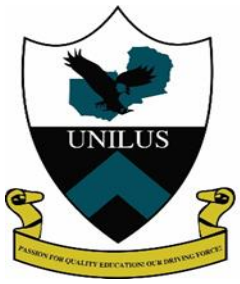

UNIVERSITY OF LUSAKA

SCHOOL OF POSTGRADUATE STUDIES

DETERMINANTS OF FEMALE LABOUR FORCE PARTICIPATION IN ZAMBIA: A CROSS-SECTIONAL ANALYSIS, 2022

A DISSERTATION SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES, UNIVERSITY OF LUSAKA IN PARTIAL FULFILMENT OF THE AWARD OF THE MASTER OF SCIENCE IN ECONOMICS AND FINANCE

BY

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JANUARY 2025

DECLARATION

I, Edgar Phiri, declare that this research report titled *"**Determinants of Female Labour Force Participation in Zambia: A Cross-Sectional Analysis, 2022**"* is my original work and has not been submitted for any degree or examination at any other university. I affirm that all sources of information and data used in this study have been duly acknowledged.

Signature: 

Date: 27/01/2025

Supervisor's name: VERONICA MTONGA

Signature:

Date: 20/03/2025

DEDICATION

This research is dedicated to the memory of my late father, Moses Donald Harrison Phiri whose teachings and wisdom continue to guide me, and to my beloved mother, Getrude Ngulube for her unconditional love and support. I also dedicate this work to my wife, Nalukui whose patience and encouragement have been my strength throughout this journey, and to my daughter, Getrude who inspires me to strive for a better future.

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I would also like to acknowledge the support of my colleagues and fellow students, whose feedback and camaraderie have been a great source of motivation.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

CSO	Central Statistical Office
HH	Household
FLFP	Female Labour Force Participation
LFS	Labour Force Survey
SDGs	Sustainable Development Goals
ILO	International Labour Organization
OECD	Organization for Economic Co-operation and Development
UDHS	Uganda Demographic Health Survey
UNDP	United Nations Development Program
USA	United States of America
ZamStats	Zambia Statistics Agency
ZDHS	Zambia Demographic Health Survey

ABSTRACT

Women represent nearly half (49.6%) of the global population but are significantly underrepresented in the labour force, with participation rates nearly 27% lower than men. In Zambia, the 2022 Labour Force Survey revealed that labour force participation was 43.8% for males and only 28.7% for females, despite government efforts to promote gender equality through policy frameworks and commitments like the Sustainable Development Goals (SDGs).

This study analysed the determinants of Female Labour Force Participation (FLFP) in Zambia using secondary data from the 2022 Labour Force Survey. Employing a logistic regression model, the research examined individual, household, and geographical factors influencing FLFP. Key variables included age, education, marital status, number of children, sex of the household head, household size, household income, rural/urban residence and province.

The findings revealed that age, education, and rural/urban residence positively influenced FLFP. Conversely, being married, widowed or living in a female-headed household reduced women's likelihood of labour force participation. Household income and size were not statistically significant, indicating that cultural and social factors might play a more significant role. Regional disparities were also observed, with participation rates varying across provinces.

This study underscores the importance of addressing gender disparities in employment to promote FLFP and ultimately inclusive economic growth. It contributes to the literature by providing empirical evidence on the determinants of FLFP in Zambia, offering valuable insights for policymakers aiming to enhance women's economic participation.

Keywords: Determinants of Female Labour Force Participation, Female Labour Force Participation, Gender Disparities, Inclusive Economic Growth, Logistic Regression Analysis, Regional Disparities and Zambia Labour Force Survey

CHAPTER 1

1.0 Introduction

Women represent nearly half (49.6%) of the global population, suggesting they could constitute nearly half of the labour force. However, the global participation rate of women in the labour force is considerably lower, falling almost 27% below that of men (ILO, 2024).

The participation of women in the labour market varies significantly across different regions. On average, around 50% of women worldwide are engaged in employment or are connected to the labour market (Shi, 2016). Women have the ability to contribute equally alongside men to the productivity of any economy. The active engagement of women in the labour force can ensure the productivity of each nation (ILO, 2018).

Economic and social progress is influenced by, among other factors, the effective utilisation of human resources. Female labour force participation (FLFP) plays a critical role in economic development by influencing the structure of occupations within each country (Abraham, Ohemeng & Ohemeng, 2017). In this context, the role of women in driving development is vital as their decisions impact not only their own future but also that of the broader community (Klaren, 1999). Women are integral to the labour force that produces the goods and services necessary for societal needs. It is not surprising that Mincer’s foundational study (1962) had focused on this topic. Women's participation in the labour market is recognised as a factor that enhances household income and supplies much needed labour for productive activities in many developing countries (Chowdhury, 2017). Additionally, there is empirical evidence indicating a rise in women's involvement in modern industrial sectors.

There is a compelling need to incorporate women into economic activities. Achieving this integration supports the attainment of the Sustainable Development Goals (SDGs) which advocate for inclusivity, equity and equality.

These goals are accomplished through the enactment of laws that combat gender discrimination and bias related to marital status, pregnancy, race and sexual orientation, thus guaranteeing fair and just treatment of female employees globally. In recent years, there has been a significant increase in female participation in the labour force, particularly in countries like the United States and those in the Nordic region (OECD Economics Department, 2018).

However, despite these efforts and successes, various surveys indicate that actual participation rates still fall short of expectations, notably in developing countries (Klasen, 2019). For example, the World Development Indicator Report (2020) reveals a significant gap between the labour force participation rates of men and women in sub-Saharan Africa from 1991 to 2019. Within the sub-Saharan African labour market, males continue to significantly dominate females, with a mean of 61.2 for female workers compared to 75.5 for male workers.

A number of women continue to face challenges in attaining leadership roles and encounter difficulties with maternal responsibilities and family compromises. Some researchers suggest that the disparities in the labour force participation are not solely gender-related, but rather stem from women's disproportionate obligations regarding childbearing and upbringing, combined with lower educational attainment particularly in developing countries (Klasen, 2019).

Zambia, a developing country in sub-Saharan Africa has experienced a decline in female participation in the labour force. The Zambia Statistics Agency (ZamStats) provides insights into the trends of women's labour force participation in Zambia in comparison to men, based on Labour Force Surveys conducted between 2008 and 2022.

Figure 1.1 shows that between 2008 and 2014 the labour force participation of women increased steadily, while that of men decreased. Between 2014 and 2017, the labour force participation rate declined for both sexes. The decline in labour force participation not only reduced overall female labour force participation but also widened the gap between male and female participation rates. This divergence was attributed to economic challenges such as slowed GDP growth, declining copper prices and job losses in key sectors, which disproportionately affected women due to their higher concentration in vulnerable employment (World Bank, 2017). Additionally, persistent gender norms, limited childcare support and rising informality further restricted women's economic participation relative to men, exacerbating gender disparities in the labour market (Chigunta & Matenga, 2016).

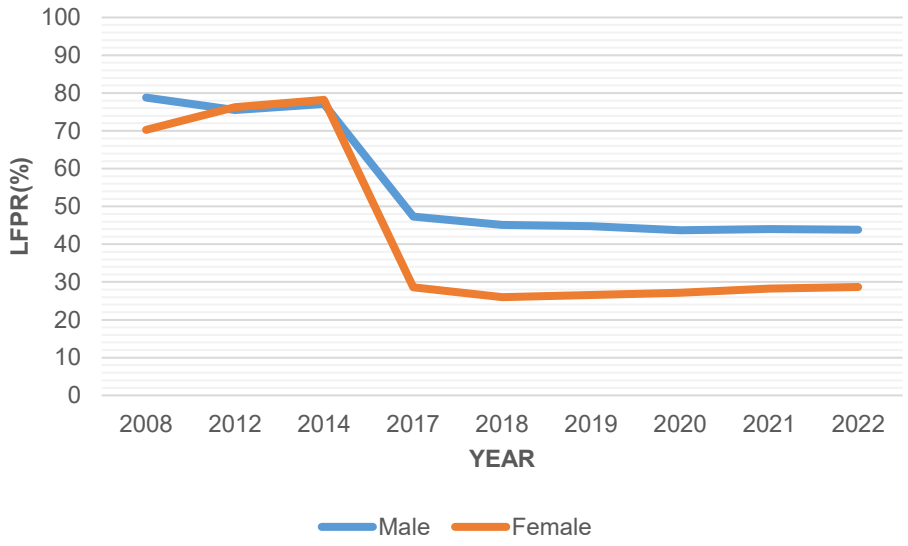

Figure 1.1 Labour Force Participation in Zambia; trends from 2008 to 2022

Source; ZamStats, Zambia Labour Force Surveys, 2008-2022

Following the United Nations General Assembly (UNGA) declaration of the SDGs in 2015, it has become an international phenomenon that both men and women have equal access to decent jobs. Decent jobs require workers to have or be entitled to social security coverage and a contract in addition to annual paid leave (ZamStats, 2022).

Most women in Zambia have no formal employment. They are in the informal sector, where privileges that come with decent jobs are absent. As a result, most of their jobs and businesses contribute less to economic growth and ultimately national development.

Figure 1.2 shows that more men are employed in both the formal and informal sectors as compared to women.

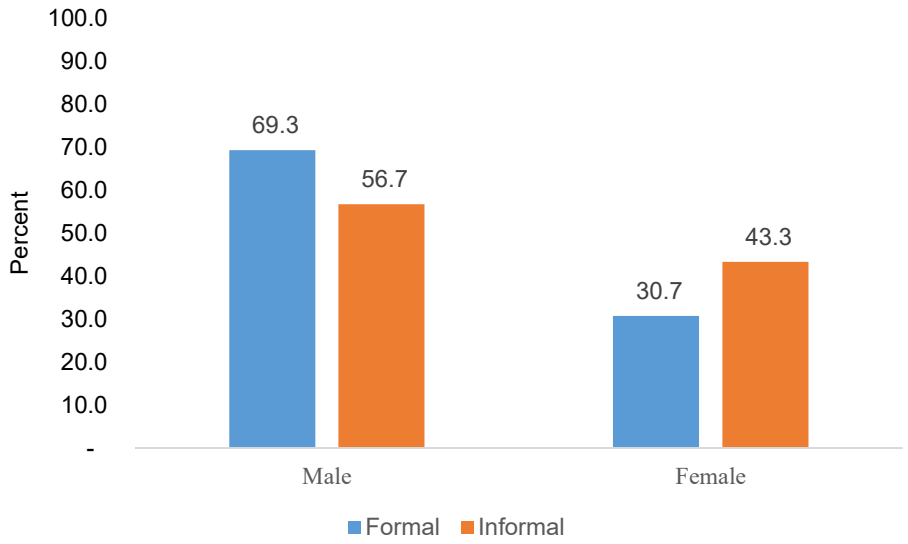

Figure 1.2 Distribution of men and women in formal and informal employment.

Source; ZamStats, Zambia Labour Force Survey, 2022

Therefore, it is important to understand how the Zambian labour market can attract female labour participation. This calls for the need to assess what is causing low female participation in the labour market and what can be done to improve the situation.

1.1 Statement of the problem

Globally, governments focus on creating a balanced and conducive environment in the labour market. To achieve this, successive governments in various countries strive to promote gender equality. The promotion of gender equality rights in Zambia has existed since 1997. Efforts were recently stepped up when the Zambian Parliament enacted legislation establishing the Gender Equality and Equity Commission (National Assembly Proceedings, 2015). This piece of legislation seeks to prevent any form of gender discrimination, including the right to access all employment opportunities.

Although the government is making more efforts to promote gender equality through various labour market policy frameworks and international commitments such as SDGs, women are still underrepresented in many economic activities (Compendium of Statistics, 2019).

Many countries have embarked on carrying out empirical studies on women's labour force participation. However, a number of factors affecting labour market outcomes are not consistent across countries, thus leading to variations in labour force participation rates among countries.

While national surveys on the labour force in Zambia have documented its magnitude and contribution to the national economy, very few econometric and/or empirical studies have been conducted. As a result, any government policy aimed at the labour market may not be based on well-researched information.

Therefore, more research needs to be conducted to examine the factors that determine female labour force participation in Zambia.

1.2 Significance of the study

The study has the potential to inform policy interventions aimed at boosting FLFP in Zambia. Promoting gender equality in the labour market is crucial for national development, as it leads to improved household incomes, poverty reduction and sustainable economic growth.

Understanding the factors influencing FLFP is particularly critical in Zambia, where female participation in the labour market remains lower than males, despite the country's commitment to achieving gender parity in employment. This study's findings would guide the development of targeted interventions to address the specific barriers women face.

For instance, if the study identifies education as a key determinant of FLFP, policymakers could prioritize policies that enhance women's access to education, particularly in rural areas. Similarly, if household responsibilities are found to hinder female labour force participation, interventions such as providing affordable childcare services and flexible work arrangements could be considered.

Furthermore, this study could make valuable contribution to the academic literature on gender and employment in developing countries. While extensive research exists on FLFP in developed economies, fewer studies have focused on the unique socio-economic and cultural factors shaping women's employment decisions in low-income countries like Zambia. By providing context-specific insights into the determinants of FLFP in Zambia, this study would address a critical gap in the literature and offer valuable lessons for other countries grappling with similar challenges.

1.3 General objective

To analyze the determinants of female labour force participation in Zambia.

1.3.1 Specific objectives

The following are the specific objectives for this study;

- To analyse the effect of individual factors (such as age, level of education and marital status) on female labour force participation in Zambia.
- To analyse the effect of household factors (such as presence of under six children, household size, household income and sex of household head) on female labour force participation in Zambia.
- To analyse the impact of geographical location factors (such as rural/urban residence and province) on female labour force participation in Zambia.

1.3.2 Hypotheses

- Individual factors such as age, level of education and marital status have an effect on female labour force participation in Zambia.
- Household factors such as presence of under six children, household size, household income and sex of household head have an effect on female labour force participation in Zambia.
- Geographical location factors such as rural/urban residence and province have an effect on female labour force participation in Zambia.

