916]	-0.0529** (0.1085) [-2.8752]
Overhead costs	-0.43674 (0.27227) [-1.6040]	-0.0753 (0.0459) [-1.6429]
Constant	5.17315 (8.5273) [0.6067]	0.2852 (3.8983) [0.0732]
No. of observations	41	41
Adjusted R <sup>2</sup>	0.8987	0.8667

**Notes:**

\*\*\*, \*\*, \* indicates 1%, 5% and 10% level of Significance.

( ) Standard Errors, [ ] t-statistics

Table 5.3 above presents the estimated results for the second measure of financial inclusion, savings (dependent variable) regress on education and other control variables. The output presented above again shows that education (primary or less and secondary or more) has a positive relationship with financial inclusion. Primary or less and secondary or more years of education is significant at one per cent level. The magnitude of the effect of secondary or more years of education on financial inclusion is higher than those with primary education or less, which

suggests that people with secondary or more education save more than those with primary or less.

The results show that GDP per capita again has a positive effect on financial inclusion and the other control variables (inflation, weak laws, age dependency ratio and overhead costs) have a negative relationship with financial inclusion. However, overhead costs are not statistically significant. The same explanation as set out above is applicable here.

**Table 5.4: OLS Regression – Dependent variable: Health insurance**

Variable	Model 1	Model 2
Secondary or more	0.5970*** (0.0383) [15.5805]	
Primary or less		1.0980*** (0.1426) [7.7024]
GDP per Capita	0.5168** (0.1187) [4.3551]	0.0982** (0.0752) [3.3376]
Inflation	-0.0517* (0.0487) [-2.7742]	- 0.0685* (0.0282) [-1.9616]
Age dependency	-0.0556* (0.0251) [-1.9671]	-0.0138 (0.0113) [-1.6230]
Weak law	-0.0213* (0.0013) [-1.9081]	-0.1084* (0.0312) [-3.4760]
Overhead costs	-0.0421* (0.0054) [-1.8022]	-0.0860* (0.0178) [-4.8285]
Constant	0.4953 (1.2158) [0.4074]	0.4953 (1.2158) [0.4074]
No. of observations	41	41
Adjusted R <sup>2</sup>	0.7152	0.9040

**Notes:**

\*\*\*, \*\*, \* indicates 1%, 5% and 10% level of Significance.

( ) Standard Errors, [ ] t-statistics

The third regression Table 5.4 above reports the estimated output of education regress on health insurance and other control variables. The results again confirm with previous ones that education has a positive effect on financial inclusion. The magnitude of the effect of primary or less on health insurance is higher than for secondary or more education. Since insurance is a sophisticated financial product, an additional year of schooling above primary is likely to assist the person to appreciate the benefit of health insurance and be willing to acquire the product. GDP per capita still remains positive and statistically significant at five per cent and inflation, age dependency, weak laws and overhead costs both retain their negative effect on financial inclusion. However, age dependency is not significant in the primary or less regression. All these results corroborate the findings of Arora (2011) Demirgüç-Kunt and Klapper (2012) and Mishi *et al.*, (2012) that one of the factors inhibiting financial inclusion was the poor education levels and high illiteracy levels in developing economies, which might prevent a large section of the population from benefiting from financial inclusion efforts.

#### **5.4 CONCLUSION**

The focus of this chapter was to present and discuss the results of the empirical analysis. The chapter began with analysing the simple correlation analysis between the independent variables to determine if there was the problem of multicollinearity between the variables. Having established the correlation between the variables, the OLS regressions were estimated employing three measures of financial inclusion. These ranged from account ownership at a bank, savings and health service.

