

MAKERERE



UNIVERSITY

**COLLEGE OF BUSINESS AND MANAGEMENT SCIENCES
(CoBAMS)**

SCHOOL OF STATISTICS AND PLANNING

**GENDER DISPARITIES IN ENTERPRISE GROWTH, SECTORAL DISTRIBUTION,
AND PERFORMANCE IN UGANDA: EVIDENCE FROM COBE 2019/20**

BY

NAKAWEESI PATRICIA

REG.NO: 23/U/1021

STUDENT NO:2300701021

**A DISSERTATION SUBMITTED TO THE SCHOOL OF STATISTICS AND
PLANNING IN PARTIAL FULFILLMENT FOR THE AWARD OF
THE DEGREE OF BACHELOR OF STATISTICS OF
MAKERERE UNIVERSITY.**

JUNE, 2026

DECLARATION

I, Nakaweesi Patricia, declare that this dissertation is my original work and has been carried out under the supervision of Mr. Sserunjogi Ambrose of the School of Statistics and Planning, Makerere University. To the best of my knowledge, it has not been submitted for any degree or professional qualification at any other university or institution.

All sources of information used in this study have been duly acknowledged through citations and references in accordance with the academic standards of Makerere University. Where the work of others has been drawn upon, it has been clearly indicated and referenced.

This dissertation is submitted in partial fulfilment of the requirements for the award of the Bachelor of Statistics, Makerere University.

Signature: Nakaweesi P.

Date: 18/06/26

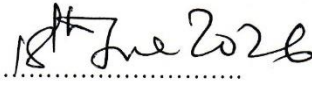
Reg.No: **23/U/1021**

Student No.: **2300701021**

APPROVAL

This dissertation has been submitted with my approval.

Signature:.....

Date:

MR. SSERUNJOGI AMBROSE

Lecturer, Department of Statistical Methods and Actuarial Science

School of Statistics and Planning

College of Business and Management Sciences (CoBAMS)

Makerere University.

DEDICATION

I dedicate this dissertation to my family for their unwavering support, encouragement, and sacrifices throughout my academic journey. Their love, patience, and belief in my abilities have been a constant source of strength and motivation.

I also dedicate this work to my supervisors and lecturers for their guidance, mentorship, and invaluable academic support, which greatly contributed to the successful completion of this study.

Finally, I dedicate this dissertation to all aspiring researchers and entrepreneurs, especially women striving to overcome barriers in business and enterprise development. May this work contribute, in its own way, to the advancement of knowledge and the promotion of gender equality in enterprise growth and performance.

ACKNOWLEDGEMENT

I would like to express my sincere gratitude to my supervisor, Mr. Sserunjogi Ambrose, Lecturer in the Department of Statistical Methods and Actuarial Science, School of Statistics and Planning, Makerere University, for his invaluable guidance, constructive feedback, and unwavering support throughout the research process. His mentorship and dedication to academic excellence greatly shaped the quality of this dissertation.

I also extend my heartfelt appreciation to the lecturers and staff of the School of Statistics and Planning for the knowledge and skills imparted throughout my academic journey, which provided the foundation for this study.

I am grateful to the Uganda Bureau of Statistics (UBOS) for making the Census of Business Establishments (COBE) 2019/20 dataset publicly available, without which this study would not have been possible.

Finally, I would like to thank my family and friends for their continuous encouragement, patience, and moral support during the course of my studies. Their belief in my abilities has been a constant source of strength and motivation.

TABLE OF CONTENTS

DECLARATION	i
APPROVAL	ii
DEDICATION	iii
ACKNOWLEDGEMENT	iv
TABLE OF CONTENTS.....	v
LIST OF ACRONYMS/ABBREVIATIONS	ix
LIST OF TABLES	x
ABSTRACT.....	xii
CHAPTER ONE: INTRODUCTION.....	1
1.1 Background.	1
1.2 Problem Statement	2
1.3 General Objective.....	3
1.4 Specific Objectives.....	3
1.5 Research Hypotheses.....	4
1.6 Significance of the Study	5
1.7 Scope of the Study.....	5
CHAPTER TWO: LITERATURE REVIEW	6
2.1 Introduction	6
2.2 Gender Differences in Enterprise Size Distribution.....	6
2.3 Gender and Sectoral Distribution of Enterprises.....	7
2.4 Gender Differences in Employment Levels	8
2.5 Gender Differences in Enterprise Performance (Turnover).....	8
2.6 Workforce Gender Composition and Enterprise Ownership	9

2.7	Theoretical Framework	10
2.7.1	Human Capital Theory.....	10
2.7.2	Gender Role Theory.....	11
2.7.3	Institutional Theory.....	12
2.7.4	Integration of Theories.....	12
2.8	Empirical Literature	13
2.9	Research Gap.....	14
2.10	Conceptual Framework.....	15
CHAPTER THREE: METHODOLOGY		17
3.1	Introduction	17
3.2	Research Design.....	17
3.3	Data Source	17
3.4	Study Variables	18
3.5	Data Processing and Management	18
3.6	Data Analysis Methods	19
3.7	Analytical Population.....	19
3.8	Ethical Considerations.....	20
3.9	Limitations of the Study	21
CHAPTER FOUR: RESULTS AND DISCUSSION		22
4.1	Introduction	22
4.2	Descriptive Overview of the Dataset	22
4.3	Objective One: Gender Differences in Enterprise Size Distribution.....	24
4.4	Objective Two: Sectoral Distribution of Enterprises by Gender	26
4.5	Objective Three: Gender Differences in Employment Levels.....	27

4.6 Objective Four: Gender Differences in Enterprise Performance (Annual Turnover).....	29
4.7 Objective Five: Workforce Gender Composition by Ownership Gender.....	30
4.8 Additional Enterprise Characteristics: Formality Status and Technology Adoption.....	32
4.9 Multivariate Analysis: Isolating the Independent Effect of Gender	33
4.9.1 Binary Logistic Regression: Enterprise Size	33
4.9.2 Binary Logistic Regression: Formality Status	34
4.9.3 OLS Regression: Log-Transformed Annual Turnover	35
4.9.4 OLS Regression: Log-Transformed Employment	35
4.9.5 Quantile Regression: The Gender Turnover Gap Across the Distribution	36
4.9.6 Multiple Hypothesis Testing.....	36
4.9.7 Synthesis of Multivariate Findings	36
4.10 Summary of Key Findings	39
CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS	40
5.1 Introduction.....	40
5.2 Conclusions by Objective	40
5.2.1 Enterprise Size Distribution.....	40
5.2.2 Sectoral Distribution	40
5.2.3 Employment Levels	41
5.2.4 Enterprise Performance (Annual Turnover)	41
5.2.5 Workforce Gender Composition.....	42
5.2.6 Additional Findings: Formality and Technology Adoption.....	42
5.2.7 Conclusion	43
5.3 Recommendations.....	43
5.4 Policy Implications	46