1.4 Scope of the study

Empirical studies show that variables such as educational attainment, fertility, age and other factors affect women's labour force participation. However, their effects are not uniform among researchers. Some show a positive association like the case of Steels (1992) on fertility and labour force participation, while others show a negative effect like Arends (1992). The study only examined the impact of these factors on the Zambian female labour market. The geographic and economic environment of Zambia differs from

other countries where other empirical studies have been conducted and due to such factors, the results of this study could be different.

1.5 Definition of key terms and concepts

Population: denotes the complete number of individuals of both sexes and all age groups within a specific geographical area at a particular time

Working-age population: refers to all individuals aged 15 and above, although the age ranges may differ from one country to another.

Own account workers/employers: refer to individuals who are self-employed or work with one or a few partners and have hired one or more individuals to assist them in their business as employees.

Self-employment: pertains to individuals operating on their own, running their businesses regardless of whether they employ others.

Contributing family workers: refers to individuals who work unpaid in a family-run business.

Employed Population: refers the total number of individuals who have a paying job, whether in cash or kind, are self-employed or engaged in contributing family work.

Unemployed population: refers to all individuals who are part of the labour force but are completely without work and are actively seeking employment during a specified reference period.

Labour force: refers to the working-age population which is either employed or unemployed at a particular time.

Labour force participation rate: measures the proportion of the labour force compared to the working-age population expressed as a percentage. It reflects how much of the working-age population is actively participating in the labour market either through employment or by seeking and being available for work.

Formal employment: refers to employment types in which workers are granted social security benefits, contractual agreements, paid leave, or other entitlements including legal registration.

Informal employment: refers to a type of employment marked by the absence of entitlements to annual paid leave and social security. This employment can exist in both formal and informal sector production units.

[2022 Zambia Labour Force Survey Report]

1.6 Organisation of the report

The report is structured into six chapters:

Chapter 1: Introduction – This chapter presents the background, problem statement, research objectives, research hypotheses and the significance of the study. It establishes the context for the following analysis of FLFP in Zambia.

Chapter 2: Literature review – The literature review offers a summary of the main theoretical frameworks and empirical research related to FLFP. It emphasizes the factors frequently linked to FLFP, such as education, household dynamics and regional variations. This chapter also points out gaps in the current literature that this study seeks to fill.

Chapter 3: Methodology – In this chapter, the research design and methodology applied in the study are described. It covers data sources, sample selection, variables and the

analytical framework. Additionally, the chapter details the statistical methods used to analyse the determinants of FLFP in Zambia.

Chapter 4: Presentation and analysis of findings – This chapter showcases the outcomes of the logistic regression analysis employed to evaluate the factors influencing FLFP. Descriptive statistics are included along with an in-depth interpretation of the marginal effects and their significance for FLFP.

Chapter 5: Discussion of findings – This chapter situates the results within the larger context of FLFP literature. It examines the implications of the findings for policymakers and suggests potential interventions to enhance women's participation in the labour market.

Chapter 6: Conclusion and Recommendations – The concluding chapter reviews the main findings of the study and provides policy recommendations based on these results. It also proposes possible directions for future research on FLFP in Zambia.

CHAPTER 2: Literature review

2.0 Introduction

The literature on female labour force participation (FLFP) is vast and multifaceted, spanning disciplines such as economics, sociology and gender studies. This chapter provides a review of the key theoretical frameworks, empirical studies and factors that have been identified as significant in explaining FLFP globally and in the context of developing countries, including Zambia. The chapter is broken down into two: Theoretical and Empirical literature.

2.1. Theoretical literature

The FLFP theoretical framework essentially reflects the female's choice to either participate in the labour market or not. Economists have attempted to explain women's propensity to choose one choice over another by analysing the impact of certain demographic and socio-economic factors that are believed to affect women's tendency to participate in the labour market or not. Most theories used to analyse women's labour supply emerged in the 1960s. These include Mincer's Work-Leisure Choice Theory, Mincer-Becker's Household Production Theory, Schultz-Becker's Human Capital Theory and the Modigliani-Brumberg's Life-Cycle Hypothesis.

The simplest analysis of women's choices goes to Mincer (1962) and the neoclassical microeconomic model known as **Work-Leisure Choice Model** that assumes that households as suppliers of labour in an economy are rational and seek to maximize utility by deciding how much time to allocate on work and on leisure. According to Mincer's study of labour supply, how individuals manage their time depends on choices between work and leisure in response to wage changes (Mincer, 1962). He further points out that (married) women's labour market participation should not be interpreted solely in terms of the division of time between labour market work and leisure, since work at home is another activity to which women, on average devote their married life. Therefore, married

women are faced with three choices, that is, leisure, work at home and work in the labour market.

The increasing trend towards women's participation in the labour market in both developed and developing countries has stimulated both social and academic interest, leading to many insightful studies on gender aspects of labour market outcomes. Other theoretical paradigms have been set up to explain the changing patterns of female labour force participation in developing countries. Am (1991) categorises the literature into two perspectives, namely modernization and world-system perspectives.

Modernization Theory

According to modernization theorists, economic development is positively associated with FLFP through a change in the country's occupational structure (i.e. the increasing availability of service and white-collar jobs) and increased educational opportunities, often accompanied by reduced fertility rates and household responsibilities. The modernisation process is associated with increased demand for labour, a general social acceptance of women's education and employment as well as lower fertility (Standing, 1978; Heckman, 1980).

The relationship between education and female labour force participation has been summarized by Standing (1999) under three hypotheses: The opportunity cost hypothesis, the relative employment opportunity hypothesis and the aspiration hypothesis.

First, the opportunity cost hypothesis describes a positive relationship between educational investments and earnings potential. It stresses that education raises the opportunity cost of economic activity thereby giving an individual a positive incentive to seek employment (Bowen and Finnegan, 1969).Second, the relative employment opportunity hypothesis posits that employers usually tend to have a positive bias towards a qualified female workforce rather than older male workers whose educational qualifications increase their employment options (Long, 1958; Oppenheimer,

1970).Lastly, the aspiration hypothesis is based on the human capital hypothesis which suggests that women with higher levels of education are more likely to participate in the labour market. From this viewpoint, the aspirations and expectations of people are strongly determined by levels of education. More educated women are expected to have higher income aspirations over their less educated counterparts and therefore tend to be more active in the labour market (Cain, 1966).

Recent literature supports the Modernisation Theory:

- Al Ghanboosi and Osman (2020) examined FLFP in Oman, finding that urbanization and educational attainment significantly influence women's participation in the workforce. The study highlights the role of modernization processes in enhancing FLFP.
- Ortiz-Ospina and Tzvetkova (2017) demonstrated a global trend of rising FLFP rates over the last few decades attributed to economic development and structural changes.

World System Perspective Theory

The world system perspective, in contrast, interprets the growing participation of the labour force through the lense of traditional comparative advantage in international trade theory. According to the Stolper-Samuelson theorem (Stolper & Samuelson, 1941), the liberalisation of global trade is expected to increase the demand for unskilled labor in developing nations. This is because developing countries are generally better suited to produce goods that require unskilled labour suggesting that international trade in these regions should boost both the demand for and the relative earnings of abundant unskilled labour (Kruger, 1983). Given that a larger proportion of unskilled labourers are female and female labour typically costs less than male labour, industries that rely on intensive labour are primarily staffed by women, especially those who are young and unmarried (Grossman, 1979).

Recent literature has emphasised this point:

• Anyanwu and Augustine (2022) discovered that participation in global markets has enhanced FLFP in sub-Saharan Africa, especially within export-driven sectors.

Human Capital and Neoclassical Theory

The human capital theory highlights the critical role of education and training as vital components for participating in the contemporary global economy. Education is increasingly recognised as an essential element affecting economic performance and fostering technological progress and innovation (Fitzsimons, 2014). Complementing the human capital theory, neoclassical theory suggests that greater investments in human capital and a higher participation rate of women in the labour force are associated with reduced fertility rates.

However, the relationship between FLFP and fertility can manifest through various complex pathways, as these two factors can influence each other. Studies exploring the link between women's employment and fertility have drawn from the maternal role incompatibility hypothesis which argues that a negative association between a woman's job and her fertility occurs only when the roles of working and parenting are in conflict (Goldstein, 1972). This hypothesis indicates that a negative relationship between female employment and fertility arises solely when these roles vie for time; otherwise, one could expect either no distinct relationship or a possibly positive connection between employment and fertility.

Recent findings include:

- Oliveira et al. (2023) investigated how digital skills and advanced education impact female labour force participation in BRICS nations, concluding that education continues to be a significant factor driving women's engagement in the economy
- The World Bank (2023) underscored the necessity of gender-responsive policies, such as access to childcare in promoting female labour force participation.

Life-Cycle Hypothesis (LCH)

The Life-Cycle Hypothesis, formulated by Franco Modigliani and Richard Brumberg in 1954 is a key economic concept that describes how individuals strategise their consumption, savings and income across various phases of life to maintain consistent consumption levels over time. The theory posits that people strive to equate their consumption with their savings throughout their lifetime, accumulating savings during their employment years and relying on these funds once they retire. It has been extensively used in research concerning household behaviour, particularly in examining savings trends and retirement planning.

Although its main emphasis is on saving and consumption habits, the LCH also has wider repercussions for the analysis of labour market trends, including the participation of women in the workforce. It offers a framework for investigating how labour force engagement changes at different life stages as individuals move from education to employment, then to familial duties and ultimately to retirement.

Recent studies, such as those by Goldin and Mitchell (2023) have examined how caregiving obligations and parental leave policies influence female labour force participation at various life stages revealing that adaptable work options greatly aid women's ongoing participation in the labour force.

2.2 Empirical review

Labour force participation studies in developing countries have tried to translate the general propositions of labour force participation in developed countries into models for empirical work. Measurable variables have been formulated to reflect the determinants of labour force participation by considering a combination of characteristics such as age, sex, level of education, marital status, presence of young children, sex of household head household income, household size and geographical location.

A study by Lari et al (2022) in Qatar examined the determinants of female labour force participation. It focused on individual and household-level factors like age, education, marital status, household income and the presence of children to ascertain their influence on women's participation in the labour force using the logistic regression model. Key findings highlighted that higher levels of education are positively correlated with increased labour force participation as educated women are more likely to seek and secure employment opportunities. Age was another crucial factor, with participation rates varying across different age groups, suggesting that younger women might face different barriers compared to older cohorts. Marital status was also found to play a significant role; for instance, married women often face challenges that can reduce their likelihood of participating in the labour force compared to unmarried women. Additionally, household factors like the number of young children were found to decrease a woman's availability for work outside home.

Chattopadhyay and Chowdhury (2022), in their study in India used the logistic regression model as well to analyse the determinants of female labour participation and found that women from higher income classes are less likely to participate in the labour force. They suggested that as household income increases, the economic need for women to participate in the labour market decreases resulting in lower participation rates among women from wealthier households. The findings imply that economic necessity is a key driver of female labour force participation, and when household income is sufficient, the urgency for women to engage in paid employment diminishes.

Klasen et al. (2019) in their study showed that education is a key determinant of labour force participation, not just for females but also for males. They argue that theoretically, the higher the educational attainment the better the labour market outcomes. They further argue that higher levels of education increase the opportunity cost of not entering the labour market, as higher education corresponds to higher potential earnings. Schooling also affects labour market participation indirectly as it raises the age of marriage and age at first birth, allowing women to develop stronger ties to the labour market.

A World Bank study conducted in Latin America in 2019 utilised the probit model revealing that as women age, their likelihood of engaging in the labour market diminishes, although it still remains relatively high even among older individuals. Furthermore, Coffman et al. (2019) in their research classified age into various subgroups and discovered a positive correlation between age and declining labour force participation rates. Their findings indicated that women have higher participation rates between the ages of 24 to 28 and again between 39 and 43.On the other hand, younger and older women exhibited lower rates of participation.

Saheen and Masoon (2019) undertook a study in South Asia and focused on examining the factors that significantly affect women's choices to enter the labour market. By employing the logistic regression model, the research highlighted the impact of socio-demographic factors, including geographical setting (urban versus rural), marital status, educational level and family size on female labour market outcomes. Among the primary conclusions, the research indicated that women residing in urban areas were more inclined to participate in the labour force than their rural peers. This was ascribed to the improved employment prospects and less rigid gender norms prevalent in urban environments.

The findings also revealed that marital status significantly influenced participation rates, with married women being less likely to engage compared to those who had never been married reflecting traditional gender roles and caregiving duties. Additionally, higher educational qualifications were positively linked to participation in the labour market. Women with secondary or post-secondary education demonstrated a greater propensity to work implying that education empowers women and enhances their job prospects. Lastly, the analysis showed that larger family units negatively impacted women's involvement in the labour market as increased household duties often restricted their ability to pursue paid employment.

Psacharopoulos and Tzannatos (2019) assessed global patterns in female labour force participation. Their review indicated that in addition to educational attainment, several other factors affect women's participation in the labour market across countries such as age, marital status, geographic location, household leadership and household size. Using

the logit model, their analysis confirmed that age, marital status, female-headed households and geographical location positively influenced women's labour market engagement. In contrast, within male-headed households, female participation in the labour force was found to be lower than that of males as females often took on traditional roles related to household responsibilities. Furthermore, the review demonstrated that household size negatively impacted women's labour market participation. However, contrary to a 1992 study by Steels the analysis found a positive effect of age on women's labour force participation.

Verick & Lutz (2019) employed a panel data regression model to investigate the factors influencing FLFP across various regions in the Middle East and North Africa (MENA). Their research explored the regional variations in FLFP within the MENA area, emphasizing how economic development and cultural norms differ across countries and regions within those countries. The findings indicated that differences in economic structures and cultural barriers lead to notable discrepancies in FLFP. Regions that are reliant on oil-based economies typically exhibit lower participation rates due to limited job opportunities for women beyond domestic roles. Additionally, urban areas which offer better educational and employment prospects demonstrated higher participation rates among women in contrast to more traditional rural regions, where social norms often impose stricter limitations. The study also highlighted that regional infrastructure improvements such as access to transportation and safe working conditions contributed to increased female participation.

Gasparini and Marchionni (2017) analysed labour market dynamics in Latin America and the Caribbean as well as East Asia. They determined that the relationship between labour force participation and fertility choices is significant and thus should be evaluated concurrently. To approach this, probit and multinomial models were developed and analysed. The results illustrated a negative relationship between education and fertility rates, along with a positive correlation between education and smaller family size. However, their studies did not explore how certain household factors such as asset ownership could influence labour force participation across various educational levels.

