DETERMINANTS OF FINANCIAL INCLUSION IN NAMIBIA: AN ANALYSIS OF THE GENDER GAP

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Declaration

I Nikanor Shiwayu, hereby declare that the work contained in the mini-thesis, entitled "**Determinants of Financial Inclusion in Namibia: An Analysis of the Gender Gap**," is my own original work and that I have not previously in its entirety or in part submitted it at any university or other higher education institution for the award of a degree.

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Certification page

It is certified that the mini-thesis titled "**Determinants of Financial Inclusion in Namibia: An Analysis of the Gender Gap** " submitted by Mr Nikanor Shiwayu towards partial fulfilment of the Master's degree of Business Administration - Finance, is based on the study carried out under my guidance. The mini-thesis has therefore not been submitted for an academic award at any other university or academic institution. _____ **Dr. Alfred Mukong**

(Supervisor).

Dedication

Firstly, I would like to thank God for giving me the strength and power to complete this thesis. I dedicate this mini thesis to my family and my friends, who stood by me during the countless sleepless nights and trials and tribulations that come with conducting research at this level. You have constantly encouraged me to do my best. Thank you.

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Abstract

There is a consensus between many development economists that a well-developed and inclusive financial system promotes inclusive growth and better livelihoods. Yet the size of the financially excluded adults in the world is still enormous. Generally, women are disproportionately excluded from formal financial systems and constitute more than half of the world's unbanked population. The gender gap is systematic worldwide and persistent across all income groups in developing countries. However, it is interesting to observe that more eligible men are financially excluded than eligible women in Namibia. Motivated by this observation, in addition to limited evidence on gender gap in financial inclusion, this paper examines the determinants of financial inclusion in Namibia, with particular focus on what explains the observed gender gap.

We employ the probit model to identify the determinants of financial inclusion and the Fairlie decomposition to examine the contribution of these factors to the gender gap in financial inclusion. The results suggest that women are more financially included, however, the observed gap is insignificant. We find that individual characteristics are important determinants of financial inclusion in Namibia. Financial literacy, educational attainment and proximity to financial institutions contribute positively to the observed gender gap. Thus, any policy action geared towards improving the level of financial inclusion of the disadvantage women should focus on enhancing their level of education, financial knowledge and access (proximity) to financial institution. However, the contribution of other individual and household characteristics cannot be completely ignored.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

There is a consensus between many development economists that a well-developed and inclusive financial system promotes more inclusive growth and better livelihoods (Allen et al. 2012). Yet the size of the financially excluded adults in the world is still enormous. For instance, by 2013, over two billion adults had no access to formal financial services (World Bank, 2013). Efforts have been made by many governments and international agencies to increase access to a range of financial services, with a target of achieving collective access to financial services by 2020 (GPFI, 2016)[1]. A brief overview of data on global financial inclusion shows that there is a significant progress in expanding access to financial services. For example, between 2011 and 2014 about 700 million adults have gained access to formal financial institutions (World Bank, 2015 p. 23). Thus, 62 percent of worldwide adult population in 2014 relative to 51 percent in 2011 had a bank accounts or access to other formal financial service providers including mobile money providers (World Bank, 2013).

In the context of Africa, the banking systems are still very less inclusive in term of coverage, usage and accessibility (Zinsa and Laurent Weillb, 2016). Only about 21 percent of the population in upper middle-income countries in Africa have access to credit facilities and 16.5 percent of households have account with a formal financial institution in the median African countries,

[1] Financial inclusion is a process that ensures the ease of access, availability and usage of the formal financial services (owning a formal bank account and frequently using financial services) among the less privileged both in rural and urban areas (Gupta 2015). It has also been accepted as an important instrument for economic growth.

relative to 43 percent and 21 percent in non-African country respectively (Mlachila, 2013). Financial inclusion differs greatly between countries and regional blocks within the African continent. For instance, in 2011, 51 percent of individuals in Southern African countries owned a bank account, 11 percent for Central African countries, 4 percent for North African countries and 18 percent of Western African countries saved in a formal financial institution (Zinsa & Laurent Weillb, 2016). However, Africa, especially East Africa is currently at the forefront in terms of mobile money account ownership (Oudheusden & Demirgüc-Kunt, 2015).

Arguably, women are disproportionately excluded from formal financial systems and constitute more than half of the world's unbanked population (Abdu & Buba, 2015). Globally, only 58 percent of women were financially included in 2014 relative to 65 percent of men (World Bank, 2015 p. 23). Pais (2012) alluded that the gender gap is systematic worldwide, and the difference is persistent across all income groups in developing countries. The gender gap in financial inclusion is significant in Sub-Saharan Africa where only 30 percent for women compared to 39 percent for men have access to formal financial services (Fanta & Mutsonziwa, 2016). The gap varies between regional blocks with the Southern African Development Community (SADC) having one of the lowest 5 percent, 60 percent for men and 55 percent for women (Fanta & Mutsonziwa, 2016).

Many women are then predominantly in the informal economy because of cultural believes lack of or restricts access unavailability of formal financial services and the ability to own businesses, thereby, widening the gender gap in poverty and income inequality. Landingham and Bautista (2015) argued that financial inclusion for women may offer a more diversified and steady usage of formal financial services, as women are savers than men, yet they are more financially excluded. Mlachila (2013) argued that women attach more weight to family's welfare, reinvesting up to 90%

of their income to well-being of their families compared to men that reinvest only between 30 to 40%. Mndolwa, (2017) showed that women's access to financial services increases their spending on food, education, and healthcare than men, thereby increasing the welfare and productivity of their families and communities. Being financially included increases female participation in the labour market and growth in gross domestic product (Landingham & Bautista, 2015), whereas their unequal exclusion from formal financial services reduces their contribution to economic growth. Thus, financial inclusion of women should constitute a priority decision-making process.

It is interesting to observe that more eligible men are financially excluded than eligible women in Namibia (Financial inclusion survey 2017). The 2017 financial inclusion report for Namibia indicates that 76.1% of eligible male are financially included compared to 79.8% of eligible female. However, over 61.5% of the population do not use bank credit facilities, and still rely on family or friends for financial assistance (Namibia Statistics Agency, 2017, p. 25). In addition, much is not known about the determinants of financial inclusion in Namibia. It is by this motivation that this study explores the determinants of financial inclusion in Namibia with particular focus on the observed gender gap. A number of studies have identified factors that determine the use of financial services but there is little evidence on what explains the gender gap (Aker & Tiermery, 2013)[2]. Financial inclusion in this study and as in (Prabhakar, Byram, & Satyanarayana, 2016) is access and usage of formal financial services including bank account ownership, savings, credit, payment and insurance services.

[2] The gender gap in financial inclusion refers to the difference in the level of access to financial services, usage of financial product and availability of services between men and women (Muravyev, Talavera, & Schäfer, 2009). That is the relative percentage of men and women with access to financial services (InterMedia, 2015).

Since independence, the government of Namibia have implemented several interventions and public policies to minimise inequity practices created during apartheid. Among them is the Namibia Financial Sector Strategy (NFSS), launched in 2012 to "reform the financial sector and ensure Namibians have an effective, stable, competitive, resilience and inclusive financial sector and to create an inclusive financial sector, accessible to the majority of the population by 2021" (Matongela, Albert, & Mutonga, 2014). Among these, is the amendment of the payment management system Act 2010, to empower the Bank of Namibia to determine standards for user fees and charges for service delivery (Government of the Republic of Namibia, 2010). This is to ensure that the fees or charges payable by a user should not be the barrier to promote competition, efficiency and cost-effectiveness. In 2014, all banks were instructed to provide basic bank accounts at zero-rated cash deposit fees for all cash deposits in individual and business accounts. The Namibian banking sectors consist of five (5) commercial banks that appear to have the capacity to provide banking services and reduce financial excluded to zero (Mbutor & Uba, 2003). Non-banks are also instrumental in providing payment services and contributing towards financial inclusion. The non-banks include a post office savings bank, Unit trust and mobile network operators and dominated by pension funds institutions (Matongela, 2012).