The results of the three measures of financial inclusion, namely account ownership, savings and health insurance, suggest that education attainment plays a very important role in achieving financial inclusion. Apart from educational attainment, results also support that GDP per capita, which measures economic growth, inflation, age dependency, weak laws and overhead costs, are important variables determining financial inclusion in Africa. GDP was found to be positively related to the different measures of financial inclusion. On the other hand, the other variables were found to impact negatively on financial inclusion. The results highlighted the important role played by education in enhancing the level of financial sector inclusion in Africa. The results strongly suggest that educational attainment has a statistically and significant positive effect on financial inclusion and that the effect varies depending on the aspect of financial inclusion and level of education.

## CHAPTER 6

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 6.1 SUMMARY OF STUDY AND CONCLUSION

The study analysed the relationship between financial inclusion and education levels in Africa that forms the foundation for literacy levels required for people to understand basic concepts related to financial matters. Financial inclusion indicators captured in the study were account ownership, savings and health insurance. Educational attainment was disaggregated into 'primary or less' and 'secondary or more' years of schooling, while financial inclusion data was sourced from the World Bank Global Financial Index.

The empirical results pointed out that both measures of education, primary and secondary, have a significant influence on financial inclusion. After controlling for other factors that equally influence financial inclusion, education has a positive and statistically significant effect on financial inclusion in all the models estimated. The effect of education on account ownership, savings and health insurance is statistically significant at one per cent level. GDP per capita has a statistically positive effect on financial inclusion, while inflation, weak laws, age dependency and overhead costs have a negative and statistically significant effect on financial inclusion in all models estimated. The results emphasised the importance of macroeconomic stability and having a good institutional framework in place to achieve financial inclusion in Africa. This, therefore, suggests that one reason why African countries have experienced less financial inclusion is poor institutional frameworks as well as macroeconomic instability.

#### 6.2 POLICY IMPLICATIONS AND RECOMMENDATIONS

The empirical results suggest that both primary and secondary education have a significant impact on financial inclusion and that the effect of education varies based on the measure of financial inclusion utilised. In the case of account ownership, primary education is more pronounced as compared to secondary education. On the other hand, when savings are utilised, secondary education surpasses primary education, and concerning health, again primary has a greater effect as compared to secondary education. This has a number of policy implications:

- Since the education levels in Africa are low, authorities should focus on enhancing the level of education in Africa.
- Apart from primary education, where cognitive skills are developed, secondary education significantly enhances the level of financial inclusion in Africa.
- Governments should also pursue policies aimed at promoting growth. Such policies are likely to result in enhanced financial inclusion.

- The institutional framework has also featured greatly as another important variable determining financial inclusion in Africa. There is need to improve the institutions in Africa to enhance confidence in the financial sector.
- Moreover, authorities should at times and where possible intervene, considering that the interest rates that are charged by banks are overstated, which is reflected in the overhead costs, which has also appeared to be significant.

### **6.3 LIMITATIONS OF THE STUDY AND FURTHER RESEARCH**

The study focused on analysing the relationship between financial inclusion and education in Africa utilising cross-sectional data for 2011. This is due to data limitation on financial inclusion from the demand side consumers. As such, novel econometric techniques that can explore the dynamic within African countries could not be used. The study was also restricted to the variables discussed in the analysis due to the non-availability of data that could have enhanced the results. Notwithstanding the data limitations, the results are consistent with what other researchers found in other parts of the world.

The study focused mainly African countries. Another area of potential interest would include further examining of the relationship between education and financial inclusion, by focusing on individual countries and, therefore, taking into account the specific country factors.