Farzana, A., et al. (2017) investigated how both their own education and that of their husbands impacted the labour force participation of married women in India, focusing on employment in wage labour, self-employment and overall labour market participation. The research confirmed that a woman's own education positively affects her participation in the labour force while her husband's education also plays a significant role in supporting married women's labour force participation. They employed a linear probability regression model to analyse three labour supply functions regarding FLFP. The results indicated that both personal education and that of husbands at all educational tiers positively influence labour force participation. Additionally, another study by Farzana, A., et al. (2017) identified factors such as marriage, number of children and being a female head of the household as negative influences on women's labour market participation.

Mehak (2017) explored the primary determinants of female labour force participation in Pakistan, particularly focusing on rural and urban settings. He used the logit model to identify factors influencing female participation in the labour market. The analysis was based on data from the 2016 Pakistan Social and Living Standards Measurement Survey (PSLM), which assesses the individual and household characteristics of women aged 15-49. Findings from the research indicated that both age and educational attainment have significant and positive effects on female labour force participation, while marital status was found to have the opposite effect. Moreover, the results indicated that women from nuclear families and those possessing various household assets were more inclined to engage in the labour force, whereas those with a higher number of children tended to be less involved.

Brenke (2015) conducted an analysis of the German labour market to assess the extent to which female participation was associated with education levels and family policies. His research revealed that women with greater educational qualifications were more likely to engage in the labour force. The study also highlighted that supportive family policies, including parental leave and subsidised childcare were essential for enabling women to juggle work and family commitments. The results demonstrated a significant positive influence of education and supportive family policies on labour force participation.

Verick (2014) conducted a study on the factors affecting female labour force participation in developing nations. One of the key findings reveals how household income impacts female labour force participation in various ways. He notes that in many middle-income and high-income countries, an increase in household income results in higher FLFP as families can invest in better education and childcare allowing women to enter the labour market. This phenomenon is attributed to the "income effect," which posits that greater financial resources enable women's participation.

Nazier and Ramadan (2018) used the probit model to explore both household and individual factors influencing female labour force participation in Egypt. Their research concluded that education is a primary factor influencing FLFP. Additionally, they identified marital status and regional differences as notable determinants of FLFP. Their findings suggested that women with higher education levels in urban areas were more likely to find employment, while those in rural settings encountered significant obstacles.

Yakubo (2018) examined female labour force participation in South Africa. Changes in the labour force were explained through human capital theory, which suggests a positive relationship between women's education and their participation in the labour force. The study established a positive relationship between the level of educational attainment and FLFP.The findings indicated that the greater the level of education the more job opportunities women in South Africa access in the labour market.

Abraham et al. (2017) studied the elements that influence FLFP and how these aspects affect their choices between formal and informal employment sectors in Ghana. This research used data from the Ghanaian Census of Population and Housing and uncovered that both marital status and education are significant factors affecting FLFP.The outcomes of the estimated multinomial logit model indicated that women with higher educational qualifications (degrees and diplomas) are more inclined to be engaged in formal wage employment in Ghana, whereas married women were less likely to be in wage employment due to various reasons frequently tied to cultural norms, household obligations, economic factors and structural hurdles in the job market.

A research study conducted in Cameroon by Ngeh (2016) examining the factors influencing FLFP and sectoral selections using a multinomial logit model revealed that women who have completed tertiary education and live in urban areas are more likely to engage in the labour market. In Nigeria, Iweagu et al. (2015) explored women's involvement in various job sectors with respect to urban and rural regions. They discovered that variables such as marital status, religion, poverty levels and per capita income significantly influence female participation in rural areas, whereas age and literacy rates are the primary factors in urban areas.

Viljeon and Dunga (2015) investigated the demographic and socio-economic factors affecting FLFP in South Africa through a logistic regression model. Their findings emphasised that economic necessity, education and urbanisation positively impact women's involvement in the labour market. Additionally, they found that divorced and separated women positively contributed to FLFP. However, their research indicated that larger household sizes may lead to decreased participation in the labour force.

In 2016, Chikumbe Sankwa conducted a study on the factors influencing FLFP in Zambia. The research utilised the logit model to analyse secondary data from the 2014 Zambia Demographic and Health Survey. Among the key outcomes, Sankwa identified that education significantly influences FLFP in Zambia. Women with higher educational attainment (secondary and tertiary) were notably more likely to be part of the labour force compared to those with lesser education levels. The findings imply that education improves women's skills and employment prospects making them more competitive in formal job markets in contrast to less educated women who often occupy informal jobs. The research also indicated a positive relationship between age and FLFP. However, factors such as the presence of young children, household size and ownership of household assets were negatively related with FLFP. In terms of religion, it was found that Catholic women were less likely to engage in the labour market compared to those from other religious backgrounds.

2.3 Gaps in the literature

Although the existing body of research offers significant insights into the factors influencing FLFP, there are still several outstanding gaps. Firstly, a majority of studies concentrate on developed countries with comparatively fewer investigations addressing the distinct challenges that women encounter in developing countries. Secondly, while education is repeatedly recognised as a crucial factor in FLFP, there has been less focus on how the quality of education as opposed to merely the number of years of schooling impacts women's employment results. Finally, there is need for more detailed research that explores how overlapping factors such as marital status, family dynamics and regional differences affect FLFP in particular contexts such as Zambia.

2.4 Conclusion

Empirical research clearly indicates that factors like age, education level, marital status, household size, income and geographical location among other variables influence women's participation in the labour force. Scholars appear to agree on the factors that impact female labour participation based on the reviewed literature. However, the effect of these variables on FLFP varies among researchers with some finding a positive relationship while others finding otherwise.

Although much of the global literature can apply to Zambia, there is need for research tailored to the local context that addresses the specific socio-economic and cultural aspects influencing FLFP in Zambia. Consequently, this study examined how these factors affect the Zambian labour market. Zambia’s geographical and economic context differs from that of other countries where similar empirical studies were carried out suggesting that the outcomes of this research may be different.

2.5 Conceptual framework

A crucial instrument for visualising the research is the conceptual framework. This framework helps narrow down the relevant data by concentrating on particular variables and outlining the specific perspective that the researcher will adopt for analysing and interpreting the data collected. Figure 2.1 illustrates the conceptual framework for the research.

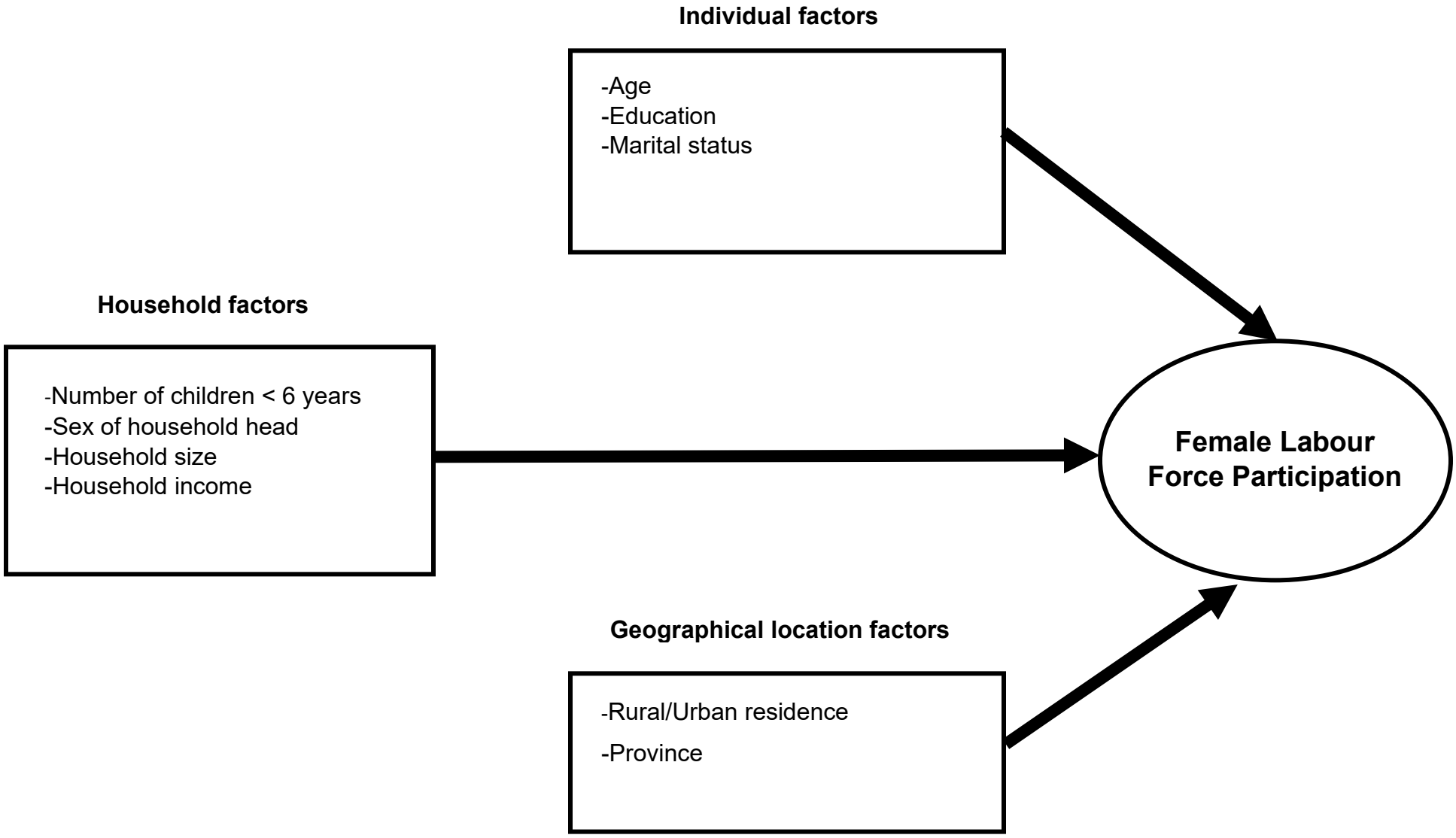

Figure 2.1 Conceptual Framework

CHAPTER 3: Methodology

3.0 Introduction

This chapter outlines the methodology employed in this study to investigate the determinants of female labour force participation (FLFP) in Zambia. The research design, data collection methods, sampling techniques and analytical procedures are discussed in detail. By providing a clear and systematic approach, this chapter aims to ensure the study's reliability, validity and generalisability.

3.1. Research design

The research employed a non-experimental descriptive quantitative research design. It is non-experimental because it utilised secondary data obtained from the 2022 Labour Force Survey (LFS) conducted by ZamStats. The primary motivation for utilising this dataset is that the LFS is representative of the national population and gathers data on labour force participation and employment among other variables.

The study adopted a cross-sectional approach due to data availability constraints and the specific research objectives. While time series data on FLFP rates are available from sources such as the International Labour Organization (ILO), they primarily offer aggregate trends rather than detailed individual, household and geographical-level determinants necessary for this analysis (ILO, 2022).

The choice of a cross-sectional study was driven by the need to analyse the determinants of FLFP using micro-level data from the 2022 Zambia Labour Force Survey. This dataset provides rich demographic, economic and social variables, allowing for a more detailed exploration of individual, household and geographical characteristics affecting women’s labour market participation (CSO, 2022). A time series study, while useful for identifying long-term trends, would not capture these intricate relationships at a given point in time.

3.2. Sample design

The study analysed about 14,000 units of women, comprising a complete enumeration of all the female respondents aged at least 15 years from the 2022 Labour Force

Survey. A large sample has an advantage of making reliable and valid generalisations since it is a better representation of the whole population. This sample of respondents is in line with international standards and the ILO definition of economically active people (Zambia Labour Force Survey Report, 2022).

3.3. Data analysis

Data analysis was conducted using STATA version 14.2. The study employed descriptive statistics in the form of tables and figures to provide a quick overview of the relationships between and among the variables. Econometric analysis utilised a logistic regression model to examine the factors influencing FLFP. This model is ideal as logistic regression is deemed more suitable for a binary dependent variable, that is, one which takes on one of two values indicating the presence or absence of a particular attribute of interest.

3.4 Ethical considerations

In carrying out this study into the determinants of female labour force participation in Zambia, secondary data from the 2022 Labour Force Survey (LFS) was used and a number of ethical considerations were taken into account to uphold the integrity of the research process and to honour the individuals represented in the data. Ethical approval was granted by the University of Lusaka-Research Ethics Committee after addressing the key ethical considerations outlined below:

1. **Informed consent**

   Given that this study relied on secondary data, direct informed consent from the participants was not necessary. Nonetheless, it was crucial to verify that the original data collection complied with ethical standards concerning informed consent. The Zambia LFS, carried out by ZamStats ensured that participants were aware of the usage of their data. The voluntary nature of their involvement was emphasised, confirming that they consented willingly to participate in the data collection. By utilising a nationally conducted and ethically sanctioned dataset, this research presumed that the essential ethical protocols were followed during the initial data gathering.

2. **Data confidentiality and privacy**

Although the data is anonymised, safeguarding the confidentiality and privacy of the individuals is of utmost importance. The dataset used in this study includes demographic and employment-related information that could be sensitive if not properly managed. All necessary measures were implemented to ensure that personal identifiers remain obscured with no efforts made to re-identify individuals. Furthermore, findings were reported in an aggregate form to guarantee that no specific individual or group could be identified. Proper precautions were taken to securely manage the data and to guard against unauthorised access or misappropriation.

3**. Responsible data use**

The Zambia Labour Force Survey data was utilised exclusively for the research on FLFP. Any use beyond the allowed academic research scope was avoided to ensure adherence to the data access terms. This included maintaining confidentiality, refraining from sharing the data with unauthorised individuals and using it solely for scholarly purposes. The data was handled with care and integrity, ensuring that the conclusions drawn from the analysis were based on an accurate and objective representation.