The financial services of both the banking and non-banking financial institutions include insurance companies, pension funds and smaller financial intermediaries in the form of stockbrokers and money market funds, and the Namibia Stock Exchange (Namibia Statistics Agency, 2017). For the Financial Sector Strategy between 2011 and 2021, the government approved a policy strategy aimed at accelerating financial inclusion (Geller, Slot, & Yikona, 2011). This has improved significantly the level of financial literacy, increase the level of financial inclusion and efficiency in the financial system. The financially excluded population has declined from 31% in 2011 to 22%

in 2017, with women more financially included than men (Namibia Statistics Agency, 2017). This study provides evidence on the determinants of financial inclusion in Namibia and analyses the contribution of individual characteristics to the gender gap in financial inclusion.

1.2 Problem statement

Globally, there is a significant decline in the number of eligible unbanked adults from 49 percent in 2011 to 38 percent in 2014 (Abdu, 2015; World Bank, 2013). However, African countries continue to have significantly high proportions of unbanked individuals and households without access to basic financial services. For instance, according to Allen et al. (2014), over 80% of adults in Sub-Saharan Africa were unbanked compared to less than 60% for Asia and 8% for the developed countries. Majority of the unbanked (42%) are women relative to 35% for men (Demirgüc¸-Kunt, 2015). Efforts to further increase the level of financial inclusion should focus on reducing the gender gap among the unbanked. Contrary to global statistics, it is interestingly observed that the percentage of the eligible unbanked adults in Namibia is higher among men than among women (Namibia Statistics Agency, 2017). This implies there are lessons that international agencies and other nations that focus on reducing the gender gap in financial inclusion can learn from the Namibian experience. Motivated by this observation, in addition to limited evidence on gender gap in financial inclusion, this study provides evidence on the determinants of financial inclusion in Namibia, with particular focus on what explains the observed gender gap.

In addition, despite the vast evidence on the determinants of financial inclusion (Akudugu, 2014; Morgan, 2014; Kostov et al., 2015; Allen et al. 2016; Mutandwa and Roux, 2018) much is not known about the determinants of financial inclusion in many African countries including Namibia and to the best of our knowledge there is no study that has investigated the determinants of the

gender gap in financial inclusion in Namibia. This study contributes to the literature by identifying the determinants of financial inclusion, considering their contributions to the observed gender gap. The study equally considers the different measures of financial inclusion, something that has not been handled in many of the studies.

1.3 Objectives of the Study

The main objective of this study is to investigate the determinants of financial inclusion with particular focus on the gender gap in Namibia. Specifically, the study seeks to:

- Identify the determinants of financial inclusion in Namibia.
- Examine the factors that explain the gender gap in financial inclusion in Namibia.

1.4 Hypotheses of the Study

H_0: Individual characteristics are not significantly determinant of financial inclusion in Namibia.

H_1: Individual characteristics are significant determinants of financial inclusion in Namibia.

H_0: Differences in individual characteristics do not explain gender gap in financial inclusion in Namibia.

H_1: Differences in individual characteristics explain gender gap in financial inclusion in Namibia

1.5 The significance of the study

The primary goal for this study is to provide new empirical evidence on financial inclusion in Namibia, in the process contributing to global evidence. Unlike many countries women are more financially included than men in Namibia, yet little is known about the determinants of the gender

gap in financial inclusion. Evidence on what explains the gender gap in such an economy provides useful information for countries and development agencies seeking to close the gender gap in financial inclusion. Findings from this study is useful for policy makers willing to adjust the current policies and strategy to ensure that Namibians have an effective, stable, competitive, resilience and inclusive financial sector and to create an inclusive financial sector, accessible to the majority of the people of Namibia. This study provides evidence on the determinants of financial inclusion in Namibia and analyses the contribution of individual characteristics to the gender gap in financial inclusion.

1.6 Limitation of the study

The study did not take into consideration all aspect of financial inclusion due to limited or unavailability information in the data set. For instance, the data used for this study provides limited information on supply side determinants (service cost) of financial inclusion in Namibia. This study therefore make use of distance to the nearest financial (indirect cost) as one of the supply side factor and equally recommend that future surveys should consider obtaining information on direct cost of opening or maintain a bank account, interest rate on saving and credit as well as insurance premium. This study, however, made use of existing theories and empirical evidence.

1.7 Delimitations of the study

The study is restricted to individuals aged 16 years and older. The study used secondary data (Namibian financial inclusion survey; 2017) that was collected by the Namibian Statistic Agency (NSA). The survey is a national representative of individual age 16 years and older. This is the legal age to own a bank account in Namibia, implying our findings can be generalizable.

CHAPTER TWO: LITERATURE REVIEW

2. Introduction

This chapter reviewed the related literature to guide the study in line with the problem and purpose of the study. The focus was to explore the determinants of financial inclusion and examine the factors that explain the gender gap in financial inclusion. The theoretical and empirical evidence on the determinants of financial are reviewed in this chapter.

2.1 Theoretical framework

This section reviews theories that are related to financial inclusion. This include financial inclusion theory, neo-classical microeconomic theory and development theory. The financial inclusion theory is concerned with the process of ensuring a fair and transparent access to formal financial services and products (Ndungu, 2016). This is done by ensuring that financial services and products are affordable to all members of the society including the vulnerable groups. Hence, an inclusive financial sector provides access to financial services for all bankable individuals and firms. On the contrary, it does not necessarily require that everyone who is eligible use each of the different financial services, but they should be able to choose between them if desired. Theoretically, the level of financial exclusion is viewed to be higher amongst the unemployed, low income individuals and vulnerable communities (Bougheas, Mizen, & Yalcin, 2014). Generally, demand and supply side factors are important in explaining the level of financial inclusion.

Furthermore, the neo- classical theory supported by preference theory suggests that individuals invest or spend more on what yields them the highest satisfaction (Schultz, 1961). The neo-classical microeconomic theory explains how human preferences in the use of financial services depends on

their perception about the usefulness of the products and basic decision-making process in household (Bouis & Peña, 1997). Many researchers argued that there is a difference in the saving behaviour of men and women, and this has implications in demand for finances and economic growth (Seguino & Floro, 2003).

On other hand, the development theory explains how accumulation of wealth by the rich, through investment has a redistribution effect in favour of the poor through their participation in the capital markets and hence resulting to overall economic growth (Aghion & Bolton, 1997). The model shows that as the well-off people invest in high yield projects in the capital market, more funds are made available to finance a pool of smaller borrowers enabling them to invest in their own projects. According to Galor and Zeira (1993) the involvement of different segments of the economy in formal systems including the financial sector strengthens economic growth.

Similarly to Cecchetti and Kharroubi (2012) find the positive relationship between the financial sector development and economic growth. Suri and Jack, (2016) found that innovation of mobile money in financial sector has a positive impact on women as they are likely to switch into business as the main occupation and gain access to formal financial services by using mobile phones. In addition, mobile banking reduces the cost of long distance remittances and making payment easier and safe.

2.2.1 The Barriers to financial inclusion

The Barriers to financial inclusion are in two groups, the voluntary and involuntary excluded categories. The voluntary group are those who choose not to be included and involuntary excluded

is being driven by market failures (Allen et al, 2016). Several reasons explain the voluntary and involuntary financial exclusion. The voluntary reasons include, cultural, religious and the reluctance to open a formal bank account or use financial services when a family member owns one. Involuntary determinants are documentation barriers, physical barriers, lack of appropriate products and services affordability barriers. Branches have been the traditional bank outlet for geographic access, therefore, distance to the nearest branch relative to the population can provide an indication of physical barriers to access (Gichuki, Njeru, & Ondabu, 2014).

Likewise, women are strongly more likely to rely on a family member's account to access financial services, in this case, other reasons such as distance, lack of documents, religious and lack of trust become less important (Weillb & Zinsa, 2016). This implies that the voluntary option is common among women than men and cultural is an important determinant of female exclusion from financial services rather than market failures. Demirgüc,-Kunt et al (2013) admitted the existence of gender gap in account ownership, formal saving and formal credit facilities. They further alluded that, women are faced with the challenge of presenting collateral or personal guarantees due to informal employment status and lower financial literacy. The existence of such discrimination in informal financial institutions is less certain.