**REFERENCES**

- Aduda, J. & Kalunda, E. 2012. Financial inclusion and financial sector stability with reference to Kenya: A review of literature. *Journal of Applied Finance & Banking*, 2(6), 95-120.
- Ajzen, I. 1991. The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.
- Apostoaie, M.C. 2013. Central banks' involvement in encouraging economic education and literacy. *Economics and Applied Informatics*, 2010(2), 147-154.
- Ardic, O.P., Heimann, M. & Mylenko, N. 2011. Access to financial services and the financial inclusion agenda around the world: A cross-country analysis with a new data set. Policy Research working Paper 5537 [Online} Available: <http://elibrary.worldbank.org/doi/pdf/10.1596/1813-9450-5537> Accessed: 24 May 2015
- Arora, U.R. 2011. Financial inclusion and human capital in developing Asia: The Australian connection. *Third World Quarterly*, 33(1), 179-199.
- Aterido, R. T. Beck, T. & Iacovone, L. 2011. Gender and finance in Sub-Saharan Africa: Are women disadvantaged? *Policy Research Working Paper 5571*. Washington, D.C.: World Bank.
- Austrian, K. 2011. Expanding safe spaces, financial education, and savings for adolescent girls in Kenya. Promoting healthy, safe, and productive transitions to adulthood. Brief no. 29, updated January 2011.
- Aynsley, H. 2011. RBS Innovate Summary Report. Royal Bank of Scotland.
- Barro, R.J. & Lee, J. 2010. A new data set of educational attainment in the world, 1950–2010.
- Barro, R.J. & Lee, J. 2012. A new data set of educational attainment in the world, 1950–2010, Revised edition.
- Beck, T., Cull, R., Fuchs, M., Getenga, J., Gatere, P., Randa, J. & Trandrafir, M. 2010. Banking sector stability, efficiency, and outreach in Kenya. Policy Research Working Paper No 5442.
- Beck, T., Demirguc-Kunt, A. & Levine, R. 2007. Finance, inequality and the poor. *Journal for Economic Growth*, 12:27-49.
- Bruhn, M. & Love, I. 2014. The real impact of improved access to finance: Evidence from Mexico. *The Journal of Finance*, 69( 3), 1347-1376.
- Centre for Financial Inclusion at Accion. 2013. Seizing the moment: on the road to Financial Inclusion. Financial Inclusion 2020 Synthesis Report. [Online] Available: <http://www.centerforfinancialinclusion.org/publications-a-resources/browse-publications/555-seizing-the-moment-on-the-road-to-financial-inclusion> Accessed: 15 November 2014

Child and Youth Finance International 2012. Children and Youth as Economic Citizens: Review of Research on Financial Capability, Financial Inclusion, and Financial Education. Research Working Group Report. Amsterdam: CYFI.

Cole, S. & Shastry, G.K. 2009. Smart Money: The effect of education, cognitive ability, and financial literacy on financial market participation. Harvard Business School Working Paper Number: 09-071.

Cole, S., Sampson, T., & Zia, B. 2011. Prices or knowledge? What drives demand for financial services in emerging markets? *The Journal of Finance*, **66**(6), 1933–1967.

Collins, M. J. 2013.. Analysing the financial capability of people in Wisconsin. Issue Brief 2013-04, Madison, University of Wisconsin.

Demirguc-Kunt, A. & Klapper, L. 2012a. Measuring financial inclusion: The Global Findex Database. The World Bank Policy Research Working Paper 6025.

Demirgüç-Kunt, A. and Klapper, L. 2012b. Financial inclusion in Africa. The World Bank Policy Research Working Paper 6088.

Demirguc-Kunt, A. and Klapper, L. 2013. Measuring financial inclusion: Explaining variation across and within countries. Brookings Papers on Economic Activity, Spring 2013.

Demirguc-Kunt, A. & Levine, R. 2007. Finance and economic opportunity. The World Bank Policy Research Working Paper 4468.

Demirguc-Kunt, A., Klapper, L. & Singer, D. 2013. Financial inclusion and legal discrimination against women. Evidence from developing countries. The World Bank Policy Research Working Paper, WPS 6416.

Demirguc-Kunt, A., Klapper, L., Singer, D. & Van Oudheusden, P. 2015. The Global Findex Database 2014. Measuring Financial Inclusion around the World. The World Bank Policy Research Working Paper, WPS 7255.