4. **Data accuracy and integrity**

Ensuring the integrity of the data was a primary ethical responsibility in this research. All modifications, calculations or analyses performed on the data were carefully recorded and executed in a manner that preserved the accuracy of the original data. The research acknowledged all known limitations of the dataset such as potential biases resulting from the sampling method or data collection procedures. These limitations were transparently discussed to prevent drawing misleading conclusions.

5. **Cultural sensitivity and respect**

This research recognised the significance of cultural sensitivity when investigating FLFP. Elements such as gender roles, societal norms, and economic conditions are deeply entrenched in the Zambian context. Therefore, caution was exercised to avoid broad generalisations and instead focused on the specific dynamics at play.

The interpretation and presentation of results demonstrated an understanding of the socio-cultural context, steering clear of stereotypes or conclusions that could marginalise or stigmatise certain groups particularly women from vulnerable or disadvantaged backgrounds.

6. **Transparency and accountability**

To uphold the highest levels of transparency, all components of the research process, including data management, analysis and reporting have been meticulously recorded. This allows for the methodology to be reviewed and replicated by other researchers. Additionally, any potential biases or conflicts of interest are openly recognised, ensuring accountability throughout the research process.

By addressing these ethical considerations, this research seeks to contribute responsibly to the understanding of FLFP in Zambia while upholding the rights and dignity of the individuals represented in the data.

3.5 Description of variables

Description of variables is essential for understanding the factors that influence female labour force participation (FLFP). Variables serve as measurable attributes that will be analysed to determine their relationship with women's participation in the labour market. The 2022 Zambia Labour Force Survey provides a comprehensive dataset with a variety of socio-economic and demographic variables relevant to this study.

Dependent and independent variables are central to the research analysis. The dependent variable is FLFP, measured by whether a woman was either in the labour force (employed + unemployed) or not during 2022 Survey. The independent variables, which are drawn from the survey data, include age, educational atattainment, marital status, number of children, sex of household head, household size, household income, geographic location (rural/urban and province).

Each variable is defined in accordance with its role in influencing FLFP decision. For example, education is categorized by highest level attained i.e. None/Nursery, Primary, Secondary and Tertiary, while marital status includes options such as Never

married, Married, Separated, Divorced or Widowed. Understanding the description and operationalisation of these variables is critical to interpreting the results and drawing meaningful conclusions about the factors driving FLFP in Zambia.

Table 1.1 Description of variables

Variable	Description
Dependent Variable	
Female Labour Force Participation (FLFP)	A binary variable which captures the i^{th} female participating in the Zambian labour market coded as: 1 if the i^{th} female was at least 15 years of age and was either employed or unemployed at the time of the 2022 Labour Force Survey 0, otherwise
Independent Variables	
Age	A categorical variable capturing the age group of the i^{th} female. Each category is considered a dummy variable 1 if female is aged between 15 & 19 years,0 otherwise 1 if female is aged between 20 & 24 years,0 otherwise 1 if female is aged between 25 & 29 years,0 otherwise 1 if female is aged between 30 & 34 years,0 otherwise 1 if female is aged between 35 & 39 years,0 otherwise 1 if female is aged between 40 & 44 years,0 otherwise 1 if female is aged between 45 & 49 years,0 otherwise 1 if female is aged between 50 & 54 years,0 otherwise 1 if female is aged between 55 & 59 years,0 otherwise 1 if female is aged between 60 & 64 years,0 otherwise 1 if female is aged 65 years or above ,0 otherwise
Education	A categorical variable capturing the highest level of education completed by the i^{th} female. Each category is considered a dummy variable 1 if None/Nursery ,0 otherwise 1 if Primary ,0 otherwise 1 if Secondary ,0 otherwise 1 if Tertiary ,0 otherwise
Marital status	A categorical variable capturing the marital status of the i^{th} female. Each category is considered a dummy variable. 1 if Never married ,0 otherwise 1 if Married ,0 otherwise 1 if Separated ,0 otherwise 1 if Divorced ,0 otherwise 1 if Widowed ,0 otherwise

Number of children < 6 years	A continuous variable capturing the number of children younger than 6 years in the household in the household where the i^{th} female lives.
Sex of household head	A binary variable capturing the sex of the head of the household where the i^{th} female lives. 1 if head of household is female 0, otherwise
Household size	A continuous variable capturing the number of people in a household where the i^{th} female lives
Household income	A continuous variable capturing household income for the household where the i^{th} female lives
Residence	A binary variable capturing residence of the i^{th} female 1 if the i^{th} female lives in an urban area,0 otherwise
Province	A categorical variable capturing the province in which the i^{th} female lives. Each province is considered a dummy variable. 1 if the i^{th} female lives in Central province ,0 otherwise 1 if the i^{th} female lives in Copperbelt province ,0 otherwise 1 if the i^{th} female lives in Eastern province ,0 otherwise 1 if the i^{th} female lives in Luapula province ,0 otherwise 1 if the i^{th} female lives in Lusaka province ,0 otherwise 1 if the i^{th} female lives in Muchinga province ,0 otherwise 1 if the i^{th} female lives in Northern province ,0 otherwise 1 if the i^{th} female lives in North Western province ,0 otherwise 1 if the i^{th} female lives in Southern province ,0 otherwise 1 if the i^{th} female lives in Western province ,0 otherwise

3.6. Model specification

The main objective of the study was to analyse the determinants of Female Labour Force Participation (FLFP). The dependent variable FLFP is binary coded 1 if the i^{th} female is in the labour force and 0 if the i^{th} female is not in the labour force. This requires the use of discrete choice methods for estimation. The Linear Probability Model (LPM) is usually ideal in such cases. However, Cameron and Trivedi (2005) suggest that the LPM is not the best approach in our case. This is due to the LPM's tendency to produce estimation bias, resulting in unreliable outputs. Additionally, the LPM has the limitation of generating predicted probabilities that can fall outside the acceptable range of [0, 1].

Therefore, nonlinear estimating procedures like the logistic (logit) or probit regression models are alternatives. The estimation technique for this research assumed the logistic regression model. This model gives parameter estimates which are asymptotically consistent, efficient and distributed within the normal probability range of [0, 1] (Cameron and Trivedi, 2005).

The choice of being in the labour force or not for the ith female is observed conditional on the explanatory variables. The observable outcome is given as $y_i = 1$ if the ith female is in the labour force and $y_i = 0$,otherwise as shown in equation 1

$$y_i = \begin{cases} 1 \; if \; in \; the \; labour \; force \\ 0 \; otherwise \end{cases} \quad (1)$$

Our interest is to estimate the probability of participating in the labour force given a set of explanatory variables. The probability that the ith female participates in the labour force, denoted as $(y_i = 1|x) = P_i$, is as expressed in equation 2

$$P(y_i = 1|x) = f(X\beta) = \frac{1}{1+e^{-z}} \quad ,Z = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots.. + \beta_K X_K \quad (2)$$

Where:

- $P(y_i = 1|x)$ is the probability that $y_i = 1$, meaning the ith female participates in the labour force.
- $f(X\beta) = \frac{1}{1+e^{-z}}$ represents the logistic function (or sigmoid function) applied to the linear combination of predictors ($X\beta$). This function transforms the linear output into a probability value between 0 and 1, making it suitable for modeling binary outcomes.
- $X_1, X_2, \ldots.., X_K$ are the independent variables (determinants of FLFP) such as age, education, number of children, marital status, household income, and others.
- β_0 is the intercept term.
- $\beta_1, \beta_2, \ldots.. \beta_K$ are the coefficients representing the effect of each independent variable on the log-odds of FLFP.

The probability of not participating in the labour force is given in equation 3

$$P(y_i = 0|x) = 1 - f(X\beta) \quad (3)$$

The logistic regression model transforms the dependent variable using the **logit function**, which is the natural logarithm of the odds of the event (FLFP) occurring. The log-odds of female labour force participation can be expressed as in equation 4

$$\log\left(\frac{P(y_i = 1|x)}{1 - P(y_i = 1|x)}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots + \beta_K X_K \quad (4)$$

- The left-hand side represents the **log-odds** of FLFP.
- The right-hand side is a linear combination of the independent variables.

Now, to model the **determinants of FLFP**, we include relevant independent variables (predictors) grouped as follows:

- Individual factors which include age, education and marital Status,
- Household factors which include number of children, sex of household head, household size and household income
- Geographical location factors which include rural/urban residence and province

The full logit equation incorporating the variables can be written as equation 5

$$\log\left(\frac{P(y_i = 1|x)}{1 - P(y_i = 1|x)}\right) = \beta_0 + \beta_1 Age + \beta_2 Education + \beta_3 Marital\ Status + \beta_4 Number\ of\ children + \beta_5 Sex\ of\ HH\ head + \beta_6 Household\ size + \beta_7 Household\ income + \beta_8 Residence + \beta_9 Province \quad (5)$$

Once the model is fitted, it is important to compute **marginal effects** to better understand the impact of the independent variables on the probability of FLFP. Marginal effects represent the change in the predicted probability of FLFP for a one-unit change in one of the independent variables while holding others constant.

The marginal effects for a variable X_j can be computed as in equation 6

$$\frac{\partial P(y_i = 1|x)}{\partial X_j} = f(X\beta).\left(1 - f(X\beta)\right).\beta_j \quad (6)$$

Where $f(X\beta)$ is the predicted probability of $y_i = 1$

The final model for the determinants of female labour force participation in Zambia can be specified as:

$$\boldsymbol{FLFP} = \beta_0 + \beta_1 Age + \beta_2 Education + \beta_3 Marital\ Status + \beta_4 Number\ of\ children + \beta_5 Sex\ of\ HH\ head + \beta_6 Household\ size + \beta_7 Household\ income + \beta_8 Residence + \beta_9 Province \quad (7)$$

where FLFP is the probability of labour force participation and age, education, marital status, number of children, sex of household head, household size, household income, rural/urban residence and province are explanatory variables. Thus equation 7 gives us the determinants of female labour force participation.

3.7 Limitations of the Methodology

Although the study utilised sound methodology, it is important to recognise several limitations:

1. **Cross-sectional design**: Utilising cross-sectional data restricts the capability to draw causal relationships between variables. Longitudinal research could offer more in-depth understanding of the trends in FLFP over time.

2. **Self-reported Data**: Dependence on self-reported data could introduce biases as participants might inaccurately report their labour force participation or socio-economic status.

3. **Generalisability**: Even though the study sample is representative of Zambia, the results may not be applicable to other settings or countries that possess different demographic and socio-economic characteristics.

3.8 Conclusion

This chapter detailed the methodology employed in the study to examine the determinants of FLFP in Zambia. The quantitative approach, data collection methods, sampling techniques and analytical procedures were discussed comprehensively. By employing logistic regression analysis, the study aimed to provide evidence-based insights that could inform policies and interventions to enhance women's economic participation in Zambia. The limitations acknowledged in this chapter will guide future research efforts to further explore the dynamics of FLFP in various contexts.

Chapter 4: Presentation and analysis of findings

4.0 Introduction

This chapter presents the results of the empirical analysis conducted to analyse the determinants of female labour force participation (FLFP) in Zambia. The analysis is based on the 2022 Labour Force Survey data and employs the logistic regression model to investigate the relationship between several individual, household and geographical characteristics and the likelihood of women participating in the labour force. The chapter is presented in four sections: descriptive statistics, diagnostic checks, logistic regression results and a summary of key findings.

4.1 Descriptive statistics

This section presents descriptive statistics of the key variables in the study. Understanding the basic distribution of variables provides a foundation for more complex statistical analysis, such as regression analysis which is explored in the next section. This section summarises the distribution of FLFP by age, education, marital status, number of children less than 6 years in the household, sex of household head, household size, household income and geographical location by rural/urban and province. These variables are key in explaining the participation rate of females in the labour force and offer valuable insights into the demographic and socio-economic factors that shape women's labour market outcomes.

Table 4.1 Descriptive Statistics of Key Variables

	Proportions/Means
Dependent Variable	
Female Labour Force Participation	
Participating	0.26
Not Participating	0.74
Independent Variables	
Age group	
15-19	0.18
20-24	0.16
25-29	0.15
30-34	0.11
35-39	0.10
40-44	0.07
45-49	0.06
50-54	0.04
55-59	0.03

60-64	0.03
65+	0.07
Education	
None/Nursery	0.02
Primary	0.56
Secondary	0.37
Tertiary	0.05
Marital status	
Never married	0.30
Married	0.50
Separated	0.03
Divorced	0.07
Widowed	0.10
Number of children<6 years	1.16
Sex of household head	
Male	0.70
Female	0.30
Household size	3.57
Household income	2713.98
Residence	
Rural	0.58
Urban	0.42
Province	
Central	0.08
Copperbelt	0.16
Eastern	0.08
Luapula	0.08
Lusaka	0.18
Muchinga	0.07
Northern	0.10
North Western	0.08
Southern	0.09
Western	0.08
n	**13,753**

Table 4.1 shows that out of a sample of 13,753 women, only 26% participated in the labour force, while a majority 74% did not.

The age distribution of women in the sample shows that majority were concentrated in the younger age groups, with 60% of women aged between 15 and 34 years old. As age increases, the proportion of women decreases. The data shows that a majority of women (56%) had completed primary education, while 37% had completed secondary education and 5% had attained tertiary education. Only 2% of the sampled women had either never been to school or had at least attained nursery school.

As regards marital status, 50% of the sample consisted of married women. Never married women constituted 30% of the sample. Separated, divorced or widowed women collectively accounted for 20% of the sample. On average, sampled households had 1.16 children under the age of 6 years. The data further shows shows that a minority (30%) of households were headed by females while the majority (70%) were headed by males.

The average household size was 3.57 members. The mean household income of ZMW 2,713.98 indicates that most households in this sample likely fell within low to middle-income categories. In terms of rural/urban distribution, the data shows that a majority of women (58%) lived in rural areas, while 42% resided in urban areas.

The provincial distribution shows that Lusaka (18%) and Copperbelt (16%) provinces had the largest share of the sample population, followed by Northern Province (10%). Lusaka, as the capital and most economically developed region, likely offers more formal employment opportunities for women, while other provinces like Luapula and Western (both 8%) may offer fewer opportunities due to lower levels of development (Zambia Statistics Agency, 2022).