According to GSMA (2015) more women reported costs as a barrier for usage of mobile money services than their male counterparts. Also the cost of owning phones was the greatest barrier and the others were, security and harassment, quality of network or coverage of mobile network provider, agent trust, lack of independence in financial decisions and lack of technical literacy to use mobile money services were major factors that hindered female use of mobile money.

2.3 Empirical Literature

This section of the study focuses on existing evidence on the determinants of financial inclusion and the analysis of gender gap in financial inclusivity both globally and in the context of Namibia.

2.3.1 Determinants of financial inclusion

It is evidence that individual and household characteristics are important determinants of financial inclusion. For instance, Akudugu (2014) investigated the determinants of financial inclusion in Central and West Africa, and found that access to formal financial services is mainly driven by gender, education, age, income, residence area, employment status, marital status, household size and the degree of trust in financial institutions. It is evidence that women are less financially included compare to men, and the gap is especially higher in developing countries (Morgan, 2014). Mutandwa and Roux (2018) argues that countries with more competitive banking systems can enjoy greater levels of financial inclusion.

Kostov et al (2015) investigated the role of decision-making process in households and found that individual participation in household decision-making process and financial literacy are important determinants of financial inclusion. Allen et al. (2016) argues that affordability is another challenge for owning an account at a formal financial institution. They further find that affluent, educated, older, urban, employed, married individuals are more likely to be financially included compare to their respective counterparts. Fungácová and Weill (2015) investigated what explains financial inclusion in the Republic of China and found that access and usage of financial services differ with individual characteristics. Specifically, they found that the probability of borrowing from formal

financial institutions increases for older, educated, richer and married men than their respective counterparts. According to them, poor people borrow to cover medical and education cost, rich people borrow for business or investment and educated people borrow to finance education. Fungácová and Weill (2015) equally found that income and education influence the choice between formal and informal credit. They argue that education does not lead to higher formal credit and being financially included does not lead to a decline in the use of informal financial services. Contrary, owning a formal account and the use of informal financial tools are positively related (Koker & Jentzch, 2013).

In contrast, Aterido et al. (2016) found that, being male, wealthier, more educated and older increases the probability of being financially included. This suggests that policies for financial inclusion should target women and the young population who are likely to be financially excluded (Zinsa & Weillb, 2016). Abdu and Buba (2015) investigated the determinants of financial inclusion and found that factors like being female and being poor reduce the likelihood of being financially included. They further showed that being a young adult and having some secondary or tertiary education increases the chance of being financially included.

In addition, Sarma and Pais (2011) performed a macro-analysis on some African countries and found that, income, inequality, telephone and internet usage and adult literacy are significant factors for financial inclusion in these countries. They further pointed out that countries with low GDP per capita have comparatively poorer connectivity and lower literacy rates and seem to be more financially excluded. Tuesta, et al (2015) found that income and education are all significant factors for financial inclusion in Argentina. In India, Chithra and Selvam (2013) found that income,

population, literacy, deposit and credit penetration are significantly associated with financial inclusion. Kumar (2013) found that the socio-economic and environmental structures are significant in shaping the banking habits of the population.

Likewise, in Peru, Peña and Tuesta (2014) showed that income levels and education are significant variables for the level of financial inclusion. In Africa, Allen et al. (2014) argued that, population density is highly more significant for financial inclusion than elsewhere. Besides, they found that mobile banking expands financial access. Akudugu (2013) found that age, literacy level, wealth, distance to financial institutions, lack of documentation, lack of trust for formal financial institutions, monetary poverty and others are important determinants of financial inclusion in Ghana. According to Aterido et al. (2016) who investigated the usage of mobile money in sub-Sahara Africa owners of mobile phones are found to be more likely to use formal financial services (Aterido, Beck,, & Iacovone, 2011).

At the macro-level, many researchers used formal bank account ownership as a measure of financial inclusion and identify the effect of supply side factors such as the number of bank branches, Automated Teller Machine (ATMs) on bank accounts ownership (Maio, 2015). However, increasing the bank branches and ATMs is not possible for those living in rural areas. Therefore, enhancing access and usage through innovation of mobile banking could increasing financial inclusion in rural areas (World Bank Group, 2016).

Besides, level of education, employment status and income, mobile money are also perceived as a source of financial inclusion and it's a challenge for remote areas resulting to a higher percentage

of the population being voluntarily excluded due to long distances to formal financial institutions (Botric, 2017). The overall evidence from the reviewed literature suggests that favourable individual and household characteristics as well as community factors are important determinants of financial inclusion. Hence, both demand and supply side factors should be taken into consideration when investigating the determinants of financial inclusion. However, most micro-data sets do not contain information on the supply side factors and have generally results to the exclusion of these variable from many financial inclusion studies.

2.3.2 Gender Gap in financial inclusion

The gender gap in financial exclusion has implications for women's labour force participation and entrepreneurship involvement and restrict them from economic contribution and opportunities (Abdu, 2015). Being financially excluded, women entrepreneurs are less likely to secure a loan from formal banking institutions thereby limiting their chances of participating in the entrepreneurship industry. Evidence suggests that gender norms and legal discrimination explain the cross-country variation in access to finance for women (Dabla 2015). Yet much is not known as to how individual level characteristics explain the gender gap in the use of financial services. This study contributes to this literature by considering a country where women are more financially included.

Financial welfare is seen as the ability to sufficiently cope with emergencies, comfortably and make payments on bills and utilities, have access to essential services and save for retirement. Though women make up 40% of the world's workforce, they are less likely to have access to formal

financial services (World Bank, 2013). This limits their ability to borrow, save or manage risks, leading a large percentage of women resorting to using informal instruments that are unreliable, risky and have limited resources.

On other hand, Henderson (2015) noted that men receive preferential treatment when it comes to access to credit than women, and women receive even less favourable treatment from lenders that is unrelated to their creditworthiness. However, it has been shown that in South Africa women are more financially included than men (Fanta & Mutsonziwa, 2016) However, Demirgüç-Kunt (2013) argued that despite the higher level of financial inclusion of women in South Africa, males still dominate in terms of account ownership probably because they are the main decision makers toward household finances. Education attainment and income level are shown to be the main determinants of the gender gap in financial inclusion (Demirgüç-Kunt, 2013).

In contrast, Zamarro (2012) analysed why men are more likely to be financially included than women and found that it is because men are more financially knowledgeable than women. Furthermore, there is a positive correlation between decision-making and financial literacy and since men are key decision-makers within the household they are likely to be involved in financial decisions thereby acquiring financial knowledge than their counterpart female. However, when women have similar education relative to that of their partners, the average level of financial responsibilities are the same and the level of financial inclusion is likely to be similar (Zamarro, 2012).

Abdu et al (2015. P. 189) analysed the gender gap in financial inclusion in Nigeria and found that observable factors account for 53% of the gap. They found that differences in educational attainment account for 63% whilst income contribute 18% to the gap. Ghosh and Vinod (2017.p.20) analysed gender differences in access and use of financial services in India. The study found that female headed households in India are 8% less likely to access formal financial services and 6% more likely to access informal financial services than male headed households.

However, Kairiza et al. (2016) studied gender difference in financial inclusion in Zimbabwe. The found that gender as an independent variable has no significant association with the use formal financial services, as is the case with other individual characteristics such as education, age and urban resident with positive and significant association with formal financial inclusion. In examining inequality in access to credit by vulnerable sections of society including women, Rajeev et al. (2010) found that female headed households have lower access and face higher rates of interest compared to their male counterparts even when they are involved in similar economic activities. The study found a statistically significant difference in access to credit by gender and female headed households pay 5% points higher in interest costs than male.

Despite this vast evidence, much is not known about the determinants of financial inclusion in Namibia and to the best of our knowledge there is no study that has investigated the determinants of the gender gap in financial inclusion in Namibia. This study contributes to the literature by identifying the determinants of financial inclusion, considering their contributions to the observed gender gap. The study equally considers the different measures of financial inclusion, something that has not been handled in many of the studies discussed in this chapter. Cristen and Pearce (2005) articulated the need to formulate a complete financial framework to mitigate the negative

determinants of financial inclusion and to integrate the formal and informal financial institutions to build a surgery capacity and bring unbanked population into the financial market.