Dipholo, K.B. & Biao I. 2013. Rethinking education for sustainable development in Africa. The African Symposium: An online journal of the African Educational Research Network, **13**(2), 28-36. [Online] Available: [http://www.ncsu.edu/aern/TAS13.2/TAS13.2\\_Dipholo.pdf](http://www.ncsu.edu/aern/TAS13.2/TAS13.2_Dipholo.pdf) Accessed: 03 March 2015.

Djankov, S., Miranda, P.C., Seira, E. & Sharma, S. June 2008. Who are the Unbanked? World Bank Policy Research Working Paper No. WPS4647.

Edem, E., Mbaba, G.U., Udosen, A. & Isioma, P.E. 2011. Literacy in primary and secondary education in Nigeria, *Journal of Language and Culture*, **2**(2), 15-19.

Fagerlind, I. & Saha, L. 1989. Education and national development: A comparative perspective. Oxford: Pergamon Press.

Fungacova, Z. & Weill, L. 2014. Understanding financial inclusion in China. BOFIT- Institute for Economies in Transition

Furnham, A. & Argyle, M. 1998. *The psychology of money*. London: Routledge.

Garrett, D.M., Maki, D.M. & Bernheim, B.D. 2001. Education and saving: The long-term effects of high school financial curriculum mandates. *Journal of Public Economics*, **80**(3), 435-465.

Gupta, P. & Singh, B. 2013. The Role of literacy level in financial inclusion in India: Empirical evidence. *Journal of Economics, Business and Management*, **1**(3), 272-276.

Guièze, J. 2014. Financial inclusion in Sub-Saharan Africa. [Online] Available: <http://securities.bnpparibas.com/files/live/sites/quintessence/files/Hot%20topics%20-%20marketing/Files/Financial%20inclusion%20in%20Sub-Saharan%20Africa.pdf> Accessed: 20 February 2015.

Gowri, M. 2013. A study on Financial Literacy among young employees in Coimbatore City. [Online] Available: <http://www.grgsms.com/wp-content/uploads/.../Gowri-WP-201403001.pdf>, Accessed 10 July 2014.

Hanning, A. & Jansen, S. 2010. Financial inclusion and financial stability: current policy issues. ADBI Working Paper Series, no 259, Asian Development Bank Institute. [Online] Available: <http://adbi.org/files/2010.12.21.wp259.financial.inclusion.stability.policy.issues.pdf>. Accessed: 17 September 2014.

Holden, K., Kalish, C., Scheinholtz, L., Dietrich, D. & Novak, B. 2009. Financial literacy programs targeted on pre-school children: Development and evaluation. La Follette School Working Paper No. 2009-009.

Jayamaha, R. 2008. Access to finance and financial inclusion for women. Speech by the Deputy Governor of the Central Bank of Sri Lanka, at the Centre for Women's Research (CENWOR), Colombo, 4 April 2008.

Kapoor, A. 2014. Financial Inclusion and future of Indian economy. *Futures*, **56** (February 2014), 35-42.

Kempson, E., Valeria, P. & Kinnon, S. 2013. Measuring financial capability: a new instrument and results from low- and middle-income countries. International Bank for Reconstruction and Development, World Bank.

Khan, O. 2008. Financial Inclusion and ethnicity, an agenda for research and policy action. Runnymede Reports, London.

Kuri, K.P. & Laha, A. 2011. Financial Inclusion and Human Development in India: An inter-state analysis. *Indian Journal of Human Development*, **5**(1), 61-77.