These descriptive statistics provide a foundational understanding of the key factors that could determine FLFP in Zambia. While there is no question that the majority of females were not participating in the labour market, what is still unclear is if this could be attributed to individual, household and geographical factors. To investigate if these factors are determinants of the FLFP, the Logistic Regression Model was estimated using Stata version 14.2.

4.2 Determinants of female labour force participation in Zambia

This section presents the results from the regression analysis on female labour force participation (FLFP), examining how various individual, household and geographical factors influence participation. Key variables in the analysis included age, education, marital status, number of children less than 6 years in the household, sex of household head, household size, household income, rural/urban residence and province which are categorised into individual, household and geographical factors. Before estimating the logistic regression model, diagnostic tests (i.e. multicollinearity and

heteroscedasticity tests) were conducted to check whether the basic assumptions of the model were met. In addition, the goodness of fit test was conducted using the Hosmer-Lemeshow test.

4.2.1 Diagnostic tests

4.2.1.1 Multicollinearity test

To estimate the binary logistic regression model, it is important to identify whether the hypothesised variables are highly correlated with one another using variance inflation factors (VIF). Variables were tested to check the existence of multicollinearity. The computed VIF values presented in the appendix are less than the threshold value of 10 indicating that there was no problem of multicollinearity among explanatory variables. Therefore, all key variables were included in the logistic regression model.

4.2.1.2 Adjustment for heteroscedasticity

The assumption of constant variance (homoscedasticity) is crucial for achieving unbiased and efficient standard errors in typical regression models. However, when this assumption is not met, standard errors may become biased, resulting in erroneous conclusions regarding the statistical significance of the coefficient estimates.

To ensure reliability of the logistic regression findings, the Breusch-Pagan test was conducted to evaluate the existence of heteroscedasticity. This test involves regressing the squared deviance residuals against the independent variables to assess whether the residuals' variance is related to these variables.

The results indicated no evidence of heteroscedasticity (chi2 (1) =2.14, $p > 0.05$), suggesting that the variance of the residuals is constant. See appendix.

To ensure robustness of the estimated standard errors, the **vce (robust)** option in Stata was applied when running the logistic regression model.

4.2.1.3 Goodness of fit test

The Hosmer – Lemeshow test was conducted in order to examine the goodness of fit of the model with the null hypothesis that the model fit the data well. As seen in the appendix, the p-value of the Hosmer - Lemeshow test was 0.3100 indicating a non-significant result at 5% level of significance. The conclusion was that the model fit the data well.

4.3 Econometric test results

The logistic regression analysis drew from a sample of 13,753 females and utilised key variables that included age group, education, marital status, number of children<6 years in the household, sex of the household head, household size, household income, rural/urban residence and province. The model as a whole was statistically significant at 1% level of significant, as indicated by the Wald chi-square (2086.57, p = 0.0000), with an R-squared value of 0.2243, indicating the estimated model outperformed the null model by about 22%.

Table 4.2 Logistic regression results

Variables	Categories	dy/dx	Std.Err.	z-statistic	P>|z|
Age group	**15-19 [Ref]**				
	20-24	0.1446	(0.0106)	13.60	0.000***
	25-29	0.2325	(0.0126)	18.43	0.000***
	30-34	0.2792	(0.0154)	18.15	0.000***
	35-39	0.3297	(0.0173)	19.01	0.000***
	40-44	0.3602	(0.0210)	17.13	0.000***
	45-49	0.2982	(0.0214)	13.91	0.000***
	50-54	0.2913	(0.0242)	12.06	0.000***
	55-59	0.2069	(0.0272)	7.59	0.000***
	60-64	0.1346	(0.0264)	5.10	0.000***
	65+	0.0479	(0.0151)	3.18	0.001***
Education	**None/Nursery [Ref]**				
	Primary	0.0519	(0.0261)	1.99	0.047**
	Secondary	0.0969	(0.0269)	3.60	0.000***
	Tertiary	0.3535	(0.0367)	9.62	0.000***
Marital status	**Never Married [Ref]**				
	Married	-0.0214	(0.0130)	-1.65	0.038**

	Separated	0.0370	(0.0271)	2.10	0.032**
	Divorced	0.0390	(0.0180)	2.17	0.030**
	Widowed	-0.0562	(0.0180)	-3.12	0.002***
Number of children		-0.0125	(0.0124)	-1.01	0.315
Sex of household head	**Male [Ref]**				
	Female	-0.0254	(0.0019)	-13.74	0.000***
Household size		-0.0018	(0.0017)	-1.10	0.272
Household income		0.0020	(0.0000)	0.64	0.521
Residence	**Rural [Ref]**				
	Urban	0.1409	(0.0107)	13.18	0.000***
Province	**Central [Ref]**				
	Copperbelt	0.0414	(0.0202)	2.51	0.000***
	Eastern	-0.1906	(0.0199)	-9.56	0.000***
	Luapula	-0.1797	(0.0205)	-8.75	0.000***
	Lusaka	0.0747	(0.0203)	3.21	0.027**
	Muchinga	-0.1844	(0.0208)	-8.85	0.000***
	Northern	-0.1620	(0.0203)	-7.97	0.000***
	North Western	-0.1845	(0.0203)	-9.09	0.000***
	Southern	-0.0763	(0.0215)	-3.55	0.000***
	Western	-0.0489	(0.0235)	-2.09	0.037**
Number of observations	13,753				
Wald chi2(31)	2,086.57				
Prob > chi2	0.0000***				
R-Squared	0.2243				

Note: ***, ** and * denote significance at 1%, 5% and 10% respectively
Source: Sample data (2024)

4.3.1 Individual Factors

4.3.1.1 Age and FLFP

The research findings show a statistically significant positive relationship between age and participation of women in the labour force especially among those in the prime working age brackets. Women in the age ranges of 20-24, 25-29, 30-34, 35-39, 40-44 and 45-49 exhibit higher marginal effects (dy/dx) regarding their labour force participation compared to the reference category of 15-19 years. For example, women aged 20-24 are 14.46% more likely to participate in the labour force when compared to their counterparts aged 15-19, with this trend becoming stronger with advancing age, peaking at the 40-44 age group which has a marginal effect of 0.3602. The z-statistics and p-values (all significant at the 1% level) confirm the statistical significance of these findings.

However, participation in the labour force starts to decline in older age groups, where women aged 50-54, 55-59, and 60-64 exhibit diminishing marginal effects. For instance, women aged 55-59 have a marginal effect of 0.2069, indicating that although they are still more likely to participate than younger women, their likelihood is lower than that of those in the prime working years (30-44). The decrease continues for women aged 65 and older, who have the lowest marginal effect of 0.0479, although the p-value of 0.001 still renders this observation significant. These findings imply that female labour force participation peaks during prime working years and declines as women grow older.

To visualise this strong and statistically significant relationship between age and FLFP, the logistic regression model was used to calculate predicted probabilities of participating in the labour market at various age groups while holding all explanatory variables except age at their means. This is shown in figure 4.1

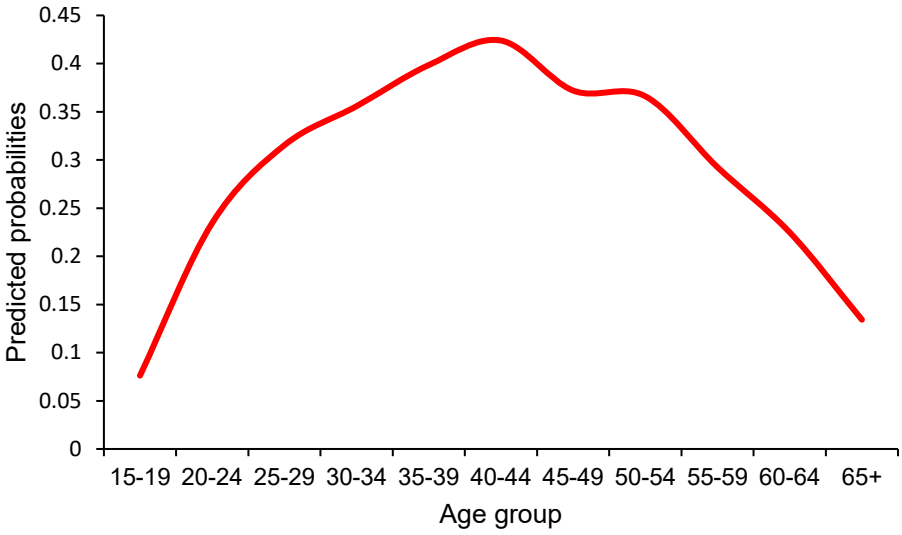

Figure 4.1 Predicted probabilities of FLFP by Age group

Figure 4.1 shows predicted probabilities for FLFP at different age groups. The lowest participation is seen in the 15-19 age group. Participation rises significantly for women aged 20-24 and continues to increase, peaking in the 40-44 age group. After the age of 45-49, participation begins to decline with older age groups 55-59, 60-64 and 65+ showing reduced participation. The findings show that FLFP is most concentrated in the middle years of life tapering off as women grow old.

4.3.1.2 Education and FLFP

Education is significant determinant of female labour force participation with increased education levels linked to higher participation rates. When compared to women with no education or only nursery-level education, those who have completed primary, secondary and tertiary education exhibit progressively greater marginal impacts on labour force participation. Women possessing primary education have a marginal effect of 0.0519, indicating that they are 5.19% more likely to engage in the labour force than those with no education or nursery-level education. This finding is statistically significant at the 5% level, demonstrating that even a basic level of education has a positive effect on female labour force participation. The impact intensifies for those with secondary education, where the marginal effect is 0.0969 supported by a z-statistic of 3.60 and a p-value of 0.000 indicating strong significance at the 1% level. The most substantial positive effect is seen in women who hold tertiary

education, with a marginal effect of 0.3535, signifying they are 35.35% more likely to participate in the labour force in comparison to women lacking education or only having nursery-level education. The strong statistical significance of this outcome is highlighted by a z-statistic of 9.62 and a p-value of 0.000 confirming its significance at the 1% level. These results indicate that education, especially at the tertiary level, considerably improves a woman's potential to be economically active. In summary, the findings emphasize the vital role education plays in empowering women to participate in the labour market.

To visualise this strong, positive and statistically significant relationship between education attainment and female labour force participation, predicted probabilities were calculated using the estimated logistic regression model. Figure 4.2 shows predicted probabilities at various levels of education holding all other explanatory variables in the model at their respective means.

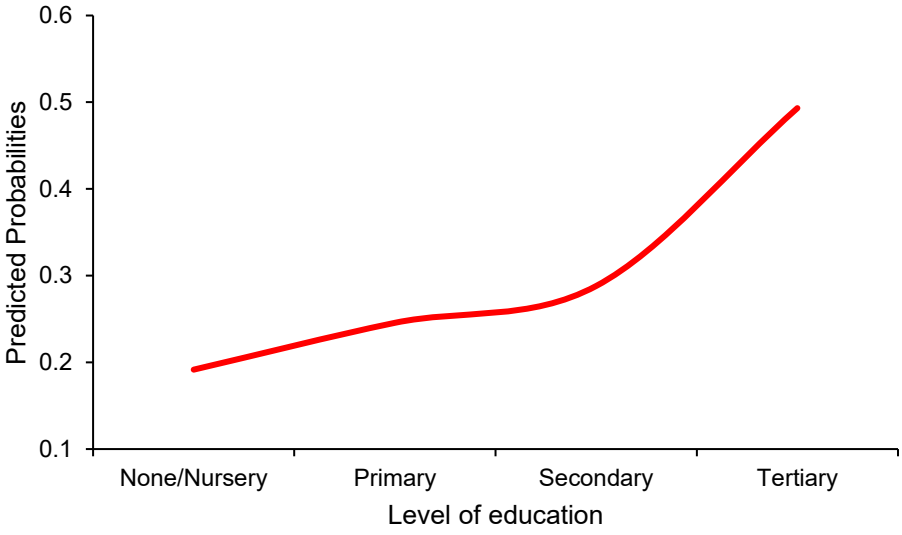

Figure 4.2. Predicted probabilities of FLFP by Level of education

Figure 4.2. shows that women with no education or nursery-level education have a predicted probability of 0.1916, indicating a lower likelihood of joining the labour market at around 19%. This likelihood increases for women with primary education (0.2456), demonstrating that even basic education can enhance labour force

participation. Women with secondary education see further improvement, with a probability of 0.2881. The highest probability is observed among women with tertiary education (0.4932), where the likelihood to participate in the labour force is almost 50%.

4.3.1.3 Marital status and female labour force participation

Marital status is also a determinant of female labour force participation although the effects vary depending on the specific marital status category. Using the never married women as reference, married women have a negative marginal effect (-0.0214) which was statistically significant at the 5% level (p-value = 0.038), suggesting that marriage slightly reduces a woman's likelihood of participating in the labour force by 2.14%. In contrast, the separated with a marginal effect of 0.0370 and divorced with a marginal effect of 0.0390 are more likely to participate in the labour force with both categories showing statistically significant positive effects (p-values of 0.032 and 0.030, respectively).Widowed women, however exhibit a significant negative effect on labour force participation with a marginal effect of -0.0562), with a p-value of 0.002 indicating that widowhood reduces a woman's likelihood of participating in the labour market by 5.62%. In summary, while marriage and widowhood tend to slightly reduce labour force participation, separation and divorce increase the likelihood for women to engage in economic activities.

Figure 4.3 shows predicted probabilities at various levels of marital status on female labour force participation using the estimated logistic regression model. To isolate the effect of marital status, all other explanatory variables in the model were held constant at their respective means.