CHAPTER THREE: METHODOLOGY

3.0 Introduction

This chapter presents the method used in analysing the stated objectives. It presents the empirical model, definition and measurement of variables, sources of data and data analysis. The study employs two models, the probit model and a nonlinear decomposition technique. The probit model enables us to obtain estimates and the marginal effects for the determinants of financial inclusion, whereas, the nonlinear decomposition help us to identify the gender gap in financial inclusion and the contribution of each determinant to the gap.

3.1 Estimation Techniques

In this study, we employ the probit model to estimate the determinants of access to and the use of financial services. This estimation approach chosen is dictated by it suitability and applicability to our objective, theory and the structure or nature of the dependent available. For instance, estimates from Linear Probability Model (LPM) are bound to be biased due to the presence of heteroscedasticity and the likelihood of predicted probability values may not stay within reasonable values. Apart from differences in the distribution of the error term, there is no significant difference between the probit and logit results. Thus, this study gives preference to the probit estimation technique because the standard error of the probit model are normally distribution. To identify the contributions of each explanatory variable to the observed gender gap in financial inclusion, a nonlinear decomposition technique by Fairlie (2005) based on estimates from the logit model is used.

3.1.1 The Probit Model

The decision to own a formal bank account or used formal financial services (to save, to take credit and to own insurance) is estimated using a probit model. In this model, the underlying response variable Y_i^* (for yes or no decision of individual i) is defined as a function of a vector of explanatory variables X_i, by a statistical model

$$Y_i^* = X_i\beta + \varepsilon_i \tag{3.1}$$

So that:

$$Y_i = \begin{cases} 1 \; if \; Y^* > 0 \\ 0 \;\; otherwise \end{cases} \tag{3.2}$$

Where Y_i^* is the underlying latent variable of whether or not an individual i is financially included, and X_i is a vector of observable characteristics of the individual and the household. The probability that an individual is financially included is represented as:

$$Pr(y_i = 1/x_i) = \Phi(X_i\beta) \tag{3.3}$$

Where $y_i = 1$ implies the individual is financially included, β is a vector of parameters to be estimated, and Φ represents a standard normal cumulative density function. There are four main indicators of financial inclusion considered for the dependent variable and are estimated separately. The indicators include ownership of a formal bank account, ownership of a formal savings account, ownership of a formal credit account and ownership of insurance products.

3.1.2 The Decomposition Technique

This study employs a decomposition technique devised by Fairlie, (2005) to decompose the observed gender gap in financial inclusion into observable and unobservable characteristics. This method is similar to that developed by Fairlie, (1999). This nonlinear procedure is similar to Blinder-Oaxaca, (1973) linear decomposition. For similarity, both methods decompose the

respective differences or gaps into observable and unobservable characteristics. However, both procedures have been used in different frameworks. While the Blinder-Oaxaca, (1973) techniques is used only in linear models, the Fairlie, (2005) technique is suitable only for non-linear models. The nonlinear estimation procedure first estimates the binary choice model that an eligible individual is financially included (y_{it}). Where i is the i^{th} eligible individual and $t = (m, f)$ represent the gender of the individual, m if the individual is male and f if the individual is female. The estimated probability that a respondent i of gender t is financially included is:

$$\hat{Y}_{it} = \varphi(X_{it}\hat{\beta}_t), \quad (t = m, f) \tag{3.4}$$

Where $\hat{\beta}_t$ are the parameter estimates of β_t and φ is the standard logistic cumulative distributions function. The unbiased average predictor for those who are financially included in gender group t is given by the estimated β for the two groups written as:

$$\bar{\hat{Y}} = \frac{1}{N_t} \cdot \sum_{i=1}^{N_t} \varphi(X_{it}\hat{\beta}_t), (t = m, f) \tag{3.5}$$

Where, N_t is the number of eligible individuals in gender group t. According to Even and Macpherson (1990), if individual characteristics are the same between the two sub-samples, the average estimated probability is:

$$\bar{\hat{Y}}_0 = \frac{1}{N_f}\sum_{i=1}^{N_f} \varphi(x_{if}\hat{\beta}_m) \tag{3.6}$$

Based on Fairlie (1999), a decomposition of the logistic equation is given as:

$$\bar{y}^m - \bar{y}^f = \left[\sum_{i=1}^{N^m} \frac{Z(X_i^m \hat{\beta}^m)}{N^m} - \sum_{i=1}^{N^f} \frac{Z(X_i^f \hat{\beta}^f)}{N^f}\right] + \left[\sum_{i=1}^{N^f} \frac{Z(X_i^f \hat{\beta}^m)}{N^f} - \sum_{i=1}^{N^f} \frac{Z(X_i^f \hat{\beta}^f)}{N^f}\right] \tag{3.7}$$

Where, $\bar{y}^m$ is average level of financial inclusion for the male sub-sample, $\bar{y}^f$ is average level of financial inclusion for the female sub-sample and N^t is the number of eligible individuals for gender group t $(t = m, f)$. The superscripts m *and* f are values of covariate and estimates from

the male and female sub-samples respectively. This equation implies that the observed difference in the level of financial inclusion between men and women results from group differences in the distribution of their observable characteristics *(explanatory variable effects)* and group differences in unobservable characteristics *(coefficient effects)*. In order to obtain the decomposition, $\bar{y}^t$ is defined as the mean probability of the binary outcome of interest for the t group and Z as the cumulative distribution functions from the logistic distribution (Fairlie, 2004)[3]. Fairlie, (2005) claimed that the sensitivity of the decomposition estimates to different parameters can be corrected. Second, standard errors from these estimates can be obtained. The linear and other nonlinear decomposition techniques are limited in this regard. This therefore attests to the suitability of this technique to our analysis.

The Fairlie decomposition model is the extension of the Blinder-Oaxaca decomposition technique and is widely used to identify and quantify the separate contributions of both observed and unobserved variables to the observed differences in overtime racial and gender gaps in outcomes. The decomposition uses a nonlinear model and can also be obtained by an application of the mean value theorem. The data was analysed using Stata, a computer software. This aided the researcher in carrying out both descriptive and empirical analysis of the data used.

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[3] $\bar{y}^m - \bar{y}^f = \left[\sum_{i=1}^{N^m} \frac{Z(X_i^m \hat{\beta}^n)}{N^m} - \sum_{i=1}^{N^f} \frac{Z(X_i^f \hat{\beta}^f)}{N^f}\right] + \left[\sum_{i=1}^{N^m} \frac{Z(X_i^m \hat{\beta}^m)}{N^m} - \sum_{i=1}^{N^m} \frac{Z(X_i^m \hat{\beta}^f)}{N^m}\right]$

The coefficient estimates from the female sub-sample, $\hat{\beta}^f$ are used as weights for explanatory variable effects, and the male distributions of the explanatory variables, are used as weights for the coefficient effects. Identifying the contributions of individual explanatory variables to the observed gender gap is not direct (Fairlie, 2005). To identify this, we assume N^m *and* N^f are equal and that there exist a one-for-one matching between the male and female samples. The individual variables X_1 contribution to the pool sample estimate is given as:

$\frac{1}{N^f}\sum_{i=1}^{N^f} Z(\hat{\alpha}^* + X_{1i}^m \hat{\beta}^*{}_1 + X_{2i}^m \hat{\beta}^*{}_2) - Z(\hat{\alpha}^* + X_{1i}^f \hat{\beta}^*{}_1 + X_{2i}^m \hat{\beta}^*{}_2)$

3.2 Data Type and Sources

The study used secondary data from the Namibian Financial Inclusion Survey (NFIS) of 2017. This is a national representative survey data set collected by the Namibian Statistics Agency (NSA) and funded by the Bank of Namibia and the World Bank Group. The survey is designed to provide information on individual and household characteristics, financial knowledge, access and use of financial services. It also provides information on financial inclusion between men and women.

The survey considered individuals aged 16 years and older. This is the legal age that allow individuals to own formal financial products in Namibia. A three-stage stratified sampling procedure was used. The first stage units were the Constituencies, the second stage units were the households and the third stage was eligible individuals that have resided in the selected household for at least 6 months' prior the survey. The survey used the Constituency enumeration areas (EAs) created during the 2011 Population and Housing Census. Data was collected from 151 constituencies selected from all the 14 regions of Namibia. A sample of 2,114 households were drawn from these constituencies. Power allocation procedures were adopted to distribute the samples across the regions so that the smaller regions get adequate samples.