5.5 Limitations of the Study.....	47
5.6 Areas for Future Research	49
REFERENCES.	51
APPENDIX A: Stata Code for Data Analysis	53
APPENDIX B: Regression Diagnostic Outputs	54

LIST OF ACRONYMS/ABBREVIATIONS

MSMEs	: Micro, Small and Medium Enterprises.
GDP	: Gross Domestic Product.
COBE	: Census of Business Establishments.
SDGs	: Sustainable Development Goals.
NDP III	: National Development Plan III
UBOS	: Uganda Bureau of Statistics
ISIC	: International Standard Industrial Classification
NITA-U	: National Information Technology Authority of Uganda

LIST OF TABLES

Table 4. 1: Sample Composition by Gender of Enterprise Ownership (COBE 2019/20)	23
Table 4.2: presents the distribution of enterprises across the four MSME size categories by gender of ownership.....	24
Table 4.3: presents the distribution of male and female-owned enterprises across key ISIC sectors.	26
Table 4.4: presents summary statistics for total employment by gender of ownership.....	28
Table 4.5: presents summary statistics for annual turnover by gender of ownership. All values are in Uganda Shillings (UGX).	29
Table 4.6: presents summary statistics for this variable by ownership gender.....	30
Table 4. 7 presents formality Status and Computer Use by Gender of Ownership	32
Table 4.8: provides a consolidated summary of all findings, including the test statistic, significance level, and direction of the gender difference for each dimension analyzed.	37
 Table 5. 1: Mapping of Recommendations to Empirical Findings	 45

LIST OF FIGURES

Figure 2.1: Presents the conceptual framework.....	16
Figure 4.1: Distribution of Enterprises by Gender of Enterprise Owner.....	23

ABSTRACT

Background

Gender disparities in enterprise development remain a significant challenge in Uganda, limiting the contribution of women-owned businesses to employment creation, income generation, and economic growth. Despite the increasing participation of women in entrepreneurship, evidence suggests that female-owned enterprises face structural constraints related to access to finance, technology, skills, and market opportunities. Understanding the nature and extent of these disparities is essential for informing policies aimed at promoting inclusive enterprise development.

Objective

This study examined gender differences in enterprise size distribution, sectoral concentration, employment levels, annual turnover, and workforce gender composition among business establishments in Uganda. It also explored differences in enterprise formality status and technology adoption between male- and female-owned enterprises.

Methods

The study utilized data from the 2019/20 Census of Business Establishments (COBE). Descriptive statistics were used to summarize enterprise characteristics. Chi-square (χ^2) tests were applied to categorical variables, while Mann–Whitney U tests were used for continuous variables due to highly skewed distributions. Statistical significance was assessed at the 5% level ($p < 0.05$). Multivariate regression models including binary logistic regression, ordinary least squares regression, and quantile regression were additionally estimated to isolate the independent effect of gender of ownership while controlling for sector, region, enterprise age, and formality status.

Results

Significant gender disparities were observed across all dimensions examined ($p < 0.001$). Female-owned enterprises were more concentrated in micro (35.2%) and small (23.2%) categories, whereas male-owned enterprises were more concentrated in the medium-size category (52.7% versus 41.6%). Women predominated in accommodation and food services, owning 51.8% of enterprises in the sector, while men dominated construction (97.4%), information and communication (92.5%), agriculture (87.6%), and manufacturing (72.7%). Male-owned enterprises reported higher average employment (3.09 versus 2.17 employees) and higher median annual turnover (UGX 12.0 million versus UGX 7.2 million), indicating a 40% performance gap. Female-owned enterprises had a higher average female workforce share (76.7% versus 41.2%) and were more likely to be formally registered (94.0% versus 87.0%). However, male-owned enterprises were more than twice as likely to use computers in business operations (33.0% versus 16.1%).

Conclusion

Gender disparities in Uganda's enterprise sector are substantial and multidimensional, affecting enterprise scale, sector participation, employment generation, business performance, workforce composition, and technology adoption. While female-owned enterprises demonstrate strengths in formal registration and women's employment, they remain disadvantaged in growth-oriented sectors, turnover, and technology use. Policies aimed at improving women's access to digital technologies, finance, skills development, and high-growth economic sectors are critical for reducing gender-based enterprise inequalities and promoting inclusive economic development.

Keywords: Gender disparities, female-owned enterprises, enterprise performance, MSMEs, Uganda, COBE 2019/20, technology adoption, enterprise development.

CHAPTER ONE: INTRODUCTION.

1.1 Background.

Micro, Small and Medium Enterprises (MSMEs) are widely recognized as critical drivers of economic growth, employment creation, and poverty reduction worldwide. According to the World Bank (2020), MSMEs account for approximately 90 percent of businesses globally and contribute more than 50 percent of total employment. In developing economies, MSMEs play an especially vital role by generating income where formal wage employment is limited, and by fostering local innovation and economic resilience (ILO, 2018).

In Uganda, MSMEs form the backbone of the private sector and contribute significantly to gross domestic product (GDP), employment generation, and household incomes. According to the Uganda Bureau of Statistics, the private sector employs a large proportion of the working population, with micro and small enterprises accounting for the majority of business establishments. The Census of Business Establishments (COBE) 2019/20 provides nationally representative data on enterprise ownership, employment size, industrial classification, and turnover. The census revealed that the majority of businesses in Uganda operate at micro scale, employ relatively few workers, and are concentrated in trade and service sectors.

Gender equality in economic participation has become a major policy issue at both global and national levels. The United Nations through the Sustainable Development Goals (SDGs), particularly Goal 5, emphasizes the promotion of gender equality and women's economic empowerment. Women's participation in entrepreneurship has increased considerably over the years, contributing significantly to enterprise development and employment creation. However, research shows that important gender disparities persist in enterprise growth, sectoral participation, and business performance.