- Kumar, V., Haapala, K.R., Rivera, J.L., Hutchins, M.J., Endres, W.J., Gershenson, J.K., Michalek, D.J. & Sutherland, J.W. 2005. Infusing sustainability principles into manufacturing/mechanical engineering curricula. *Journal of Manufacturing Systems*, **24**(3), 215-225.
- Kwabena, G. 2011. Education and Economic Development in Africa. *African Development Review*, **23**(2), 219-236.
- Leiser, D. & Ganin, M. 1996. Economic participation and economic socialization. In P. Lunt and A. Furnham (eds.), *Economic socialization: The economic beliefs and behaviours of young people*. Cheltenham, UK: Edward Elgar.
- Lursadi, A. & Mitchell, O.S. 2013. The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, **52**(1), 5-44.
- Mitton, L. 2008. Financial inclusion in the UK: Review of policy and practice, York: JRF. [Online] Available: <http://www.jrf.org.uk/sites/files/jrf/2222-financial-exclusion-policy.pdf> Accessed: 20 January 2015
- Mishi, S. Vacu, N.P. & Chipote, P. 2012. Impact of financial literacy in optimising financial inclusion in rural South Africa: Case study of the Eastern Cape Province. *Economic research Southern Africa*. [Online] Available: <http://www.econrsa.org/workshops/papers/2012/impact-financial-literacy-optimising-financial-inclusion-rural-south-africa> Accessed: 07 March 2015
- Nalini, G.S. & Mariappan, K.M. 2012. Role of banks in Financial Inclusion. *Research Journal of Commerce & Behavioural Science*, **1**(1), 33-36.
- Triki, T. & Faye, I. 2013. (Eds.) *Financial Inclusion in Africa*, African Development Bank.
- Reynolds, J. & Pemberton, J. 2001. Rising college expectations among youth in the United States: A comparison of the 1979 and 1997 NLSY. *Journal of Human Resources*, **36**(4), 703-724.
- Rojas-Suarez, Liliana, 2007, *The Provision of Banking Services in Latin America: Obstacles and Recommendations*”, Working Paper No. 124, Centre for Global Development
- Sajeev, B.U. & Thankavel, K. 2011. Impact assessment of SHG loan pattern using clustering technique. *International Journal of Advances in Engineering & Technology*, **1**(5), 361-374.
- Sarma, M. 2008. Index of financial inclusion. ICRIER Working Paper No 215, June 2008.
- Sarma, M.P. Pais, J. and Nikaido, Y. 2012. Determinants of Access to Institutional Credit for Small Enterprises in India.
- Sahrawat, R. 2010. Financial Inclusion – From Obligation to Opportunity, Tata Consultancy Service Ltd. [Online] Available: [http://www.tcs.com/resources/white\\_papers/Pages/Financial-Inclusion-From-Obligation-Opportunity.aspx](http://www.tcs.com/resources/white_papers/Pages/Financial-Inclusion-From-Obligation-Opportunity.aspx) Accessed: 22 March 2014

Serrao, M.V., Sequeira, A.H. & Hans, B.V. 2012. Designing a methodology to investigate accessibility and impact of Financial Inclusion. [Online] Available: Available at SSRN: <http://ssrn.com/abstract=2025521> Accessed: 24 March 2014

Shambare, R. & Rugimbana, R. 2012. Financial literacy among the educated: an exploratory study of selected university students in South Africa. *Thunderbird International Business Review*, **54**(4), 581-590.

Sherraden, M.S. 2010. Financial capability. What is it, and how can it be created? Center for Social Development, University of Missouri, St. Louis, CSD Working Papers No. 10-17

Sherraden, M.S., Johnson, L., Guo, B. & Elliott III, W. 2010. Financial capability in children: Effects of participation in a school-based financial education and savings program. *Journal of Family and Economic Issues*, **32**(3), 385-399.

Oseifuah, E. K. & Gyekye A. B. 2014. Analysis of the Level of Financial Literacy among South African Undergraduate Students. *Journal of Economics and Behavioural Studies*, **6**(3), 242-250.

Rojas-Suarez, L 2007. The Provision of Banking Services in Latin America: Obstacles and Recommendations

Rojas-Suarez, L. & Gonzales, V. 2010. Inclusion to financial services in emerging powers: Facts, obstacles and policy implications. Background Paper for the Perspectives on Global Development 2010 Shifting Wealth, OECD Development Centre, March 2010.