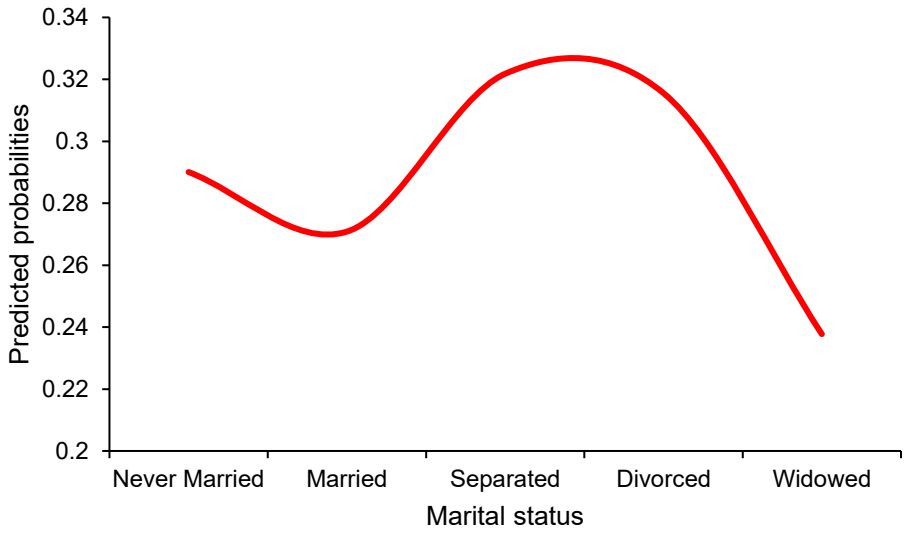

Figure 4.3 Predicted probabilities of FLFP by Marital status

Marital status plays a crucial role in explaining female labour force participation, with different categories exhibiting varying probabilities. Never married women show a predicted probability of 0.2901, indicating that they have about 29% likelihood of participating in the labour force. Married women on the other hand have a slightly lower predicted probability of 0.2708. Separated (0.3218) and divorced (0.3155) women exhibit the highest predicted probabilities of labour force participation. Widowed women have the lowest probability at 0.2377 which may reflect a range of factors, including grief, caregiving responsibilities or a reliance on family support. These results indicate that marital status influences a woman's likelihood of being economically active, with separated and divorced women showing the highest labour force participation.

4.3.2 Household factors

4.3.2.1 Number of children and female labour force participation

Number of children less than 6 years in the household shows a small and statistically insignificant negative effect on female labour force participation, with a marginal effect of -0.0125 and a p-value of 0. 315. The z-statistic of -1.01 further supports this lack of significance. However, the negative sign of the marginal effect indicates that in general, when the household increases by one more child less than the age of 6 years, the likelihood of a female participating in the labour force slightly decreases by 1.25%,

though the effect is too small to draw definitive conclusions. Therefore, while the number of children appears to have some influence, it is not a significant determinant of female labour force participation in this case.

4.3.2.2 Sex of household head and female labour force participation

Sex of the household head is a crucial factor influencing women's participation in the labour market. The study findings reveal that women residing in households led by females are less likely to engage in the labour force compared to those in male-headed households, with a marginal effect of -0.0254. This effect was statistically significant at the 1% level as shown by the z-statistic of -13.74 and a p-value of 0.000. The negative value of the marginal effect indicates that living in a female-headed household decreases the chances of women participating in the labour force by 2.54%. Overall, these results imply that household structure especially the sex of the household head significantly influences women's labour force participation.

Figure 4.4 depicts the relationship between sex of household head and female labour force participation using predicted probabilities derived from the fitted logistic regression model. To focus solely on the effect of sex of household head, all other variables within the model were held constant at their average values.

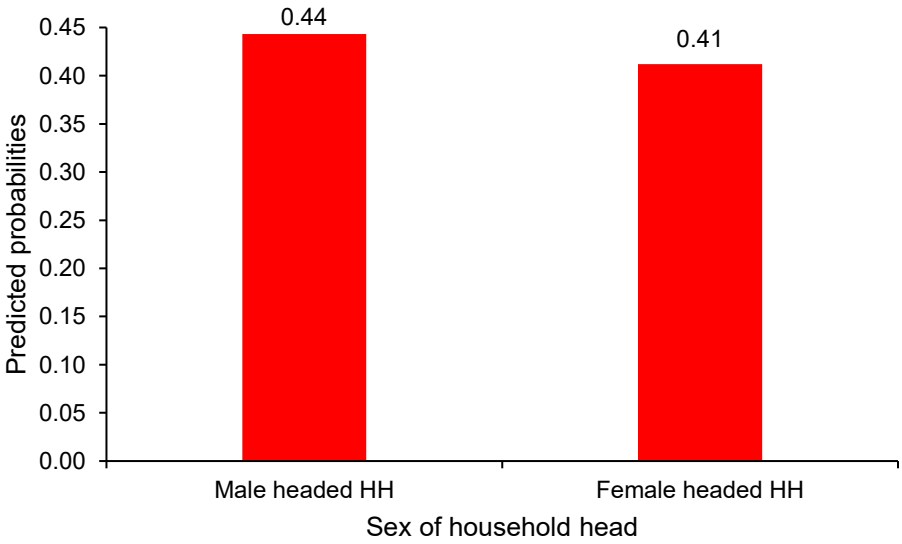

Figure 4.4 Predicted probabilities of FLFP by sex of household head

The sex of the household head shows a slight difference in the likelihood of female labour force participation. Women in male-headed households exhibit a predicted probability of 0.44, meaning they have a 44% likelihood of participating in the labour market. In contrast, women in female-headed households have a predicted probability of 0.41, indicating a slightly lower likelihood of labour force participation. The marginal difference between the two categories suggests that household dynamics, particularly the presence of a male household head may slightly influence a woman's labour market participation, though the overall impact is not highly pronounced.

4.3.2.3 Household size and female labour force participation

The impact of household size on female labour force participation is relatively small and statistically insignificant in this study, with a marginal effect of -0.0018 and a p-value of 0.272. The z-statistic of -1.10 further suggests that this variable does not have a meaningful effect on whether women participate in the labour market. While the negative sign of the marginal effect indicates that larger household sizes may be associated with a slight decrease in labour force participation, the effect is too small to be considered statistically significant. Therefore, the lack of statistical significance in this study suggests that household size is not a determinant of female labour force participation.

4.3.2.4 Household income and female labour force participation

Household income seems to have a minimal and statistically non-significant influence on the participation of women in the labour force presenting a marginal effect of 0.0020 and a p-value of 0.521. The z-statistic of 0.64 further indicates that household income does not significantly affect women's participation in the labour force within this study. The positive sign of the marginal effect suggests that an increase in household income might slightly relate to higher labour force participation, but the effect is small and statistically weak to support any firm conclusions. These results imply that, at least within this framework household income is not a key determinant affecting women's participation in the labour market.

4.3.3 Geographical location factors

4.3.3.1 Rural/Urban residence and female labour force participation

Geographical location, whether urban or rural has a significant impact on female labour force participation. Women living in urban areas are 14.09% more likely to participate in the labour market compared to their rural counterparts as indicated by the marginal effect of 0.1409. This effect was statistically significant at 1% level of significance with a z-statistic of 13.18 and a p-value of 0. 000. The significant positive effect of urban residence highlights the role of geographical location in determining labour market outcomes for women.

Figure 4.5 visually represents the relationship between rural/urban residence and female labour force participation. It illustrates the predicted probabilities of female labour force participation derived from the estimated logistic regression model. All other variables in the model were maintained at their respective mean values.

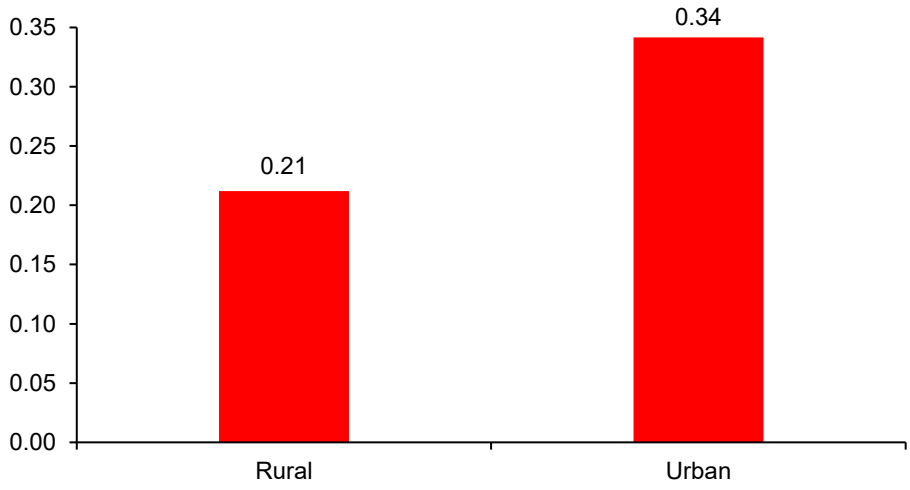

Figure 4.5 Predicted probabilities of FLFP by rural/urban residence

Figure 4.5 shows that rural/urban residence significantly influences female labour force participation, with urban women exhibiting a higher probability of participation compared to their rural counterparts. Women living in rural areas have a predicted probability of 0.21, meaning they are 21% likely to participate in the labour force. In contrast, the probability for women in urban areas is notably higher at 0.34, indicating that they are 34% likely to participate in the labour force.

4.3.3.2 Provincial variations and female labour force participation

The results show significant variation in female labour force participation across different provinces. Compared to women in Central Province (the reference category), women in the Copperbelt and Lusaka provinces are 4.14% and 7.47% more likely to participate in the labour market with positive marginal effects of 0.0414 and 0.0747 respectively. These effects were statistically significant at 1% and 5%, as indicated by the p-values of 0.000 and 0.027 respectively. Conversely, women in Eastern, Luapula, Muchinga, Northern, North Western, Southern and Western Provinces are significantly less likely to participate in the labour force, with negative marginal effects ranging from -0.1906 in Eastern Province to -0.0489 in Western Province. These results were all statistically significant at the 1% level of significance.

To visualise the relationship between province and FLFP for an average female, the estimated logistic regression model was used to estimate the predicted probability of participating in the labour market for various provinces while holding all explanatory variables except province at their means. This is shown in figure 4.6.

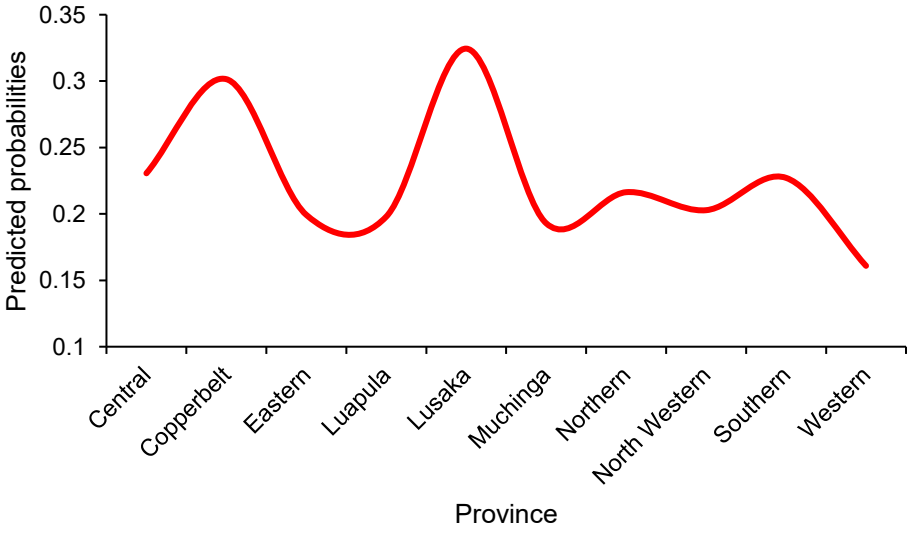

Figure 4.6 Predicted probabilities of FLFP by province

The predicted probabilities for different provinces show substantial regional variation in female labour force participation. Women in Lusaka (0.3245) and Copperbelt (0.3015) have the highest predicted probabilities of labour force participation. Their likelihood of participating in the labour force is 32.45% and 30.15% respectively.

However, women in provinces such as Eastern (0.1863), Western (0.1809), and Southern (0.1971) show much lower participation rates.

4.5 Conclusion

The results from the regression analysis highlight several key factors influencing female labour force participation. Age, education and rural/urban location emerge as strong, positive drivers of FLFP. On the other hand, being married or widowed or living in a female-headed household reduces participation. Number of children less than 6 years in the household, household income and household size do not have a significant impact. Finally, there are significant regional disparities in FLFP with some provinces showing higher participation rates while others lower participation rates.

CHAPTER 5: Discussion of findings

5.0 Introduction

This section critically discusses the results of the determinants of female labour force participation (FLFP) in Zambia based on data from the 2022 Labour Force Survey.Key variables discussed in relation to the findings include age, education, marital status, number of children under 6 years in the household, sex of the household head, household size, household income, rural/urban residence and province.The variables are grouped into individual, household and geographical location factors.The chapter interprets results within the framework of the theoretical and empirical literature presented in Chapter 2. The discussion aims to clarify how this research contributes to our understanding of the determinants of FLFP in Zambia. Additionally, it emphasises the aspects where this study differs from earlier research, providing insights into the distinctive socio-economic conditions that affect FLFP in Zambia.

5.1 Individual factors

5.1.1 Age and female labour force participation

Research findings show a significant positive relationship between age and female labour force participation with participation rates rising as women grow older, reaching their highest point in the 40-44 age bracket before gradually declining. This life-cycle pattern of labour force participation aligns with the Life-Cycle Hypothesis presented in Chapter 2, which indicates that younger women generally participate less in the workforce due to educational obligations, early family establishment and obstacles to entering a career. As women advance in age particularly after their 30s, they are likely to engage more in the labour market due to lower fertility rates, increased work experience and diminished caregiving duties.

Additionally, Mincer's (1962) Work-Leisure Choice Model explains this connection by proposing that individuals divide their time between market work, household duties and leisure activities. For women, especially in the context of Zambia, family obligations typically take priority during their younger years while participation in the labour market becomes more viable as children mature and educational responsibilities ease. This observation aligns with the findings of Coffman et al. (2019),

who noted increased participation rates among middle-aged women and a decline in participation among older women. This decline may be linked to retirement, deteriorating health or a return to roles focused on home and family. Similarly, studies by the World Bank (2019) in Latin America and South Asia have shown that FLFP decreases as women become older although it remains relatively high even at older ages.