Studies have shown that female-owned enterprises tend to be smaller in size, generate lower revenues, and are concentrated in sectors with lower growth potential compared to male-owned enterprises. Men are more likely to operate in capital-intensive and high-return sectors such as manufacturing, construction, and transport, while women are more concentrated in retail trade, hospitality, and personal services. These disparities are often linked to differences in access to

finance, productive assets, markets, and business networks (International Labour Organization, 2018).

In the Ugandan context, women account for 42.2 percent of enterprise owners captured in the COBE 2019/20 census, yet their enterprises are heavily concentrated in micro and small categories and in low-return service sectors. Women entrepreneurs continue to face structural constraints including limited access to finance, lower capital investment, and restricted market access, which collectively suppress enterprise growth and business performance (World Bank, 2020). These barriers limit employment generation, sectoral diversification, and the broader contribution of female-owned enterprises to Uganda's economy.

Despite the availability of nationally representative enterprise data from the Uganda Bureau of Statistics, limited empirical studies have comprehensively examined gender disparities across multiple dimensions of enterprise development in Uganda. Most existing studies focus on access to finance or poverty outcomes, with less emphasis on enterprise size, sectoral distribution, employment capacity, and turnover simultaneously.

Using secondary data from the Census of Business Establishments 2019/20, this study seeks to analyze gender disparities in enterprise growth, sectoral distribution, and performance in Uganda. Specifically, the study examines differences in enterprise size, sectoral concentration, employment levels, turnover, and workforce composition between male-owned and female-owned enterprises. The findings will contribute to evidence-based policy discussions on inclusive enterprise growth and gender-responsive economic development in Uganda.

1.2 Problem Statement

Women constitute a significant share of enterprise owners in Uganda, yet evidence from the Census of Business Establishments (COBE) 2019/20 reveals persistent and multidimensional disparities between male and female-owned enterprises. Female-owned enterprises account for 42.2 percent of surveyed establishments yet generate a median annual turnover of approximately UGX 7.2 million, compared to UGX 12 million for male-owned enterprises. This performance gap reflects deeper structural inequalities in enterprise size, sector access, and resource availability that continue to constrain women's economic contribution. This gap matters beyond its effect on individual female entrepreneurs: Uganda's National Development Plan III (NDP III)

explicitly identifies inclusive private sector growth and the formalisation of MSMEs as priority outcomes for the 2020/21–2024/25 planning period. With women constituting nearly half of all surveyed enterprises, persistent gender disparities in size, sector, and performance represent a direct constraint on the achievement of these national development targets, making the gap a policy-relevant problem rather than a purely descriptive one.

Existing studies in Uganda have largely focused on women’s access to finance and entrepreneurial challenges, but limited empirical evidence exists on how gender differences affect enterprise size, sectoral distribution, employment, and turnover using nationally representative business establishment data. This creates a knowledge gap in understanding the broader dimensions of gender disparities in enterprise development.

The availability of the COBE 2019/20 dataset, which covers 68,702 business establishments across all regions of Uganda, provides a unique opportunity to conduct a multidimensional analysis of these disparities. This study therefore utilizes the COBE 2019/20 data to systematically analyze gender disparities in enterprise size, sectoral distribution, employment, performance, and workforce composition in Uganda.

1.3 General Objective

To examine gender disparities in enterprise growth, sectoral distribution, and performance among enterprises in Uganda using COBE 2019/20 data.

1.4 Specific Objectives

To examine gender differences in enterprise size distribution in Uganda.

To analyze sectoral distribution of enterprises by gender.

To compare employment levels between male and female-owned enterprises.

To assess differences in enterprise performance using annual turnover.

To examine workforce composition by ownership gender.

1.5 Research Hypotheses

The following null (H_0) and alternative (H_1) hypotheses were formulated to guide the study, corresponding to each of the five specific objectives. Statistical significance was assessed at the 5 percent level ($p < 0.05$) for all hypotheses. A Bonferroni-adjusted threshold of $p < 0.00714$ was also applied as a robustness check given the seven statistical tests conducted.

Hypothesis 1: Enterprise Size Distribution

H_0 : There is no statistically significant difference in enterprise size distribution between male-owned and female-owned enterprises in Uganda.

H_1 : There is a statistically significant difference in enterprise size distribution between male-owned and female-owned enterprises in Uganda.

Hypothesis 2: Sectoral Distribution

H_0 : There is no statistically significant difference in sectoral distribution between male-owned and female-owned enterprises in Uganda.

H_1 : There is a statistically significant difference in sectoral distribution between male-owned and female-owned enterprises in Uganda.

Hypothesis 3: Employment Levels

H_0 : There is no statistically significant difference in employment levels between male-owned and female-owned enterprises in Uganda.

H_1 : There is a statistically significant difference in employment levels between male-owned and female-owned enterprises in Uganda.

Hypothesis 4: Annual Turnover

H_0 : There is no statistically significant difference in annual turnover between male-owned and female-owned enterprises in Uganda.

H_1 : There is a statistically significant difference in annual turnover between male-owned and female-owned enterprises in Uganda.

Hypothesis 5: Workforce Gender Composition

H₀: There is no statistically significant difference in workforce gender composition between male-owned and female-owned enterprises in Uganda.

H₁: There is a statistically significant difference in workforce gender composition between male-owned and female-owned enterprises in Uganda.

1.6 Significance of the Study

This study makes three distinct contributions. First, from a policy perspective, the findings provide evidence for policymakers, development partners, and business support institutions on the structural barriers affecting female-owned enterprises, informing the design of targeted interventions to promote inclusive enterprise growth. Second, from an academic perspective, the study contributes to the empirical literature on gender and entrepreneurship in sub-Saharan Africa by offering a simultaneous, multidimensional analysis of enterprise size, sector, employment, turnover, and workforce composition rather than examining these dimensions in isolation. Third, from a practical standpoint, the findings can guide enterprise development programs, financial institutions, and business incubation services in tailoring support to the specific constraints faced by female entrepreneurs in Uganda.