3.2.1 Definition and Measurement of Variables

The variables used in the study analysis are defined in this sub-section. The probit model is used to analyse the factors that determine, ownership of a formal bank account, a formal saving account, formal credit account and a formal insurance account. These variables are defined as the probability that an eligible individual is financially included (they are all dependent variables). The

decomposition technique is used to identify the contribution of individual factors to the probability of belonging to each of the indicators of financial inclusion. The main focus of this study is on micro-level factors including, individual and household factors since our data does not contain information on supply side factors. The choice of these variables is guided by literature on the determinants of financial inclusion and the availability of these variables in the data set used. The variables used in this study are presented in Table 3.1. The relationship between the independent and dependent variables are discussed in the literature review section.

Table 3.2 the relationship between the independent and dependent variable

Variables	Level of variable	Level of variable
Dependent variable		
Bank account	Own a formal bank account	1: have a formal bank account; 0: otherwise
Savings account	Own a formal saving account	1: have a formal saving account; 0: otherwise
Credit account	Own a formal credit account	1: have a formal credit account; 0: otherwise
Insurance account	Own a formal insurance account	1: have a formal insurance account; 0: otherwise
Independent variables		
Gender	Gender of the respondent	1: respondent is Female; 0: respondent is Male
Age	Respondent's age at the time of the survey	Number of years
Age squared	The square of the respondent's age	Number of years squared
Household size	The size of a given household	Number of persons in the household
Educational attainment	Highest level of education of the respondent	0: No formal education; 1: Primary education; 2: Secondary education; 3: Tertiary education
Income	Monthly income of the respondent	Log of monthly income in Namibia Dollar (N$)
Marital status	Marital status at the time of the survey	0: never married; 1: widow/widower; 2: married.
Residential type	Location of the respondent's dwelling unit	0: rural; 1: urban
Financial knowledge	Knowledge about financial products	0: not aware of any financial product; 1: aware of at least one financial product.
Distance	Distance to formal financial institution	0: more than an hour; 1: less than an hour
Financial decision	Participate in household financial decisions	0: do not participate; 1: participate

CHAPTER FOUR: RESULTS AND DISCUSSION

4.1 Introduction

The aim of this study was to examine the determinants of financial inclusion, with particular focus on what account for the gender gap in financial inclusion in Namibia. This chapter presents the results and their interpretations in line with the intended purpose of the study, following the methodology laid out in Chapter 3. The first part of this chapter presents the descriptive statistics of the key variables used in the analysis. The second and third part of the chapter present the results of the probit and decomposition analysis respectively.

4.2 Descriptive Statistics

This sub-section presents the summary statistics of the key variables used in the study. The mean, standard deviation and estimates of the test for differences in mean of the dependent variables by each independent variable are presented in Table 4.1. Four indicators of financial inclusion such as ownership of a formal bank account, formal saving account, formal credit account and insurance account are used as measures of financial inclusion.

Table 4.1 reports summary statistics for financial inclusion indicators and on individual characteristics that are to determine the level of financial inclusion in Namibia. As demonstrated in table, 73 percent of individuals in the sample have a bank account with a bank or other formal financial institutions compared to 27 percent with no access to a formal bank account. On average, 60% of Namibians have access to a formal saving account, 30% have access to formal insurance

products and only 17% have access to formal credit. Hence, exception of insurance and credit accounts, ownership and use of formal financial services in the country is generally high. The results further suggest that exception of credit and insurance products, women are generally more financially included than men. For instance, 75% of women have access to a formal bank account and 63% have access to a saving account compare to 74% and 62% of men respectively.

Table 4.1: Mean statistics for financial inclusion indicators and individual characteristics.

Variable		Overall Sample		Male Sample		Female Sample	
		Mean	Std dev	Mean	Std dev.	Mean	Std dev
	Household size	5.50	3.75	3.59	2.92	4.57	3.01
Age of respondent	Age	37.11	16.51	37.55	15.16	39.68	17.13
	Age squared	1,650	1,547	1,639	1,365	1,867	1,675
	Monthly income	6,747	39,718	7,557	6,227	5,148	27,086
Formal bank account	Have	0.73	0.45	0.74	0.44	0.75	0.43
	Do not have	0.27	0.45	0.26	0.44	0.26	0.44
Formal savings account	Have	0.60	0.49	0.62	0.49	0.63	0.48
	Do not have	0.40	0.49	0.38	0.49	0.37	0.48
Formal credit account	Have	0.17	0.38	0.16	0.37	0.16	0.78
	Do not have	0.83	0.38	0.84	0.37	0.84	0.37
Formal insurance account	Have	0.31	0.46	0.31	0.46	0.29	0.46
	Do not have	0.69	0.46	0.69	0.46	0.71	0.46
Place of residence	Urban	0.54	0.50	0.53	0.50	0.53	0.50
	Rural	0.46	0.50	0.47	0.50	0.47	0.50
Gender of individual	Male	0.47	0.50				
	Female	0.53	0.50				
Household financial decisions	Participate	0.51	0.50	0.55	0.50	0.60	0.49
	Do not participate	0.49	0.50	0.45	0.50	0.40	0.49
Education attainment	No formal education	0.10	0.30	0.11	0.32	0.11	0.31
	Primary education	0.25	0.43	0.26	0.44	0.25	0.43
	Secondary education	0.55	0.50	0.52	0.50	0.56	0.50
	Tertiary education	0.10	0.30	0.11	0.31	0.09	0.28
Marital Status	Never married	0.61	0.49	0.61	0.49	0.56	0.49
	Widow/widower	0.07	0.26	0.04	0.19	0.12	0.33
	Married	0.32	0.47	0.35	0.48	0.32	0.47
Financial Knowledge	Knowledgeable	0.75	0.43	0.75	0.44	0.77	0.42
	Not knowledgeable	0.25	0.43	0.25	0.44	0.23	0.42
Distance to the bank	More than 1 hour	0.33	0.47	0.38	0.49	0.33	0.47
	Don't know	0.03	0.17	0.02	0.13	0.04	0.20
	Less than 1 hour	0.64	0.48	0.60	0.49	0.63	0.48

Note: The overall sample statistics are weighted but the male and female sub-sample statistics are unweighted.

Concerning individual characteristics, the average age of individuals in the sample is 37.1 years. The survey was specifically targeting adults aged 16 years or older, as 16 years is the minimum allowed age for an individual to own a formal financial product in Namibia (Namibia Statistics Agency, 2018). On average, there are 6 persons in a household and the average monthly income of individuals in the sample is N$6,747 (Namibian dollars). About 54% of the sample reside in urban areas relative to 46% in rural areas. Furthermore, the survey established that there were more females (53%) than males (47%) aged 16 or older in the country. Regarding education, majority indicated that they have completed secondary education (55%), followed by primary level (25%), 10% had no formal education and 10% had some tertiary education. The results also show that more than half of the adult population in Namibia (61%) were never married, 7% are widow/widowers and 32% are married. The results show that concerning distance to the nearest financial institution, 64% of the population are less than an hour and 36% more than an hour. Over 51% of those interviewed participate in household financial decisions and about 75% are financially knowledgeable.

The average monthly income for is N$7,557 (Namibian dollars) for men compare to N$5.148 for women. On average, women are more financially knowledgeable than men. On average, 77% of women are financially literate compare 75% for men. Over 65% of the female sample have acquire at least some secondary education compare to 63% for men but relatively the same proportion of men and women reside in urban areas (53%). Interestingly, women (60%) participate in household financial decision-making process than their counterpart men (55%). The average age of men in the sample is 38 years compare 40 years for women. On average, more men are married (35%) than women (32%). With regards to distance to the bank, 63% of women live close to a financial institution (less than 1 hour) and 60% of men live close to a financial institution.