However, it is worth noting that in Zambia female labour force participation declines only slightly after age 44, suggesting that many older women remain in the labour force. This implies that economic necessity or limited pension benefits may be driving older women to continue working. This pattern contrasts somewhat with findings from developed countries where social security systems are more effective and women tend to retire earlier (ILO, 2021). In Zambia, economic pressures are likely to require longer periods of economic activity, particularly in the informal sector where older women may continue to work as market vendors, small traders or agricultural workers. This is consistent with the observations of Villeón and Dunga (2015) who noted that women in South Africa tend to remain in the labour force for longer periods. This may be because most developing countries lack adequate social protection mechanisms forcing older women to work.

Moreover, the decline in participation rates after age 45 may reflect the broader structure of the Zambian labour market where formal employment opportunities are limited and older workers especially women may face barriers such as age discrimination or skills shortages associated with the developing sector. This highlights the importance of age-sensitive policies, including retraining programmes and social protection mechanisms to support older women in their work lives.

5.1.2 Education and female labour force participation

One of the most important findings of this study is the strong positive correlation between education level and female labour force participation. In particular, highly educated women are significantly more likely to participate in the labour market. This result is consistent with human capital theory (Schulz-Becker, 1961) which emphasizes the role of education in increasing an individual's productive potential and as a result increasing labour force participation.

Empirical literature supports this conclusion. Klassen et al. (2019) argue that higher education increases the opportunity cost of working outside the labour market because higher education increases potential earnings. Education not only provides women with the skills needed for formal employment but also promotes economic independence by enabling them to secure higher-paying jobs. In the increasingly competitive labour market in Zambia, education is an important determinant of employment opportunities especially in urban areas where there is a high demand for skilled labour.

The aspiration hypothesis (Cain, 1966) provides additional insight into this relationship suggesting that the more educated a woman is, the higher the income aspirations. This encourages their participation in the labour market. The results of this study confirm that women with higher education are more likely to participate in the formal sector where wages are higher and job security is better. This is consistent with the findings of Farzana et al. (2017) in India and Abraham et al. (2017) in Ghana which highlighted the importance of education in providing women with access to formal employment opportunities.

Furthermore, the beneficial effects of education on FLFP in Zambia are reflected in the rising number of women entering professional, managerial and technical roles (Zambia Statistics Agency, 2022). As women achieve higher educational qualifications, they become more inclined to finding employment in fields such as education, health and administration which demand for specialised skills and provide better working conditions compared to unskilled labour. This shift towards formal employment is especially significant in urban areas as advanced education enhances women's opportunities to engage with the formal job market. This aligns with the conclusions of Psacharopoulos and Tsannatos (2019), who emphasised that education plays a crucial role in women's involvement in the formal economy of developing countries.

This underscores the need of enhancing access to education for women particularly in rural areas with low education rates. Increasing educational opportunities particularly in secondary and higher education is vital for boosting FLFP and advancing women's economic independence. Furthermore, initiatives aimed at

enhancing vocational and technical training can assist women lacking formal qualifications in gaining skills that are valued in the job market, thus improving their chances of employment.

5.1.3 Marital status and female labour force participation

The research revealed that a woman's marital status significantly influences her participation in the labour force in Zambia showing that married women are less inclined to engage in the labour market compared to those who are separated or divorced. This observation highlights the dual responsibilities that women usually assume as caregivers and economic providers with marriage often amplifying the requirements of household duties and limiting the time accessible for paid work.

The negative relationship between marriage and FLFP aligns with the findings of Mehak (2017) in Pakistan and Abraham et al. (2017) in Ghana where married women demonstrated lower engagement in the labour force. This may be attributed to cultural expectations that designate women as primarily responsible for household duties and childcare. The Work-Leisure Choice Theory (Mincer, 1962) details this trend, indicating that married women tend to devote their time to domestic responsibilities, especially when they have young children which consequently diminishes their involvement in the labour market.

In Zambia, societal norms and traditional gender expectations often assign childcare and household responsibilities predominantly to women hindering their capacity to seek paid work. This observation is reinforced by the fact that divorced and separated women tend to enter the labour market out of necessity as they experience increased financial pressure to provide for themselves and their families. This is consistent with the findings of Viljeon and Dunga (2015) which indicate that divorced and separated women are more inclined to engage in the labour force.

5.2 Household factors

5.2.1 Number of children and female labour force participation

Research findings indicate that the number of children does not significantly influence FLFP, a result that could be understood through the age distribution and childcare

situations typical of Zambian households. This may be due to the fact that older children can assist with household tasks or even earn income thereby alleviating the caregiving responsibilities for women. Furthermore, as noted in the literature review, the prevalent extended family structure in Zambia often leads to shared caregiving duties among family members. This arrangement reduces the direct effect that having more children has on a woman's capacity to engage in work. Consequently, this social framework may lessen the degree to which an increased number of children limits a woman's involvement in the labour market.

Numerous empirical studies have shown that the number of younger children (less than 6 years of age) in a household negatively affects FLFP.This is attributed to the fact that having more children typically increases women's domestic duties leaving them with less time for formal employment. Studies by Farzana et al. (2017) and Saheen and Masoon (2019) have emphasised the negative relationship between the number of children and women's participation in the labour force.

5.2.2 Household size and female labour force participation

In the study, household size was found to be a non-significant determinant of FLFP.This outcome could reflect the dynamics of extended family living arrangements common in the Zambia where the presence of other adult family members may ease the caregiving burden on women allowing them greater flexibility to engage in the labour market. This support system could neutralize the expected negative impact of larger household size on women's ability to work. Additionally, in households with more working-age members, income contributions may be more diversified potentially reducing the economic pressure on any single member including women to participate in the formal labour market. This nuanced interaction might explain why household size did not emerge as a significant factor in the Zambian setting.

The relationship between household size and female labour force participation has been a topic of discussion in the literature with varying conclusions. Some studies, like those of Viljeon and Dunga (2015) in South Africa have found that larger households can lead to reduced FLFP as women are often expected to assume caregiving roles for other household members including children and the elderly. On the other hand,

others argue that larger households may require additional income which could push women to seek employment outside of home (Mehak, 2017).

5.2.3 Household income and female labour force participation

The findings from the study did not show a statistically significant relationship between household income and FLFP in Zambia. This lack of significance could be attributed to several factors. One possible explanation is that in Zambia, many women contribute to household income through informal employment or small-scale agricultural activities that are not always recorded or reflected accurately in household income measures. As a result, household income may not fully capture the economic pressures or motivations that drive women's labour market participation in this context. Furthermore, the importance of women's income to household subsistence in rural areas may dilute the expected negative effect of higher household income on their labour participation as economic necessity remains a primary driver regardless of total household earnings.

A number of studies have explored the connection between household income and female labour force participation yielding inconsistent findings. Some research findings indicate an inverse relationship, suggesting that as household income rises the necessity for women to seek employment outside the home reduces. This viewpoint is supported by the results from Chattopadhyay and Chowdhury's (2022) study, which revealed that women belonging to higher-income groups are less likely to join the labour market. The reasoning behind this is that with increasing household income, the economic pressure for women to enter the job market lessens as the urgency for their participation in paid work decreases.

Some studies however indicate a positive relationship, such as Verick (2014) whose study concluded that in a number of middle and high-income countries an increase in household income results in an increase in FLFP. This can be attributed to the fact that as family income rises, households can invest in improved education and childcare enhancing women's entry into the labour force.

5.2.4 Sex of household head and female labour force participation

The research findings show that women residing in households led by females are less likely to engage in the labour force compared to those in households headed by males. The findings were statistically significant. This aligns with the study by Psacharopoulos and Tzannatos (2019) which asserts that female-led households experience distinct economic dynamics that might influence labour force participation in unique ways. They discovered that households led by females often adhere more strongly to traditional household roles potentially limiting their time and capacity to engage in formal employment. This suggests that women in these households may prioritise their domestic responsibilities over participating in the labour market, thus restricting their involvement in the labour market.

Furthermore, the negative effect of female-headed households on FLFP might be affected by economic limitations as indicated by various studies. For instance, Iweagu et al. (2015) revealed that household headship in rural Nigeria had consequences on labour market choices. Their research showed that women in female-headed households encountered obstacles like restricted access to income-generating opportunities, which negatively influenced their labour force participation. This finding aligns with the World System Perspective Theory addressed in the theoretical review in Chapter 2 suggesting that economic and social frameworks including the sex of the household head can negatively affect employment outcomes.

5.3 Geographical location factors

5.3.1 Rural/Urban residence and female labour force participation

The study revealed a significant disparity in FLFP between urban and rural regions with women residing in urban areas showing a higher likelihood of engaging in the labour market than those in rural areas. This observation aligns with Modernization Theory (Standing, 1978; Heckman, 1980) which suggests that urbanisation and industrialisation generate increased job prospects for women, particularly within formal sectors like education, healthcare and administration. In contrast, rural areas typically defined by subsistence farming and informal work provide limited opportunities for women to pursue paid employment.

The observed positive relationship between urban residence and FLFP supports the conclusions drawn by Viljeon and Dunga (2015) who in their study identified economic necessity, education and urbanisation as beneficial factors influencing women's labour force participation. In Zambia, cities such as Lusaka and Copperbelt show a greater presence of formal job opportunities especially within sectors like mining and manufacturing which present better pay and working conditions compared to those found in the informal economy.

The results of the study show that focused policy measures are key to addressing the urban-rural divide in FLFP by enhancing access to education, healthcare and infrastructure in rural communities. Increasing vocational training initiatives and establishing formal job opportunities in these areas can boost women's involvement in the labour market and help reduce the economic inequalities between urban and rural areas.

5.3.2 Regional variation in female labour force participation

Study results show notable variations in FLFP across different regions of Zambia with provinces like Eastern, Northern and Luapula exhibiting lower participation levels as compared to more urbanised ones such as Lusaka and the Copperbelt. These regional differences highlight differences in economic development, educational access and job opportunities throughout the country. In provinces that have limited industrial or formal job markets such as Luapula and Muchinga, women encounter considerable challenges as regards to joining the labour market. This accounts for the lower participation rates seen in these areas.

This observation confirms the findings of Psacharopoulos and Tzannatos (2019) who concluded that regional economic variations often result in differing FLFP rates in developing countries. In Zambia, the disparities in infrastructure, education and healthcare across regions intensify these variations with women in more developed provinces enjoying better access to formal job opportunities than those in less developed areas. The study emphasises the influence of cultural and social norms on FLFP in various regions. In more conservative and rural areas like Eastern and Northern Zambia, societal expectations concerning gender roles and family dynamics may restrict women's engagement in the labour force.

This conclusion aligns with Standing (1978) who suggested that cultural norms significantly influence women's behaviour in the labour market especially in conservative areas where women are often expected to focus on household duties and caregiving over paid work.

Addressing the regional imbalances in FLFP necessitates a holistic strategy that involves both economic and social measures. Enhancing access to education and healthcare, developing infrastructure and generating formal job opportunities in less developed areas are essential actions to boost FLFP and diminish regional disparities. Furthermore, encouraging gender equality and questioning conventional gender roles can assist in enabling women to engage more actively in the workforce.

5.4 Implications of findings for policy and future research

The results of this research carry important implications for policy-makers regarding education, job creation and family planning.The positive relationship between education and female labour force participation underscores the need for increasing access to education for women especially at secondary and higher levels. Initiatives focused on enhancing vocational and technical training can also assist women who lack formal qualifications in gaining the skills required to engage in the labour market.

The results of the study indicate that specific interventions are required to address the challenges encountered by women.Increasing the availability of affordable childcare options and encouraging flexible work schedules can alleviate the caregiving responsibilities for women and enhance their involvement in the labour force. Furthermore, initiatives designed to assist widowed and divorced women, including social safety net programs and access to financial resources can enable these women to engage more effectively in the labour market.

In addition, the regional disparities in FLFP highlighted by this study suggest that targeted regional development strategies are needed to create formal employment opportunities in underdeveloped regions. Expanding infrastructure, improving access to education and healthcare and promoting regional industrial development can help increase FLFP in provinces with lower participation rates.

Finally, the results of the study highlight the need for additional research on the factors influencing FLFP in Zambia especially in rural areas where participation rates are still low. Future studies could focus on how cultural norms, religious beliefs and social networks influence women's decisions regarding the labour market, along with the effects of government initiatives designed to advance gender equality and empower women economically.

5.5 Conclusion

In summary, this research has provided important insights regarding the factors influencing female labour force participation in Zambia reinforcing much of the existing literature while also emphasising the distinct challenges encountered by Zambian women. The results indicate that education, age, marital status, sex of household head and geographical factors all significantly impact FLFP in Zambia.Addressing these issues through focused policy measures can contribute to increasing women's involvement in the labour force improving gender equality and fostering economic growth.

By addressing the structural and cultural obstacles that hinder female labour force participation, Zambia can make notable progress in realising gender equality and economic empowerment as highlighted in its national development strategies and international obligations including the SDGs. With ongoing research and policy advancements, the nation can enhance its support for women in the labour force thereby promoting a more inclusive and vibrant economy for future generations.

CHAPTER 6: Conclusion and Recommendations

6.0 Introduction

This final chapter summarizes the conclusions drawn from the research findings regarding the factors influencing female labour force participation in Zambia using secondary data from the 2022 Labour Force Survey and the relevant literature examined in earlier chapters. The conclusions are structured around the main themes identified in the analysis: age, education, marital status, household dynamics, urban-rural divide and regional differences. These themes have surfaced as vital determinants of FLFP and offer a thorough understanding of the elements affecting women's economic engagement in Zambia.

This chapter also explores the creative and innovative implications of the findings for policy-makers, non-governmental organizations (NGOs) and other stakeholders. Recommendations for improving FLFP in Zambia are presented based on these conclusions. Finally, areas for future research are identified highlighting gaps that this study was unable to address and offering direction for further exploration of FLFP dynamics.

6.1 Summary of key findings

The key findings of this study can be summarized as follows:

1. **Age and FLFP:** The study confirmed that FLFP in Zambia follows a life-cycle pattern, with higher participation among middle-aged women (especially those aged 40-44) and lower participation among younger and older women.
2. **Education and FLFP:** There is a strong positive relationship between educational attainment and FLFP. Women with tertiary education are significantly more likely to participate in the labour market particularly in formal employment compared to women with only secondary or primary education or no education.
3. **Marital status and FLFP:** Married and widowed women are less likely to participate in the labour market. However, separated and single women exhibit higher labour force participation rates, often out of economic necessity.