1.7 Scope of the Study

The study is geographically scoped to all business establishments across Uganda's four administrative regions (Central, Eastern, Northern, and Western) as captured in the COBE 2019/20 dataset, which comprises 68,702 business establishments. The thematic scope covers five enterprise characteristics: size, sectoral distribution, employment levels, annual turnover, and workforce gender composition. The unit of analysis is the individual business establishment, with gender of enterprise ownership as the primary stratifying variable. The study is cross-sectional in design and is therefore limited to describing and testing associations at a single point in time; it does not establish causal relationships between gender and enterprise outcomes.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviews theoretical and empirical literature on gender disparities in enterprise development. The review is organised into four parts. First, Sections 2.2 to 2.6 review empirical evidence on gender differences across the five enterprise dimensions: enterprise size, sectoral distribution, employment levels, business performance, and workforce composition. Second, Section 2.7 presents the theoretical framework, drawing on Human Capital Theory (Becker, 1964), Gender Role Theory (West and Zimmerman, 1987), and Institutional Theory (North, 1990). Third, Section 2.8 synthesises the broader empirical literature on gender and entrepreneurship, with particular attention to sub-Saharan African and Ugandan evidence. Finally, Sections 2.9 and 2.10 identify the research gap and present the conceptual framework.

2.2 Gender Differences in Enterprise Size Distribution

Enterprise size is a fundamental indicator of business growth and economic contribution, typically measured by employment levels, turnover, or asset value. The MSME classification used in Uganda categorises enterprises as micro (1-4 employees), small (5-49 employees), medium (50-99 employees), and large (100 or more employees), following the UBOS (2021) framework.

Empirical evidence consistently shows that female-owned enterprises are disproportionately concentrated in micro and small categories, while male-owned enterprises are more likely to operate at medium and large scales (World Bank, 2020; ILO, 2018; Minniti and Naude, 2010). This disparity reflects a range of structural constraints that disproportionately affect women

entrepreneurs. Limited access to formal finance is among the most widely documented barriers: women frequently face challenges in obtaining credit due to lack of collateral, lower asset ownership, and discriminatory lending practices (World Bank, 2020; Kabeer, 2012). Without adequate growth capital, female-owned enterprises are constrained to small-scale operations. Differences in business networks and access to market information also widen the size gap: male entrepreneurs more commonly benefit from professional networks and industry associations that facilitate partnerships and market access (Bates, 1990). In Uganda, UBOS (2021) data confirm that female-owned enterprises are more prevalent in micro-scale, subsistence-oriented activities while male-owned enterprises show greater diversity across size categories.

2.3 Gender and Sectoral Distribution of Enterprises

Sectoral distribution refers to the spread of enterprises across different economic activities classified under the International Standard Industrial Classification (ISIC) system. Sector of operation is a critical determinant of enterprise growth potential, with capital-intensive sectors such as manufacturing, construction, and ICT generally offering higher returns than service and retail sectors (ILO, 2019).

Studies across sub-Saharan Africa and globally document strong gender-based sectoral segmentation. Women are significantly more likely to operate in service-oriented sectors such as wholesale and retail trade, accommodation and food services, and personal services, while men dominate capital-intensive sectors including construction, manufacturing, transport, and ICT (World Bank, 2020; ILO, 2018; African Development Bank, 2019). This pattern is particularly pronounced in Uganda, where UBOS (2021) data show female-owned enterprises heavily concentrated in trade and food-related activities.

Gender Role Theory (West and Zimmerman, 1987) provides a foundational explanation: socially constructed norms shape the economic activities men and women are expected to pursue. Sectors perceived as feminine typically have lower entry barriers but also lower returns and growth potential.

Institutional barriers further reinforce this pattern: capital-intensive sectors require higher investment, technical qualifications, and infrastructure access that women are less likely to

possess due to systemic inequalities in education and asset ownership (North, 1990; Kabeer, 2012).

Consequently, sectoral segregation is both a cause and a consequence of gender disparities in enterprise performance.

2.4 Gender Differences in Employment Levels

Employment level is a direct measure of enterprise scale and a key indicator of an enterprise's capacity to contribute to job creation and economic development. It is closely linked to enterprise size, sector of operation, and access to growth capital.

Empirical studies consistently find that male-owned enterprises employ more workers than female-owned enterprises (ILO, 2018; ILO, 2019). Female-owned enterprises frequently operate as sole proprietorships or with one or two employees, while male-owned enterprises are more likely to expand their workforce as the business grows (Minniti and Naude, 2010). In Uganda, Moses (2014) found that gender was a significant predictor of employment expansion, with female-owned enterprises showing slower workforce growth even after controlling for sector and enterprise age.

Several intersecting factors explain these employment differences. Female entrepreneurs are disproportionately concentrated in sectors with low labour demand per enterprise unit, such as retail trade and personal services. Limited capital access constrains female entrepreneurs from financing additional hires even when demand warrants it (World Bank, 2020).

Time constraints arising from dual productive and reproductive responsibilities further reduce operational capacity to manage larger workforces (Kabeer, 2012). Human Capital Theory (Becker, 1964) additionally suggests that differences in managerial experience and business training contribute to differential capacity to organise and expand a paid workforce.

Employment disparities are therefore structural rather than incidental, reflecting deeper inequalities in capital access, time availability, and human capital accumulation.

2.5 Gender Differences in Enterprise Performance (Turnover)

Enterprise performance is most commonly operationalised through turnover, profitability, or growth rates. Annual turnover is a particularly useful measure in census-based studies because it

is observable and comparable across enterprise types without requiring profit or cost data (Storey, 1994).

Research consistently shows that male-owned enterprises outperform female-owned enterprises in revenue generation across Africa and globally (World Bank, 2020; ILO, 2018; Blanchflower and Oswald, 1998). The World Bank (2020) reports that the gender revenue gap in African enterprises is partly a function of size and sector: because female-owned enterprises are smaller and concentrated in lower-value sectors, their turnover is structurally lower even before individual owner characteristics are considered.

Cabrera and Mauricio (2017) identify access to credit, technology adoption, and formal business training as the three most consistent predictors of higher enterprise turnover, all areas where female entrepreneurs face disproportionate disadvantage.

In Uganda, UBOS (2021) data indicate that female-owned enterprises generate significantly lower average revenues than male-owned enterprises, a pattern confirmed in the COBE 2019/20 data analysed in this study (median turnover: UGX 7.2 million for female-owned vs UGX 12 million for male-owned).

Institutional Theory (North, 1990) provides a structural explanation: persistent inequalities in access to credit markets, technology, and business networks create a performance ceiling for female entrepreneurs that cannot be overcome through individual effort alone.

2.6 Workforce Gender Composition and Enterprise Ownership

Workforce gender composition, defined as the proportion of an enterprise's employees who are female, provides insight into how ownership gender shapes labour market outcomes beyond the enterprise itself, reflecting the interaction between enterprise-level hiring decisions and broader labour market dynamics.