Rojas-Suarez, L. & Gonzales, V. 2014. Understanding Latin American Financial Inclusion gap. Working Paper 367. [Online] Available: <http://www.cgdev.org/sites/default/files/latin-american-financial-inclusion-gap.pdf> Accessed: 28 September 2014

Roland-Levy, C. 1990. Economic socialization: Basis for international comparisons. *Journal of Economic Psychology*, **11**(4), 469-482.

Wachira, M.I. & Kihui, E.N. 2012. Impact of Financial Literacy on Access to Financial Services in Kenya. *International Journal of Business and Social Science*, **3**(19), 42-50.

**APPENDIX A:****MODEL 1–3****MODEL 1: Account Ownership**

Dependent Variable: ACCOUNT\_OWNERSHIP

Method: Least Squares

Date: 02/07/15 Time: 13:13

Sample: 1 41

Included observations: 41

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SECONDARY_OR_MORE	0.748974	0.056236	13.31843	0.0000
GDP_PER_CAPITA	0.001215	0.000423	2.874410	0.0069
INFLATION	-0.061152	0.020870	-4.380133	0.0762
AGE_DEPENDENCY_RATIO	-0.180386	0.035625	-1.969563	0.7891
WEAK_LAW	-0.030290	0.002611	-3.575729	0.0486
OVERHEAD_COST	-0.537820	0.043576	-12.10429	0.0233
C	-3.587639	6.490269	-0.552772	0.5840
R-squared	0.883607	Mean dependent var		21.03630
Adjusted R-squared	0.871302	S.D. dependent var		15.85959
S.E. of regression	5.228801	Akaike info criterion		6.300493
Sum squared resid	929.5721	Schwarz criterion		6.593054
Log likelihood	-122.1601	Hannan-Quinn criter.		6.407027
F-statistic	55.66555	Durbin-Watson stat		1.902176
Prob(F-statistic)	0.000000			

Dependent Variable: ACCOUNT\_OWNERSHIP

Method: Least Squares

Date: 02/07/15 Time: 13:50

Sample: 1 41

Included observations: 41

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PRIMARY_OR_LESS	1.061616	0.083054	12.78219	0.0000
GDP_PER_CAPITA	0.000337	0.000052	6.744856	0.0015
INFLATION	-0.232527	0.163962	-1.818174	0.0952
AGE_DEPENDENCY_RATIO	-0.098326	0.048403	-2.435197	0.0360
WEAK_LAW	-0.023404	0.005692	-2.420230	0.0370
OVERHEAD_COST	-0.430896	0.045340	-9.503660	0.0486
C	3.160559	6.587392	0.479789	0.6344
R-squared	0.891356	Mean dependent var		21.03630
Adjusted R-squared	0.883595	S.D. dependent var		15.85959
S.E. of regression	5.411008	Akaike info criterion		6.369000
Sum squared resid	995.4861	Schwarz criterion		6.661561
Log likelihood	-123.5645	Hannan-Quinn criter.		6.475534
F-statistic	51.60457	Durbin-Watson stat		2.253471
Prob(F-statistic)	0.000000			

**MODEL 2: Savings**

Dependent Variable: SAVINGS

Method: Least Squares

Date: 02/07/15 Time: 13:06

Sample (adjusted): 1 41

Included observations: 41

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SECONDARY_OR_MORE	0.909490	0.055140	5.462019	0.0000
GDP_PER_CAPITA	0.000620	0.000267	3.821385	0.0361
INFLATION	-0.176320	0.099199	-2.192896	0.0482
AGE_DEPENDENCY_RATIO	-0.032535	0.012145	-3.099587	0.0213
WEAK_LAW	-0.030285	0.002615	-2.491574	0.0262
OVERHEAD_COST	-0.436794	0.272272	-1.604065	0.9969
C	5.173151	8.527303	0.606657	0.5481
R-squared	0.898710	Mean dependent var		30.70873
Adjusted R-squared	0.814317	S.D. dependent var		10.28456
S.E. of regression	7.167408	Akaike info criterion		6.931217
Sum squared resid	1746.639	Schwarz criterion		7.223778
Log likelihood	-135.0900	Hannan-Quinn criter.		7.037752
F-statistic	8.059712	Durbin-Watson stat		2.231029
Prob(F-statistic)	0.000019			