4. **Household dynamics and FLFP:** Women residing in female-headed households are less likely to engage in the labour market compared to those in male-headed households.
5. **Urban-Rural divide in FLFP:** Women in urban areas have significantly higher labour force participation rates compared to rural women, reflecting the availability of formal employment and better infrastructure in cities. Rural women face greater barriers to FLFP including lower educational attainment and limited access to formal jobs.
6. **Regional variation in FLFP:** There are substantial regional disparities in FLFP with lower participation rates in less economically developed provinces such as Eastern, Northern and Luapula. These regions are characterised by limited industrial development and cultural norms that restrict women's economic participation.

These results emphasise the intricate relationship between socio-economic and cultural factors affecting female labour force participation in Zambia. Although the outcomes of this research are consistent with global patterns in various respects such as the significance of education and the negative effect of marital status on women's involvement in the labour market, they also mirror the distinctive labour market situations and socio-cultural environment of Zambia.

6.2 Conclusions based on the key themes

6.2.1 Age and female labour force participation

The findings demonstrate that age plays a significant role in shaping FLFP in Zambia following a life-cycle pattern. This result is consistent with theoretical models that suggest women's participation in the labour force increases with age, peaking in their 30s and 40s before gradually declining as they approach retirement age. However, in Zambia the decline in FLFP among older women (above age 45) is less pronounced compared to other countries suggesting that older women continue to participate in the labour market out of economic necessity.

The ongoing participation of older women in Zambia's labour force particularly in informal sectors indicates the limited pension and social security options available to

them.As a result, many older women continue to engage in informal jobs including small-scale trading and farming. This trend implies that policies aimed at enhancing retirement security and expanding social protection for older women could lessen their necessity to stay in the labour force facilitating a more respectful shift into retirement.

6.2.2 Education as a key driver of female labour force participation

Education has emerged as the most crucial factor determining female labour force participation in Zambia. Women who possess higher educational qualifications especially those with tertiary education are significantly more inclined to engage in the labour force and obtain formal jobs. This finding emphasises the vital role of education in economically empowering women and allowing them to make more substantial contributions to the labour market.

In Zambia, formal job opportunities are increasingly found in sectors that demand skilled labour such as education, healthcare and administration. Women with advanced educational backgrounds are in a stronger position to secure these positions which typically provide better salaries, working environments and job stability. Consequently, initiatives focused on enhancing access to education particularly at secondary and tertiary levels are crucial for improving FLFP. Moreover, vocational and technical training programs can equip women lacking formal qualifications with valuable skills boosting their employability.

The research also pointed out the ongoing difficulties faced by women with limited education. Those with only primary schooling or no formal education are more likely to be relegated to informal jobs which are generally associated with low pay, instability and inadequate working conditions. Tackling this problem requires specific educational programs particularly in rural areas where educational access continues to be restricted.

6.2.3 Marital status and its impact on female labour force participation

Marital status is another important factor influencing FLFP in Zambia. The study confirmed that married and widowed women are less likely to participate in the labour force. For married women, this could be due to the domestic and caregiving

responsibilities associated with marriage. Traditional gender roles which assign women the primary responsibility for household chores and child-rearing limit their ability to engage in paid employment. For the widowed, this could reflect the unique challenges faced by widows including potential social isolation, loss of household income and a greater burden of childcare or elderly care.

However, the study also found that separated and single women are more likely to participate in the labour market often out of economic necessity. These women, particularly those heading households face the dual responsibility of providing for their families and managing domestic responsibilities. These findings suggest that policies aimed at reducing the caregiving burden on married women such as access to affordable childcare services and the promotion of flexible work arrangements could increase FLFP. Additionally, providing financial support and social protection for widowed and separated women could help mitigate the economic pressures that compel them to participate in the labour market often under difficult conditions.

6.2.4 Household dynamics and female labour force participation

Sex of household head is an important finding in this study. Women residing in female-headed households are less likely to engage in the labour market compared to those in male-headed households reflecting greater economic challenges and caregiving responsibilities which can limit the availability of time and resources for other women in the household to seek employment. Moreover, in female-headed households women may assume additional domestic responsibilities or caregiving roles further reducing their likelihood of labour market participation.

Policymakers should consider developing programs that provide financial and childcare support specifically for female-headed households. Such programs could include access to affordable day care services which would alleviate caregiving burdens and enable women to seek employment opportunities. Additionally, providing microfinance programs or grants aimed at empowering female heads of households could promote entrepreneurship and self-employment among women thereby increasing their participation in economic activities.

Community-based support programs that strengthen networks for female-headed households could also be effective. These programs could provide job search assistance, skills training and networking opportunities helping women access better employment prospects and overcome social isolation. Encouraging a more supportive environment for female-headed households would create opportunities for economic growth and empowerment, ultimately boosting female labour force participation.

6.2.5 Urban-Rural divide in female labour force participation

6.2.6 Regional disparities in female labour force participation

The urban-rural differences in female labour force participation is a significant finding of this research. Women living in urban areas are noticeably more inclined to engage in the labour market than those in rural settings which can be attributed to greater access to formal job opportunities, improved infrastructure and higher levels of education in cities. Urban females are more frequently employed in formal sectors like education, healthcare and administration which provide better salaries, working conditions and job stability.

However, rural women encounter considerable challenges to entering the labour market such as lower levels of education, limited access to formal employment and inadequate infrastructure. A large portion of rural women is involved in subsistence farming or informal trading which yields minimal financial returns and offers scant job security. These results indicate that addressing the urban-rural divide in FLFP requires focused interventions to enhance access to education, healthcare and infrastructure within rural areas. Developing vocational training programs and establishing formal job opportunities in these regions can assist in increasing FLFP and lessening the economic gaps between urban and rural areas.

The research uncovered significant differences in female labour force participation across various provinces of Zambia with lower participation levels found in less economically active provinces like Eastern, Northern and Luapula. These areas are marked by limited industrial growth, inadequate infrastructure and prevailing traditional gender roles that hinder women's engagement in economic activities.In contrast, more urbanised areas such as Lusaka and Copperbelt show greater FLFP rates which can

be attributed to the presence of formal job opportunities and improved access to education and healthcare services.

These regional differences underscore the necessity for focused development strategies tailored at creating formal employment in less developed areas. Enhancing infrastructure, improving educational and healthcare access and fostering regional industrial growth can contribute to boosting FLFP in provinces with low participation rates. Moreover, addressing cultural conventions that limit women's involvement in the labour force is essential for advancing gender equality and enhancing FLFP in these regions.

6.3 Policy recommendations

Based on the findings of the study, the following policy recommendations are suggested to enhance female labour force participation in Zambia and to tackle the socio-economic obstacles that hinder women's involvement in the labour force:

1. **Increasing access to education**: Enhancing educational opportunities especially at the secondary and tertiary levels is vital for improving FLFP in Zambia. Policies focused on offering scholarships, lowering school fees and broadening vocational and technical training programs can assist women in gaining the necessary skills required to engage in the labour market.

2. **Encouraging flexible work options**: Implementing policies that encourage flexible work options such as part-time roles, remote work and variable hours can assist women in balancing paid jobs with caregiving duties. This is particularly crucial for married women and those in larger households.

3. **Offering affordable childcare services**: Increasing the availability of affordable childcare services can alleviate the caregiving challenges faced by women and enhance their involvement in the labour force. Policies that aim to subsidise childcare expenses and advocate for the creation of day care facilities in both urban and rural areas are essential in supporting working mothers.

4. **Assisting female-headed households**: Providing financial assistance and social safety nets for female-led households is key to improving FLFP. Access to credit, social protection initiatives and job opportunities can empower these women to support their families while managing domestic responsibilities.

5. **Developing targeted regional strategies**: To address the disparities in FLFP across different regions, targeted development strategies are necessary to generate formal employment opportunities in underdeveloped areas. Improving infrastructure, enhancing access to education and healthcare and promoting industrial development in regions with lower participation rates can help raise FLFP.

7. **Challenging traditional gender roles**: Advocating for gender equality and confronting traditional gender roles that limit women's labour market participation is critical for increasing FLFP. Public awareness initiatives, community-based programs and legal reforms aimed at advancing gender equality can empower women to engage more fully in the labour force.

6.4 Areas for future research

Although this study has yielded important findings regarding the factors influencing female labour force participation in Zambia, there are several aspects that require additional investigation. Subsequent research could concentrate on the following areas:

1. **The influence of cultural and religious factors on FLFP**: The impact of cultural and religious beliefs on women's decisions regarding participation in the labour market remains insufficiently examined. Future investigations could explore how these beliefs affect FLFP in various regions of Zambia and among different religious groups.

2. **The effect of social protection programs on FLFP**: Examining the effects of social protection programs such as cash transfers and pensions on FLFP could provide crucial insights into how government initiatives influence women's involvement in the labour force.

3. **Labour market outcomes for women in the informal sector**: Additional research is necessary to analyse the labour market outcomes for women involved in informal employment, especially in rural settings. Understanding the difficulties faced by women in the informal economy could assist in the development of policies aimed at enhancing job stability, wages and working conditions for women.

6.5 Conclusion

This research has provided an in-depth analysis of the factors determining female labour force participation in Zambia revealing the intricate interactions between individual, household and geographical factors. The results emphasise the significance of education, household, rural/urban and regional dynamics among other factors in affecting FLFP while also shedding light on the specific challenges faced by women in Zambia. By addressing these challenges through focused policy measures, Zambia has the potential to boost FLFP, improve gender equality and foster economic growth. With ongoing research, innovative policymaking and collaborative initiatives between the government, non-governmental organizations and the private sector, Zambia can establish a more inclusive and dynamic economy that empowers women and facilitates their complete involvement in the labour market.

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Appendix

vif test for collinearity

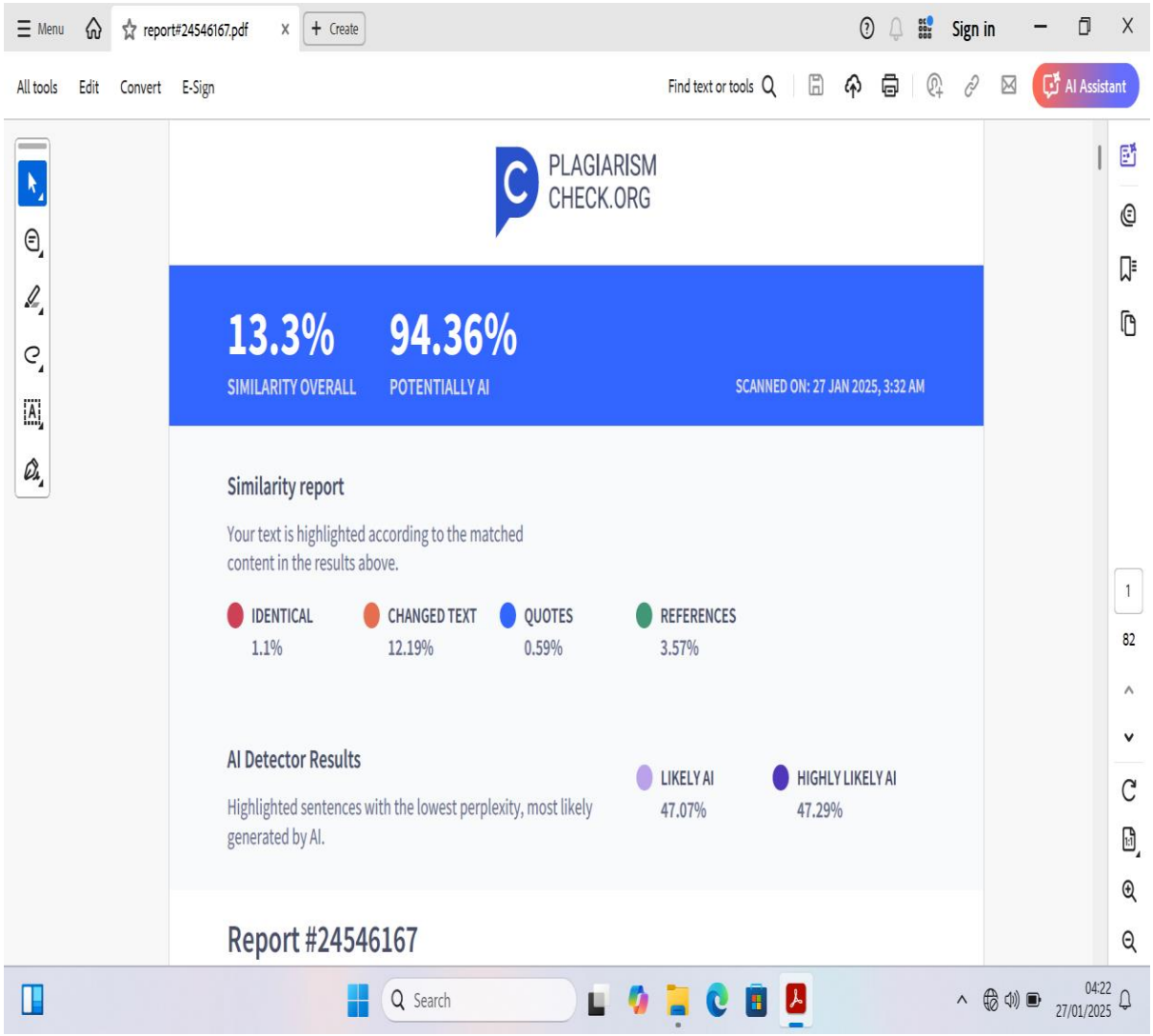
Variable	VIF	1/VIF
Marital status	2.20	0.455293
Household size	1.85	0.541042
Number of children	1.75	0.572676
Age group	1.68	0.595652
Sex of household head	1.67	0.599977
Residence	1.34	0.746476
Education	1.26	0.795524
Household income	1.19	0.843514
Province	1.09	0.915930
Mean VIF	1.56	

Hosmer-Lemeshow test

Number of observations	13,753
Number of groups	10
Pearson chi2(8)	9.378
Prob > chi2	0.310

estat hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of res_sq
chi2(1) = 2.14
Prob > chi2 = 0.143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