Studies consistently indicate that female-owned enterprises employ a significantly higher proportion of women than male-owned enterprises (ILO, 2018; Allen et al., 2008). This has been documented across sub-Saharan Africa, where female-owned enterprises in trade and service sectors often employ predominantly female workforces (African Development Bank, 2019).

Two mechanisms primarily explain this pattern. First, social network-based hiring is prevalent in developing economy enterprises: entrepreneurs tend to recruit from within their personal networks, which for women are more likely to be female-dominated (Bates, 1990). Second, sectoral clustering reinforces gender composition, since female-owned enterprises are concentrated in accommodation, food services, and retail where female employment is already more common.

This pattern has important equity implications: if female-owned enterprises serve as the primary employers of women, then barriers to their growth translate directly into constrained employment opportunities for female workers.

Policies that strengthen female-owned enterprises may therefore have multiplier effects on female employment more broadly (Kabeer, 2012).

2.7 Theoretical Framework

This study is grounded in three complementary theoretical perspectives: Human Capital Theory (Becker, 1964), Gender Role Theory (West and Zimmerman, 1987), and Institutional Theory (North, 1990). Together, these theories operate at different levels of analysis individual, social, and structural respectively and jointly provide a comprehensive explanation of how gender shapes enterprise growth, sectoral distribution, employment, performance, and workforce composition.

2.7.1 Human Capital Theory

Human Capital Theory posits that individuals' economic productivity is determined by their accumulated knowledge, skills, education, and experience. Differences in these attributes lead to variations in economic outcomes such as income, productivity, and business success.

In the context of entrepreneurship, human capital influences an entrepreneur's ability to identify opportunities, manage resources, adopt technology, and expand business operations. Entrepreneurs with higher levels of education and experience are more likely to operate larger enterprises, enter high-value sectors, and achieve higher turnover.

Gender disparities in human capital can therefore translate into differences in enterprise outcomes. In many developing countries, including Uganda, women may have comparatively

lower access to advanced education, technical training, and business development opportunities. These differences can limit their capacity to grow enterprises beyond micro and small scales.

Furthermore, human capital affects sectoral choices. Sectors such as manufacturing, construction, and information technology often require specialized skills and technical expertise, which may be less accessible to women due to historical inequalities in education and training. As a result, women are more likely to engage in sectors with lower skill requirements and lower returns.

In relation to this study, Human Capital Theory helps explain why female-owned enterprises are concentrated in smaller size categories, why they generate lower turnover, and why they are underrepresented in capital-intensive sectors that require specialised technical skills.

2.7.2 Gender Role Theory

Gender Role Theory explains how socially constructed roles and expectations influence the behavior, choices, and opportunities of men and women. These roles are shaped by cultural norms, traditions, and societal expectations.

In many societies, including Uganda, women are often associated with domestic responsibilities such as childcare and household management, while men are associated with economic provision. These expectations influence the types of economic activities that men and women engage in.

In entrepreneurship, gender roles shape sector selection, business scale, and time allocation to business activities.

Women are more likely to engage in businesses that are flexible and compatible with household responsibilities, such as retail trade, food services, and personal services. These sectors typically have lower entry barriers but also lower growth potential and profitability.

Additionally, gender norms may discourage women from entering male-dominated sectors such as construction, transport, and manufacturing, even when they have the capability to do so. This results in occupational segregation, where men and women are concentrated in different sectors.

Gender Role Theory also helps explain differences in enterprise growth. Women's dual responsibilities in both productive and reproductive roles may limit the time and resources they can devote to expanding their businesses, thereby affecting employment levels and turnover.

In this study, Gender Role Theory explains the observed sectoral segregation between male and female-owned enterprises, differences in enterprise size and growth trajectories, and the tendency of female-owned enterprises to employ predominantly female workforces.

2.7.3 Institutional Theory

Institutional Theory focuses on how formal and informal rules, norms, and structures shape economic behavior and outcomes. Institutions include laws, regulations, financial systems, cultural norms, and social networks.

From this perspective, gender disparities in enterprise outcomes are not only a result of individual differences but also of systemic and structural constraints embedded within institutions.

Formal institutional barriers affecting female entrepreneurs include limited access to credit and financial services, legal restrictions or bureaucratic burdens, and unequal property and inheritance rights. Informal institutional barriers include cultural norms that restrict women's economic participation, discriminatory practices in markets and financial systems, and exclusion from business networks. These constraints disproportionately affect women, restricting their capacity to scale up enterprises, access lucrative markets, and compete effectively. In the context of this study, Institutional Theory explains why female-owned enterprises remain concentrated in micro and small categories, why women have lower access to high-growth sectors, and why persistent performance gaps exist even when individual-level human capital differences are controlled for.

In the context of this study, Institutional Theory provides a broader explanation for the structural nature of gender disparities observed in enterprise size, sectoral distribution, and performance.

2.7.4 Integration of Theories

These three theories are complementary rather than competing. Human Capital Theory explains individual-level differences in skills, education, and experience. Gender Role Theory explains

the social and cultural influences that channel men and women into different sectors and scales. Institutional Theory explains the structural constraints embedded in financial systems, property rights, and cultural norms that perpetuate disparities independent of individual characteristics. Together, they provide a multi-level framework for interpreting the gender disparities observed in enterprise size, sector, employment, turnover, and workforce composition in this study.

2.8 Empirical Literature

Empirical studies across different regions consistently document gender disparities in enterprise characteristics. The following review synthesizes evidence at global, African, and Ugandan levels.

A report by the World Bank (2020) provides extensive evidence on gender gaps in entrepreneurship across Africa. The report finds that women-owned enterprises are generally smaller, less productive, and generate lower profits compared to male-owned enterprises. These disparities are attributed to differences in access to capital, labor, and markets.

The International Labour Organization (2018) also highlights that women are overrepresented in informal and low-productivity sectors. According to the report, female entrepreneurs are more likely to operate in retail and service sectors, which typically require lower capital but yield lower returns. In contrast, male entrepreneurs are more present in sectors such as manufacturing and construction, which have higher productivity and growth potential.

Empirical evidence further shows that gender differences in enterprise size are closely linked to employment patterns. Male-owned enterprises tend to employ more workers and are more likely to expand their workforce over time. Female-owned enterprises, on the other hand, are more likely to remain small and employ fewer workers, often due to limited access to financial and human resources.