Table 4.2 demonstrates significant differences in the levels of access and use of different financial services across individual characteristics. This allows us to test for the equality in access and use of financial products between men and women in relation to their observable characteristics and verify whether or not the observed differences are significant. The results reveal some interesting differences in observable indicators of financial inclusion across individual characteristics. It should be noted that bank account, saving account, credit account and insurance account are all measures of financial inclusion. In terms of place of residence, differences in the ownership of a formal bank account, saving account, credit account and insurance account are significantly higher among urban dwellers than among their rural counterparts (18%, 20%, 17% and 25% respectively).

On average, more women have access to a bank account (75%) and saving account (63%) than their male counterparts (74% and 62% respectively), but more men have access to insurance products (31%) than women (29%). However, the observed differences in financial inclusion among men and women is insignificant. As expected, the level of financial inclusion is significantly higher among individuals that participate in household financial decisions and among financially knowledgeable individuals. For example, the average difference in account ownership between individuals with financial knowledge is 37%, 41% for saving account, 17% for credit account and 27% for insurance products.

Table 4.2 Comparison of financial inclusion indicators across individual characteristics

	Bank Account		Saving Account		Credit Account		Insurance Acc	
Variable	Mean	Diff	Mean	Diff	Mean	Diff	Mean	Diff
Individual reside in urban areas	0.84	0.18***	0.73	0.20***	0.25	0.17***	0.43	0.25***
	0.66		0.53		0.08		0.18	
Individual is male	0.74	-0.02	0.62	-0.01	0.16	0.00	0.29	-0.02
	0.76		0.63		0.16		0.31	
Participate in household finances	0.76	0.03*	0.64	0.04**	0.18	0.03**	0.31	0.02
	0.73		0.60		0.15		0.29	
No formal education	0.50	-0.28***	0.37	-0.28***	0.02	-0.16***	0.12	-0.20***
	0.78		0.65		0.18		0.32	
Primary education	0.59	-0.21***	0.45	-0.23***	0.05	-0.15***	0.15	-0.20***
	0.80		0.68		0.20		0.35	
Secondary education	0.83	0.18***	0.70	0.16***	0.18	0.04***	0.33	0.06***
	0.65		0.54		0.14		0.27	
Tertiary education	0.97	0.25***	0.95	0.36***	0.54	0.42***	0.74	0.49***
	0.72		0.59		0.12		0.25	
Never married	0.75	0.00	0.65	0.04**	0.15	-0.04***	0.27	-0.08***
	0.75		0.61		0.19		0.35	
Widow/widower	0.71	-0.05*	0.61	-0.02	0.12	-0.05**	0.29	0.01
	0.75		0.63		0.17		0.30	
Married	0.76	0.02	0.66	0.06***	0.20	0.06***	0.36	0.09***
	0.74		0.60		0.14		0.27	
Financially literate	0.84	0.37***	0.73	0.41***	0.21	0.17***	0.37	0.27***
	0.46		0.46		0.04		0.10	
Distance to bank more than 1 hour	0.64	-0.17***	0.51	-0.18***	0.08	-0.13***	0.16	-0.22**
	0.81		0.69		0.21		0.37	
Distance to bank don't know	0.50	-0.26***	0.32	-0.32***	0.3	-0.13***	0.15	-0.15***
	0.76		0.63		0.17		0.30	
Distance to bank less than 1 hour	0.82	0.20***	0.71	0.22***	0.22	0.15***	0.39	0.23***
	0.62		49		0.07		0.16	

Note: Level of significance: *** p<0.01, ** p<0.05, * p<0.1. The mean values are percentages financial inclusion for observable characteristics and Diff is the difference in mean financial inclusion for the respective characteristics.

Concerning education, 97% of individuals with tertiary education have access to a bank account, 95% have access to saving account, 54% to a credit account and 74 to an insurance account compared 72%, 59%, 12% and 25% respectively for those with less than tertiary education. The observed difference in access to these financial inclusion indicators increases as we move from low to high levels of education. Married individuals are significantly more likely to have access to a saving account (66%), a credit account (20%) and insurance account (36%) than the never married and the widowed. The observed difference for bank account ownership is insignificant. While those who are more than an hour from the nearest financial institution are less likely to use these financial

products, those with less than an hour are more likely to use these products. For instance, 82%, 71%, 22% and 39% of individuals with less than an hour to the nearest financial institution have access to a bank account, saving account, credit account and insurance account respectively.

Table 4.3 presents empirical results for the alternative measures of financial inclusion, by classifying financial inclusion into the ownership of a bank account, saving account, credit account and insurance account. The results are marginal effect estimates from a probit model. The results reveal that irrespective of the various ways of measuring financial inclusion, individuals with favourable socioeconomic status are more likely to be financially included, relative to their counterparts with unfavourable socioeconomic status. Results obtained from the different measures are consistent in signs, but some differ in terms of magnitude and level of significance.

While the regression results show that being female increases the probability of owning all four indicators of financial inclusion, as compared to being male, the increase is only statistically significant for credit account ownership measure. In contrast, age is a significant determinant of financial inclusion. The results suggest that the probability of being financially included increases with age. The effect of age is consistently significant across all specifications. Specifically, a year increase in age increases the probability of owning a bank account by 1.2%, saving account ownership by 1.8%, credit account ownership by 1% and insurance products by 1.4%. The age-squared variable was included to capture the non-linear effects of age in the models. The age-squared results are significant and negative across all specifications indicating that the effects of age on financial inclusion increases with age but at a decreasing rate. According to Peña et al., 2014; Hoyos et al., 2013; Funguacava & Will, 2015, people become knowledgeable about the

various financial products and start using the financial services as they age. Results further shows that household size significantly reduces the probability of having a formal bank and saving accounts.

Table 4.3: Marginal effects of the determinants of financial inclusion

Variables	Bank Account	Saving account	Credit account	Insurance account
Household size	-0.007**	-0.008**	-0.000	-0.004
	(0.003)	(0.003)	(0.003)	(0.003)
Age of respondent	0.012***	0.018***	0.010***	0.014***
	(0.002)	(0.003)	(0.003)	(0.003)
Age squared	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Log on monthly income	0.060***	0.069***	0.060***	0.089***
	(0.007)	(0.008)	(0.006)	(0.008)
Individual reside in urban areas	0.055***	0.047**	0.036**	0.078***
	(0.020)	(0.022)	(0.017)	(0.021)
Individual is male	-0.024	-0.029	-0.035**	-0.025
	(0.018)	(0.020)	(0.016)	(0.019)
Participate in household finances	0.012	0.037*	0.008	0.028
	(0.019)	(0.021)	(0.017)	(0.021)
Financially literate	0.182***	0.214***	0.095***	0.135***
	(0.017)	(0.020)	(0.025)	(0.025)
Primary education	0.057**	0.059*	0.057	0.026
	(0.026)	(0.032)	(0.045)	(0.037)
Secondary education	0.208***	0.236***	0.151***	0.154***
	(0.026)	(0.031)	(0.042)	(0.035)
Tertiary education	0.279***	0.355***	0.218***	0.243***
	(0.061)	(0.058)	(0.046)	(0.046)
Widow/widower	-0.080**	-0.080**	-0.004	-0.021
	(0.035)	(0.040)	(0.036)	(0.038)
Married	-0.032	-0.006	0.021	0.026
	(0.022)	(0.025)	(0.020)	(0.024)
Distance to bank don't know	-0.025	-0.077	-0.053	0.040
	(0.045)	(0.056)	(0.070)	(0.059)
Distance to bank less than 1 hour	0.046**	0.045**	0.018	0.062***
	(0.019)	(0.021)	(0.020)	(0.022)
Observations	1,783	1,783	1,783	1,783

Notes: Significance *** 1%, ** 5%, * 10%, Robust standard errors in parentheses.

Education attainment has a positive and significant effect on financial inclusion. Interestingly, the effects increases with the level of education. For example, the probability of owning a bank account increases by 6% for those with primary education, 21% for those with secondary education and 28% for those with tertiary education relative to their counterparts with no formal education. This relationship is consistent across all measures of financial inclusion. The results are consistent with evidence from existing finding (Fungácová and Weill, 2015; Weillb et al., 2016; Tuesta, et al., 2015). Individual income is also an important and significant determinant of financial inclusion. The results suggest that a dollar (Namibian dollars) increase in income increases the probability owning a bank account by 6%, saving account by 7%, credit account by 6% and insurance account by 9%. Beaman et al. (2014) argues that being poor decreases the probability of being financially included. It has been found that financial exclusion is dominant amongst low income households from vulnerable communities (Bougheas, Mizen, & Yalcin, 2014). Generally, evidence suggest that income and education are associated with a higher usage of all formal financial products and services (Akudugu, 2014; Allen et al., 2016; Funguacava & Will, 2015; Tuesta, et al., 2015; Chithera & Selvam, 2013).