Dependent Variable: SAVINGS

Method: Least Squares

Date: 02/07/15 Time: 13:07

Sample (adjusted): 1 41

Included observations: 41

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PRIMARY_OR_LESS	0.574788	0.109972	5.22884	0.0000
GDP_PER_CAPITA	0.000376	0.000664	2.330442	0.0259
INFLATION	-0.687124	0.231552	-2.777606	0.0444
AGE_DEPENDENCY_RATIO	-0.098333	0.078427	-2.675622	0.0339
WEAK_LAW	-0.052934	0.108467	-2.875157	0.0476
OVERHEAD_COST	-0.075342	0.045860	-1.642890	0.1179
C	0.285180	3.898316	0.073155	0.9421
R-squared	0.866792	Mean dependent var		30.70873
Adjusted R-squared	0.858697	S.D. dependent var		10.28456
S.E. of regression	3.273391	Akaike info criterion		5.363782
Sum squared resid	364.3130	Schwarz criterion		5.656343
Log likelihood	-102.9575	Hannan-Quinn criter.		5.470316
F-statistic	60.14221	Durbin-Watson stat		1.836337
Prob(F-statistic)	0.000000			

**MODEL 3: Health Insurance**

Dependent Variable: HEALTH\_INSURANCE

Method: Least Squares

Date: 02/07/15 Time: 13:58

Sample: 1 41

Included observations: 41

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SECONDARY_OR_MORE	0.596954	0.038314	15.58047	0.0000
GDP_PER_CAPITA	0.516820	0.118670	4.355102	0.0432
INFLATION	-0.051684	0.048670	-2.774193	0.0734
AGE_DEPENDENCY_RATIO	-0.055616	0.025077	-1.967066	0.0843
WEAK_LAW	-0.021309	0.001285	-1.908137	0.0702
OVERHEAD_COST	-0.042149	0.005435	-1.802175	0.0781
C	0.495349	1.215813	0.407422	0.6863
R-squared	0.715202	Mean dependent var		2.928795
Adjusted R-squared	0.703967	S.D. dependent var		3.030343
S.E. of regression	0.939078	Akaike info criterion		2.866416
Sum squared resid	29.98351	Schwarz criterion		3.158977
Log likelihood	-51.76153	Hannan-Quinn criter.		2.972950
F-statistic	63.75398	Durbin-Watson stat		2.210078
Prob(F-statistic)	0.000000			

Dependent Variable: HEALTH\_INSURANCE

Method: Least Squares

Date: 02/07/15 Time: 13:58

Sample: 1 41

Included observations: 41

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PRIMARY_OR_LESS	1.098044	0.142567	7.702354	0.0000
GDP_PER_CAPITA	0.098206	0.075237	3.337654	0.0432
INFLATION	-0.068546	0.028160	-1.961593	0.0734
AGE_DEPENDENCY_RATIO	-0.013824	0.011297	-1.622966	0.4543
WEAK_LAW	-0.108406	0.031204	-3.475974	0.0702
OVERHEAD_COST	-0.085907	0.017795	-4.828532	0.0781
C	0.495349	1.215813	0.407422	0.6863
R-squared	0.904002	Mean dependent var		2.928795
Adjusted R-squared	0.803967	S.D. dependent var		3.030343
S.E. of regression	0.839078	Akaike info criterion		2.866416
Sum squared resid	29.98351	Schwarz criterion		3.158977
Log likelihood	-51.76153	Hannan-Quinn criter.		2.972950
F-statistic	73.75398	Durbin-Watson stat		2.210078
Prob(F-statistic)	0.000000			