In terms of performance, several studies find that male-owned enterprises generate higher turnover than female-owned enterprises. This performance gap is largely explained by differences in sectoral distribution and enterprise size. Since male-owned enterprises are more likely to operate in high-value sectors and at larger scales, they tend to achieve higher revenues.

Workforce composition also reflects gender disparities. Female-owned enterprises tend to employ a higher proportion of women, while male-owned enterprises employ more men. This

pattern reinforces gender segmentation in the labor market and limits cross-gender employment opportunities.

In the Ugandan context, data from the Uganda Bureau of Statistics (2021) shows that MSMEs dominate the economy and are key drivers of employment. However, gender differences in enterprise characteristics remain evident. Female-owned enterprises are more prevalent in small-scale and service-oriented activities, while male-owned enterprises are more diversified across sectors.

Despite the availability of such evidence, most empirical studies focus on specific aspects of gender disparities, such as access to finance or sector participation. Few studies provide a comprehensive analysis that integrates multiple dimensions of enterprise characteristics using nationally representative data.

This study contributes to the existing literature by providing a multidimensional analysis of gender disparities in Uganda, simultaneously examining enterprise size, sectoral distribution, employment, performance, and workforce composition using COBE 2019/20 data.

2.9 Research Gap

Three gaps in the existing literature justify this study. First, most Ugandan studies on gender and entrepreneurship focus on a single dimension, typically access to finance or sector participation, rather than examining size, sector, employment, performance, and workforce composition simultaneously. Second, existing studies predominantly rely on small-scale primary surveys with limited geographic coverage, making nationally representative conclusions difficult. The COBE 2019/20, covering 68,702 establishments across all regions of Uganda, provides a substantially larger and more representative evidence base. Third, most descriptive studies in Uganda do not apply inferential tests appropriate for skewed data distributions, relying on mean comparisons distorted by outliers.

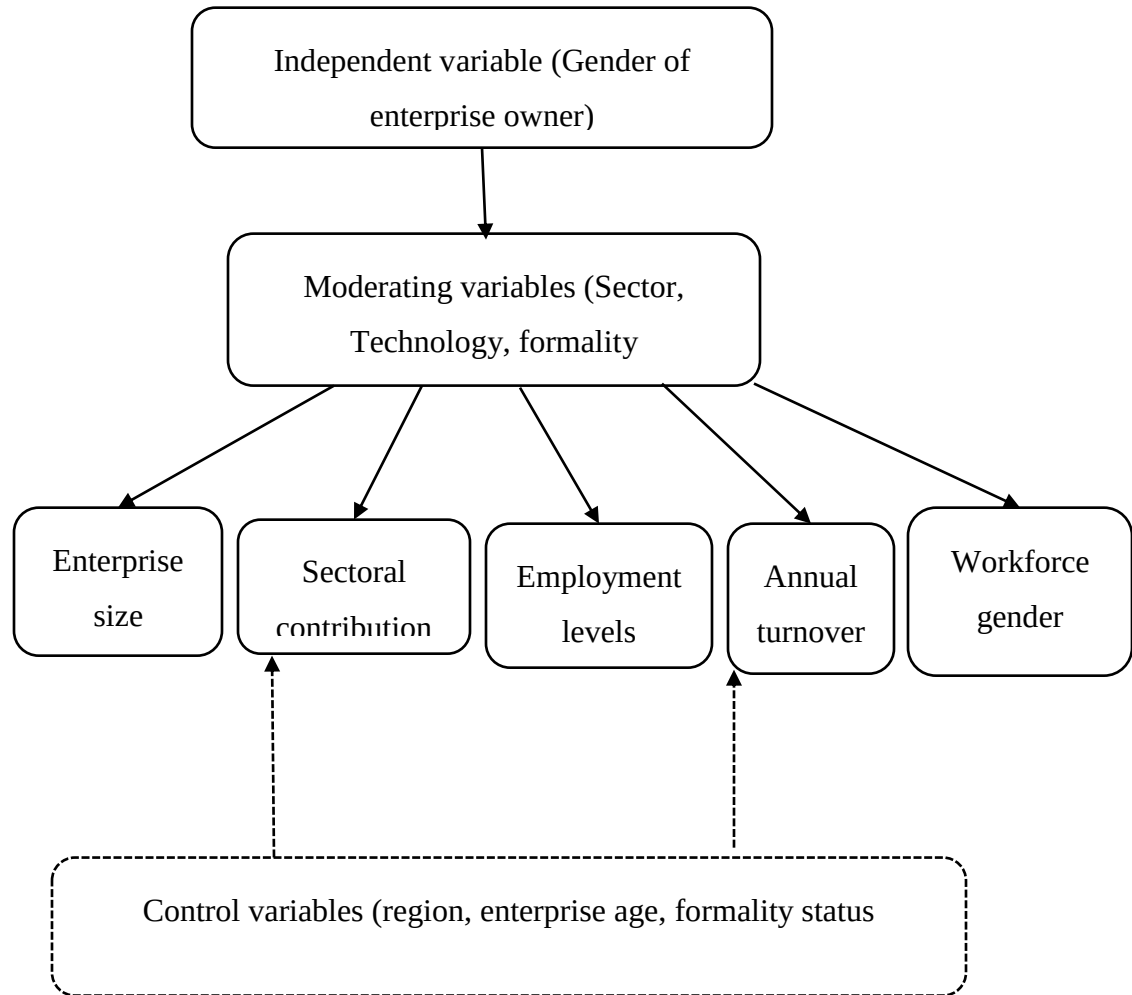
This study addresses all three gaps by providing a multidimensional, inferentially grounded, and nationally representative analysis of gender disparities in enterprise characteristics using COBE 2019/20 data.

2.10 Conceptual Framework

Figure 2.1 presents the conceptual framework guiding this study. The framework identifies gender of enterprise owner as the independent variable, hypothesised to influence five dependent variables: enterprise size distribution, sectoral distribution, employment levels, annual turnover, and workforce gender composition. Two sets of variables qualify this relationship. Sector, technology adoption, and formality status are treated as mediating variables, meaning that gender is hypothesised to shape these intermediate outcomes, which in turn influence enterprise performance and size. Region, enterprise age, and formality status are also treated as control variables, held constant in the multivariate analysis to isolate the direct effect of gender from confounding structural and locational factors.