Interestingly, financial literate (measure by financial knowledge) has a positive and significant effect on financial inclusion. Specifically, being financially knowledgeable increases the probability of bank account ownership by 18%, saving account ownership by 21%, credit account ownership by 10% and insurance ownership by 14%. Distance to the nearest financial institution is also an important determinant of financial inclusion. If the distance to the nearest financial institution is less than one hour, the probability of owning a bank and saving account increases significantly by 5% and 6% for owning an insurance account. The results are supported by (Abel, Mutandwa, & Roux, 2018). Residing in urban areas has a positive and significant effect on the

probability of financial inclusion. The effects are significant across all measures of financial inclusion. The finding are also supported by Maio (2015), who found that it is challenging to have financial institutions or facilities in rural areas. Being married has no significant effect on financial inclusion but being a widow/widower reduces the probability of being financially included.

Table 4.4 presents regression estimates of the determinants of financial inclusion by gender. There are no major changes in the sign and significance of the estimates of the sub-samples. The results indicates that household size reduces the probability of males owning a bank and saving account significantly. The effects are insignificant for the female regression, implying that household size is important in explaining the gender gap in financial inclusion. Age is a positive and significant determinant of bank account and saving account ownership for both men and women, however, it is not a significant determinant of men ownership of credit and insurance account. The effect of income are significant across all specifications. However, the effects are higher among male than in female specifications. For example, an increase in income increases the probability of saving account ownership by 8% for the men and 7% for the women sub-samples.

Interestingly the estimates for financial literacy (financial knowledge) on financial inclusion are generally higher among women than among men. Hence, enhancing the financial knowledge of women can help close the gender gap in financial inclusion in countries where women are less financially included. The financial decision making and financial knowledge of women has been shown to be positively correlated with financial inclusion (Zamarro, 2012). Similarly, the effect of educational attainment is generally and significantly higher among women than among men. For instance, having some tertiary education increases the probability of owning a bank account by 16% for men and 42% for women and owning a saving account by 23% for men and 48% for women. The results are consistent when secondary education attainment is considered. Distance to

the financial institution and place of residence are equally important determinants of financial inclusion for both men and women.

Table 4.4 Marginal effects of the determinants of financial inclusion by gender

	Bank Account		Saving Account		Credit Account		Insurance Account	
Variables	Male	Female	Male	Female	Male	Female	Male	Female
Household size	-0.012***	-0.004	-0.010**	-0.006	-0.001	-0.001	-0.005	-0.004
	(0.004)	(0.004)	(0.005)	(0.004)	(0.005)	(0.004)	(0.005)	(0.005)
Age of respondent	0.010**	0.014***	0.015***	0.021***	0.005	0.012***	0.008	0.017***
	(0.004)	(0.003)	(0.005)	(0.003)	(0.005)	(0.004)	(0.005)	(0.003)
Age squared	-0.000	-0.000***	-0.000**	-0.000***	-0.000	-0.000***	-0.000	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log on monthly income	0.063***	0.058***	0.077***	0.065***	0.065***	0.059***	0.106***	0.082***
	(0.011)	(0.009)	(0.012)	(0.010)	(0.011)	(0.008)	(0.013)	(0.010)
Reside in an urban area	0.055*	0.065**	0.046	0.054*	0.038	0.035	0.062**	0.086***
	(0.031)	(0.025)	(0.033)	(0.029)	(0.027)	(0.024)	(0.032)	(0.027)
Make financial decisions	0.034	0.018	0.067**	0.003	0.012	0.006	0.024	0.029
	(0.029)	(0.025)	(0.032)	(0.029)	(0.027)	(0.024)	(0.032)	(0.027)
Financially literate	0.173***	0.189***	0.229***	0.206***	0.074**	0.109***	0.167***	0.114***
	(0.026)	(0.022)	(0.030)	(0.027)	(0.036)	(0.035)	(0.038)	(0.033)
Primary education	0.029	0.079**	0.038	0.077*	0.074	0.046	0.059	0.002
	(0.040)	(0.035)	(0.047)	(0.044)	(0.078)	(0.058)	(0.058)	(0.047)
Secondary education	0.165***	0.247***	0.183***	0.289***	0.174**	0.133**	0.164***	0.145***
	(0.040)	(0.034)	(0.046)	(0.042)	(0.074)	(0.054)	(0.056)	(0.046)
Tertiary education	0.156*	0.417***	0.229***	0.482***	0.217***	0.211***	0.156**	0.319***
	(0.081)	(0.109)	(0.080)	(0.088)	(0.080)	(0.060)	(0.073)	(0.061)
Widow/widower	-0.152**	-0.072*	-0.162**	-0.063	-0.016	0.004	-0.035	-0.018
	(0.070)	(0.041)	(0.079)	(0.047)	(0.073)	(0.042)	(0.077)	(0.044)
Married	0.030	-0.070**	0.027	-0.023	0.029	0.013	0.017	0.036
	(0.035)	(0.029)	(0.038)	(0.033)	(0.031)	(0.027)	(0.036)	(0.031)
Distance to bank don't know	-0.061	-0.010	-0.173	-0.040		-0.044	0.211**	-0.036
	(0.083)	(0.055)	(0.115)	(0.067)		(0.076)	(0.096)	(0.077)
Distance to bank less than 1 hour	0.070**	0.030	0.038	0.053*	0.049*	0.005	0.052	0.075**
	(0.028)	(0.025)	(0.032)	(0.029)	(0.030)	(0.027)	(0.033)	(0.029)
Observations	772	1,011	772	1,011	757	1,011	772	1,011

Notes: Significance *** 1%, ** 5%, * 10%, Robust standard errors in parentheses.

Table 4.5 presents the decomposition results of the female-male gap in financial inclusion. The gap is divided into the explained (*due to differences in observable characteristics*) and unexplained (*due to differences in coefficients and unobservable*). We consider the gap for each financial indicator separately to identify how well women and men are performing in the different indicators

of financial inclusion. Women perform better in three of the four indicators (bank account, saving account and credit account ownership) whereas men perform well in only one of the indicators. The results are generally more plausible for women than for men. For example, the average rate of bank account ownership is 76% for women and 74% for men. However, the differences are insignificant for all the indicators of financial inclusion.

Table 4.5: Estimates of female-male financial inclusion decomposition.

	Bank account	Saving account	Credit account	Insurance Acc
Predicted mean for female sub-sample	0.7577***	0.6340***	0.1682***	0.2997***
	(0.0135)	(0.0152)	(0.0118)	(0.0144)
Predicted mean for male sub-sample	0.7422***	0.6192***	0.1658***	0.3096***
	(0.0157)	(0.0175)	(0.0134)	(0.0166)
Total gap (female - male)	0.0154	0.0149	0.0023	-0.0099
	(0.0207)	(0.0201)	(0.0178)	(0.0220)
Total explained gap	0.0067	0.0061	-0.0067	-0.0070
	(0.0183)	(0.0134)	(0.0086)	(0.0121)
Percentage of explained gap	43.5%	41.0%	-291.3%	58.2%
Number of observations	**1,783**	**1,783**	**1,783**	**1,783**

Note: Robust standard errors in parentheses: level of significance: *** p<0.01, ** p<0.05, * p<0.1.

The overall female-male gap in bank account ownership is 0.015. The results reveal that about 44% of the gap can be explained by differences in the distribution of observable characteristics across the two groups (*unobservable factors explain 56% of the gap*). The female-male gap in saving account ownership is 0.015. Over 41% of the female-male gap in saving account ownership is due to differences in the distribution of their observable characteristics (*unobservable factors account for 59% of the observe gap*). The observed female-male gap in credit account ownership (0.0023) is mainly a result of unobservable factors since the contribution of observable factors is negative. Regarding differences in insurance account ownership, differences in the distribution of observable factors between women and men account for over 52.8% of the gap.