## APPENDIX B:

### VARIABLES

Variables Description			
Variable	Description and Unit	Source	Year
Account at a formal financial institution (% age 15+)	Denotes the percentage of respondents with an account (self or together with someone else) at a bank, credit union, another financial institution (e.g., cooperative, microfinance institution), or the post office (if applicable) including respondents who reported having a debit card(% age 15+).	Global Findex Database (Demirguc-Kunt and Klapper, 2012)	2011
Account at a formal financial institution, primary education or less (% age 15+)	Denotes the percentage of respondents with an account (self or together with someone else) at a bank, credit union, another financial institution (e.g., cooperative, microfinance institution), or the post office (if applicable) including respondents who reported having a debit card(primary education or less, % age 15+).	Global Findex Database (Demirguc-Kunt and Klapper, 2012)	2011

Account at a formal financial institution, secondary education or more (% age 15+)	Denotes the percentage of respondents with an account (self or together with someone else) at a bank, credit union, another financial institution (e.g., cooperative, microfinance institution), or the post office (if applicable) including respondents who reported having a debit card(secondary education or more, % age 15+).	Global Findex Database (Demirguc-Kunt and Klapper, 2012)	2011
Saved any money in the past year (% age 15+)	Denotes the percentage of respondents who report saving or setting aside any money in the past 12 months(% age 15+).	Global Findex Database (Demirguc-Kunt and Klapper, 2012)	2011
Saved any money in the past year, primary education or less (% age 15+)	Denotes the percentage of respondents who report saving or setting aside any money in the past 12 months(primary education or less, % age 15+)	Global Findex Database (Demirguc-Kunt and Klapper, 2012)	2011
Saved any money in the past year, secondary education or more (% age 15+)	Denotes the percentage of respondents who report saving or setting aside any money in the past 12 months(secondary education or more, % age 15+).	Global Findex Database (Demirguc-Kunt and Klapper, 2012)	2011
Personally paid for health insurance (% age 15+)	Denotes the percent of respondents who currently have health or medical insurance (in addition to national health insurance) and who personally purchased this insurance (% age 15+).	Global Findex Database (Demirguc-Kunt and Klapper, 2012)	2011
Personally paid for health insurance, primary education or less (% age 15+)	Denotes the percent of respondents who currently have health or medical insurance (in addition to national health insurance) and who personally purchased this insurance (primary education or less, % age 15+).	Global Findex Database (Demirguc-Kunt and Klapper, 2012)	2011
Personally paid for health insurance, secondary education or more (% age 15+)	Denotes the percent of respondents who currently have health or medical insurance (in addition to national health insurance) and who personally purchased this insurance(secondary education or more, % age 15+).	Global Findex Database (Demirguc-Kunt and Klapper, 2012)	2011
GDP per capita	GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars.	World Development Indicators, World Bank	2011
Inflation	Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used.	World Development Indicators, World Bank	2011
Age dependency ratio (% of working-age population)	Age dependency ratio is the ratio of dependents--people younger than 15 or older than 64--to the working-age population--those ages 15-64. Data are shown as the proportion of dependents per 100 working-age population.	World Development Indicators, World Bank	2011

Rule of Law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Estimate gives the country's score on the aggregate indicator, in units of a

Rule of Law: Estimate	standard normal distribution, i.e. ranging from approximately -2.5 to 2.5.	The Worldwide Governance Indicators	2011
Bank Overhead Costs to Total Assets (%)	Accounting value of a bank's overhead costs as a share of its total assets.	Financial Structure Database (World Bank)	2011
Branch Concentration (%)	Commercial bank branches are retail locations of resident commercial banks and other resident banks that function as commercial banks that provide financial services to customers and are physically separated from the main office but not organized as legally separated subsidiaries.	Financial Structure Database (World Bank)	2011