Four hypothesised pathways underpin the framework. First, gender of enterprise owner is hypothesised to influence enterprise size distribution, with female-owned enterprises expected to be more concentrated at the Micro scale due to lower accumulated capital, credit access, and business experience. Second, gender is hypothesised to influence sectoral distribution through mediating social and structural factors, with female-owned enterprises expected to concentrate in lower-revenue service sectors such as retail trade and personal services while male-owned enterprises dominate capital-intensive sectors such as manufacturing, construction, and information and communication. Third, gender is hypothesised to influence enterprise performance (annual turnover and employment levels), both directly and indirectly through its effect on sector and technology adoption, with female-owned enterprises expected to generate lower turnover and employ fewer workers even within comparable sectors. Fourth, the relationship between gender and all enterprise outcomes is hypothesised to be moderated by region, enterprise age, and formality status, which independently influence enterprise outcomes and must be held constant to isolate the direct effect of gender of ownership. These pathways are grounded in the theoretical and empirical literature reviewed in Section 2.7 and Section 2.8 respectively.

Figure 2.1: Presents the conceptual framework



CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter describes the research design, data source, study variables, data processing procedures, and analytical methods employed in the study. It explains how the COBE 2019/20 data were processed and analyzed to examine gender disparities in enterprise size, sectoral distribution, employment levels, annual turnover, and workforce composition in Uganda. The chapter also justifies the choice of statistical tests, addresses ethical considerations, and outlines the limitations of the analytical approach.

3.2 Research Design

The study adopted a quantitative cross-sectional research design. This design was appropriate because the COBE 2019/20 data were collected at a single point in time and contain objective, numerically measurable enterprise characteristics. A quantitative approach enabled the use of inferential statistical techniques to test hypotheses about differences between male and female-owned enterprises. The cross-sectional nature of the data means the study examines associations rather than causal relationships, which is acknowledged as a limitation in Section 3.9.

3.3 Data Source

The study utilized secondary data from the Census of Business Establishments (COBE) 2019/20, conducted by the Uganda Bureau of Statistics (UBOS). The working dataset comprises 68,702 business establishment records spanning all four administrative regions of Uganda (Central, Eastern, Northern, and Western). It includes variables on enterprise ownership, employment, annual turnover, sector classification based on the International Standard Industrial Classification (ISIC), enterprise formality status, age of business, and geographic location. The dataset contains no missing values for the primary analytical variables (gender of ownership, enterprise size,

sector, employment, turnover, and workforce composition), making it well-suited for comprehensive gender-stratified analysis. Secondary data were chosen because the COBE 2019/20 represents the most recent and comprehensive establishment-level census available for Uganda, providing a larger and more representative evidence base than any primary survey could feasibly achieve within the scope of this study.

3.4 Study Variables

The study specified one independent variable and five dependent variables, plus two contextual variables. The independent variable was gender of enterprise ownership, measured using the variable *OWNER_male_female*, which categorizes ownership as either male or female.

The dependent variables were aligned with the study objectives. Enterprise size was measured using the MSME classification, which categorizes enterprises into micro, small, medium, and large. Sectoral distribution was measured using the *SECTION* variable, based on the ISIC classification, which groups enterprises into sectors such as agriculture, manufacturing, wholesale and retail trade, accommodation and food services, and construction. Employment level was measured using the total number of employees in each enterprise. Enterprise performance was measured using annual turnover, captured by the variable *TURNOVER_ANNUAL*. Workforce composition was measured using a derived variable representing the percentage of female employees in each enterprise.

3.5 Data Processing and Management

The COBE 2019/20 dataset was imported in Stata format (.dta) and processed using Stata/SE 15.0. Data processing involved the following steps. First, the structure and completeness of the dataset were verified by examining variable distributions, value labels, and missing value counts. Second, the female share of the workforce was derived by dividing the number of female employees by total employment and multiplying by 100. Third, the gender of ownership variable (*OWNER_male_female*) was inspected; 10,436 observations with blank or uncodeable values were flagged and excluded from all gender-stratified analyses, yielding an analytical sample of 58,266 establishments (33,657 male-owned and 24,609 female-owned). Fourth, the distributions of continuous variables (*TURNOVER_ANNUAL* and *TOTAL_EMPLOYEES*) were assessed for normality using skewness statistics. Turnover was found to be severely right-skewed

(skewness = 36.96 for male-owned; 37.69 for female-owned), and employment was similarly skewed (skewness = 6.48 for male-owned; 5.35 for female-owned), confirming that parametric tests assuming normality were inappropriate for these variables. Median values were therefore used as the primary measure of central tendency throughout the analyses.

3.6 Data Analysis Methods

Data obtained from the COBE 2019/20 dataset were cleaned, coded, and analyzed using Stata/SE 15.0. Data cleaning involved checking for missing values, inconsistencies, and outliers to ensure the quality and reliability of the data. Descriptive statistics were used to summarize the characteristics of enterprise owners and enterprises. Frequencies and percentages were generated for categorical variables, while means, medians, and standard deviations were computed for continuous variables. Bivariate analysis was conducted using Chi-square (χ^2) tests for the categorical outcome variables corresponding to Hypotheses 1 and 2 (enterprise size distribution and sectoral distribution), and Mann–Whitney U tests for the continuous outcome variables corresponding to Hypotheses 3, 4, and 5 (employment levels, annual turnover, and workforce gender composition), given the severely skewed distributions of these continuous variables. For each hypothesis, the null hypothesis (H_0) was rejected when the test statistic yielded a p-value below the 5 percent significance threshold ($p < 0.05$). A Bonferroni-adjusted threshold of $p < 0.00714$ ($0.05/7$ tests) was also applied as a robustness check for multiple comparisons. Multivariate regression models controlling for sector, region, age, and formality were additionally estimated to isolate the independent effect of gender of ownership on enterprise outcomes, as reported in Section 4.9. All analyses were conducted at a 95 percent confidence level and a 5 percent level of significance ($p < 0.05$).

3.7 Analytical Population

This study utilized the complete COBE 2019/20 dataset as its analytical population rather than a drawn sample. Since secondary data from an existing census were used, no sampling procedure was required or applied. The full dataset comprised 68,702 business establishment records. After excluding 10,436 establishments with uncodeable or missing values for the ownership gender variable, the analytical population for gender-stratified analyses comprised 58,266 establishments (33,657 male-owned and 24,609 female-owned). The use of the complete census

dataset eliminates sampling error and maximises the statistical power and representativeness of the findings, and additionally allows for the analysis of sub-populations such as sector-specific or regional comparisons that would be statistically underpowered if only a sample had been drawn.