Table 4.6 presents the contribution of each covariate to the observed female-male gap in financial inclusion. The observe differences in educational attainment, financial knowledge and distance to the bank are important factors that contribute positively and significantly to the female-male gap in financial inclusion in Namibia. For instance, having some tertiary education account for 37.2% of the observed gap in bank account ownership, 76.1% of the observed gap in saving account ownership, 910.3% of the observed gap in credit account ownership and 76.4% of the observed gap in insurance account ownership.

Similarly, differences in distance to the bank account for 10.3% of the female-male gap in bank account ownership, 13.3% of the female-male gap in saving account ownership and 129.1% of the observed female-male gap in credit account ownership. Differences in financial knowledge account for 22.7% of the female-male gap in bank account ownership and 27.5% of the female-male gap in saving account ownership. Its contributions to credit and insurance account are generally negative. This results indicates that any policy action geared towards closing the financial inclusion gap of the disadvantage women should focus on enhancing their level of education, financial knowledge and access (proximity) to financial institution. However, the contribution of other factors like income, age, household size and marital status cannot be ignored.

Table 4.6: Detailed decomposition of the gender gap in financial inclusion

Variables	Bank Account		Saving account		Credit account		Insurance account	
	Explained	%	Explained	%		%	Explained	%
Household size	-0.010***	-64.7	-0.011***	-71.5	-0.001	-57.6	-0.006**	64.1
	(0.003)		(0.003)		(0.002)		(0.003)	
Age of respondent	0.039***	251.9	0.031***	212.2	-0.002	-89.2	-0.006***	60.7
	(0.005)		(0.003)		(0.001)		(0.002)	
Log on monthly income	-0.010***	-66.9	-0.011***	-77.3	-0.000***	-12.4	-0.023***	233.5
	(0.002)		(0.003)		(0.000)		(0.003)	
Individual reside in urban areas	-0.002***	-14.3	-0.002**	-12.4	-0.003***	-131.9	0.002***	-19.1
	(0.001)		(0.001)		(0.001)		(0.001)	
Make financial decision	0.001	4.9	0.002*	11.7	0.000	4.0	0.001	-13.8
	(0.001)		(0.001)		(0.001)		(0.001)	
Financially literate	0.003***	22.7	0.004***	27.5	-0.003***	-103.2	0.005***	-54.5
	(0.001)		(0.001)		(0.001)		(0.001)	
Primary education	-0.008***	-55.2	-0.014***	-97.6	-0.012	-494.5	-0.003	30.7
	(0.002)		(0.002)		(0.009)		(0.004)	
Secondary education	-0.003	-21.6	0.002*	16.3	-0.008***	-325.4	-0.008***	-192.4
	(0.002)		(0.001)		(0.001)		(0.002)	
Tertiary education	0.006**	37.2	0.011***	76.1	0.021**	910.3	0.019***	76.4
	(0.003)		(0.002)		(0.009)		(0.006)	
Widow/widower	-0.009**	-55.2	-0.007**	-49.5	0.000	16.3	-0.001	10.6
	(0.004)		(0.003)		(0.002)		(0.002)	
Married	-0.000	-3.0	-0.000	-0.9	-0.003***	-114.5	-0.003**	27.7
	(0.001)		(0.000)		(0.001)		(0.001)	
Distance to bank don't know	-0.000	-2.3	-0.001	-5.3	-0.000	-1.9	0.000	-3.3
	(0.001)		(0.001)		(0.000)		(0.001)	
Distance to bank less than 1 hour	0.002***	10.3	0.002**	13.3	0.003**	129.1	0.005***	-50.8
	(0.001)		(0.001)		(0.001)		(0.002)	
Total gender gap	**0.015**		**0.015**		**0.0023**		**-0.0099**	
Total Explained	**0.007**	**43.8**	**0.006**	**41.0**	**-0.0067**	**-291.3**	**-0.0170**	**58.2**
Observations	**1,783**		**1,783**		**1,783**		**1,783**	

CHAPTER FIVE: CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter concludes the study by providing a brief discussion on the determinants of financial inclusion in Namibia with particular focus on the analysis of the gender gap analysis. This section provides a conclusion of the study based on findings or results of regression and offers policy recommendation as well as highlighting the area for further study.

5.2 Conclusion

This study has investigated the determinants of financial inclusion with particular focus on the gender gap, in a country where women are generally more financially included than men. Financial inclusion is receiving more attention internationally, given its potential effects towards economic growth and development. In recognition of the importance of financial inclusion the government of Namibia has established a Namibia Financial Sector Strategy (NFSS) with the aim to reform the financial sector, ensuring an effective, stable, competitive, resilience financial sector that is accessible to the majority of the people by 2021 (Matongela, Albert, & Mutonga, 2014). This study used the probit model to analyse the determinants of financial inclusion and a Fairlie decomposition to identify what account for the gender gap in financial inclusion. Four indicators of financial inclusion including bank account ownership, savings account, credit account and insurance products ownership are analysed separately.

The results indicates that place of residence is an important determinant of bank accounts, formal saving, credit account and insurance account ownership. The level of financial inclusion is significantly higher among individuals that participate in household financial decisions. The level of education is an important determinant of financial inclusion, with tertiary education having the highest effect across all indicators of financial inclusion. Distance to the nearest financial institution is a significant determinant of the use of financial products. The probability of financial inclusion increases with age but at a decreasing rate. The relationship is consistent across all indicators of financial inclusion. Financial literacy measured by financial knowledge is an important and significant predictor of the probability of financial inclusion. An increase in monthly income has a positively and significant effect on the probability financial inclusion. Financial knowledge is a significant determinants of financial inclusion.

The decomposition analysis considered the contribution of each covariate to the observed female-male gap in financial inclusion. The observe differences in educational attainment, financial knowledge and distance to the bank are important factors that contribute positively and significantly to the female-male gap in financial inclusion in Namibia. For instance, having some tertiary education account for 37.2% of the observed gap in bank account ownership, 76.1% of the observed gap in saving account ownership, 910.3% of the observed gap in credit account ownership and 76.4% of the observed gap in insurance account ownership. Differences in distance to the bank account for 10.3% of the female-male gap in bank account ownership, 13.3% of the female-male gap in saving account ownership and 129.1% of the observed female-male gap in credit account ownership. Differences in financial knowledge account for 22.7% of the female-male gap in bank account ownership and 27.5% of the female-male gap in saving account ownership. This results

indicates that any policy action geared towards closing the financial inclusion gap of the disadvantage women should focus on enhancing their level of education, financial knowledge and access (proximity) to financial institution of the disadvantage female population will enhance their access to financial services. However, the contribution of other factors like income, age, household size and marital status cannot be ignored.

5.3 Recommendations

The findings broadly point to several potential policy implications. First, the determinants of financial inclusion suggest that individual characteristics are likely to influence the probability of financial inclusion. Thus, as most governments development financial inclusion strategies, it is important to note that the level of financial knowledge of individuals, their educational attainment, overall socioeconomic status as well as proximity to financial institutions are major drivers of people's decision and ability to use financial services. Therefore, devising ways of improving the socioeconomic status of individuals is a potential way of increasing the level of financial inclusion.

Second, the results confirm the existence of a gender gap in financial inclusion in favour of women in Namibia. While this is contrary to what is observed from many countries around the world, evidence from this study can be helpful for countries that are working towards reducing the gender gap in financial inclusion. The results suggest that ensuring formal educational attainment, financial knowledge and proximity to financial institutions to the disadvantage female population will enhance their access to financial services. The results also suggest that the contribution of other individual and household socioeconomic attributes to this gap cannot be completely ignored.

5.4 Area for further study

It is important to note that the limitations highlighted in this study (see Chapter one) do not undermine the contributions so derived, but solutions to such setbacks could only improve on the analysis. The results and limitations identified in the study point to the need for further research on the role of supply factors on female-male gap in financial inclusion in Namibia. They also point to the need for more robust measures of financial inclusion. To address these limitations, a more comprehensive dataset that contain information on supply side factors as well as detail information on all measures of financial inclusion are needed for the above suggested areas of research.

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