Because 15.2 percent of the original dataset was excluded due to missing or uncodeable ownership gender values, a systematic comparison was conducted between the excluded 10,436 establishments and the retained 58,266 to assess whether this exclusion introduced selection bias. Mann-Whitney U tests were used for continuous variables and Chi-square tests for categorical variables. The excluded establishments differed significantly from the retained sample on every characteristic tested: region ($\chi^2 = 56.15$, $p < 0.001$), sector ($\chi^2 \approx 39,000$, $p < 0.001$), enterprise size ($\chi^2 \approx 9,000$, $p < 0.001$), formality status ($\chi^2 \approx 17,000$, $p < 0.001$), total employment ($z = -133.01$, $p < 0.001$), annual turnover ($z = -127.07$, $p < 0.001$), and enterprise age ($z = -30.13$, $p < 0.001$). The excluded establishments were disproportionately concentrated in the Education sector (53.6 percent of excluded cases versus 0.12 percent of retained cases), classified as Medium-sized (94.9 percent versus 48.0 percent), and formally registered (63.7 percent versus 10.0 percent). This indicates that the missingness in ownership gender is not random: excluded establishments are systematically larger, more formal, and more sector-specific than the analytical sample. This pattern most likely reflects a data collection artefact for institutional education providers rather than a behavioural difference between male and female owners. Accordingly, the findings of this study apply most directly to the commercial MSME population in Uganda. This limitation is discussed further in Section 3.9 and Section 5.5. In response to this, multivariate regression models controlling for sector, region, age, and formality were also estimated to isolate the independent effect of gender, as reported in Section 4.9.

3.8 Ethical Considerations

The study used secondary data publicly available from the Uganda Bureau of Statistics (UBOS). As the data were collected by UBOS under established statistical protocols and do not contain personally identifiable information such as names, contact details, or addresses, no ethical approval for primary data collection was required. The anonymity and confidentiality of all business establishments in the dataset are preserved. The data were accessed and used strictly for academic research purposes, in accordance with UBOS data use guidelines.

3.9 Limitations of the Study

This study acknowledges several limitations that should be considered when interpreting the findings. First, the study relied on secondary data from the COBE 2019/20 dataset, which limits the ability to explore causal relationships between gender of ownership and enterprise outcomes. The dataset captures a snapshot of business establishments at a single point in time and does not allow for longitudinal analysis of enterprise growth or performance over time.

Second, 10,436 establishments (15.2 percent) had missing or uncodeable ownership gender values and were excluded. A systematic comparison (Section 3.7) confirmed this exclusion is not random: excluded establishments differ significantly from the retained sample on region ($\chi^2 = 56.15$, $p < 0.001$), sector ($\chi^2 \approx 39,000$, $p < 0.001$), enterprise size ($\chi^2 \approx 9,000$, $p < 0.001$), formality ($\chi^2 \approx 17,000$, $p < 0.001$), employment ($z = -133.01$, $p < 0.001$), turnover ($z = -127.07$, $p < 0.001$), and enterprise age ($z = -30.13$, $p < 0.001$). The excluded establishments are disproportionately large, formal, and concentrated in the Education sector (53.6 percent of excluded cases), suggesting a data collection artefact for institutional establishments. The findings therefore apply most directly to the commercial MSME population.

Third, the dataset does not capture qualitative factors such as the entrepreneur's education level, access to credit, years of experience, or household responsibilities, all of which are known to influence enterprise outcomes. The observed gender differences in enterprise size, sector, employment, and turnover may therefore reflect the influence of these unmeasured variables rather than gender alone.

A detailed discussion of these limitations and their implications for interpretation is provided in Section 5.5.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the findings of the study and discusses them in relation to the research objectives and hypotheses. The analysis examines gender disparities across five enterprise dimensions: size distribution (Hypothesis 1), sectoral concentration (Hypothesis 2), employment levels (Hypothesis 3), annual turnover (Hypothesis 4), and workforce gender composition (Hypothesis 5). Chi-square (χ^2) tests were used for categorical variables (Hypotheses 1 and 2) and Mann–Whitney U tests were applied to continuous variables (Hypotheses 3, 4, and 5) because their distributions were found to be severely right-skewed, making parametric tests inappropriate. All tests were conducted at the 5 percent level of significance ($p < 0.05$) with a Bonferroni-adjusted threshold of $p < 0.00714$ applied as a robustness check. Each section presents descriptive results in tabular form, reports the inferential test statistic, states the hypothesis decision, interprets the finding, and situates it within the theoretical framework presented in Chapter Two. Additional enterprise characteristics (formality status and technology adoption) are reported in Section 4.8. Multivariate regression models that isolate the independent effect of gender while controlling for sector, region, age, and formality are presented in Section 4.9. A summary of all key findings is provided in Section 4.10.

4.2 Descriptive Overview of the Dataset

The COBE 2019/20 dataset comprised 68,702 business establishments across Uganda’s four administrative regions. Of these, 33,657 (57.8 percent) were male-owned and 24,609 (42.2 percent) were female-owned. A total of 10,436 establishments (15.2 percent of the full dataset) had uncodeable or missing ownership values and were excluded from all gender-stratified analyses, yielding an analytical sample of 58,266 establishments. Table 4.1 presents the overall sample composition.

Table 4. 1: Sample Composition by Gender of Enterprise Ownership (COBE 2019/20)

Category	n	%
Male-owned enterprises	33,657	57.8
Female-owned enterprises	24,609	42.2
Unknown/uncodeable ownership (excluded)	10,436	15.2
Total establishments (full dataset)	68,702	100.0
Analytical sample (gender-stratified)	58,266	84.8

The Central region accounted for the largest share of establishments (56.9 percent), followed by Western (19.1 percent), Eastern (15.3 percent), and Northern (8.6 percent) regions. The majority of enterprises were classified as micro or medium scale, confirming the dominance of MSMEs in Uganda's business sector. The average enterprise age was approximately 10 years, indicating a relatively young enterprise population. These baseline characteristics provide the context for the gender-stratified analysis that follows.

Figure 4.1: Distribution of Enterprises by Gender of Enterprise Owner.

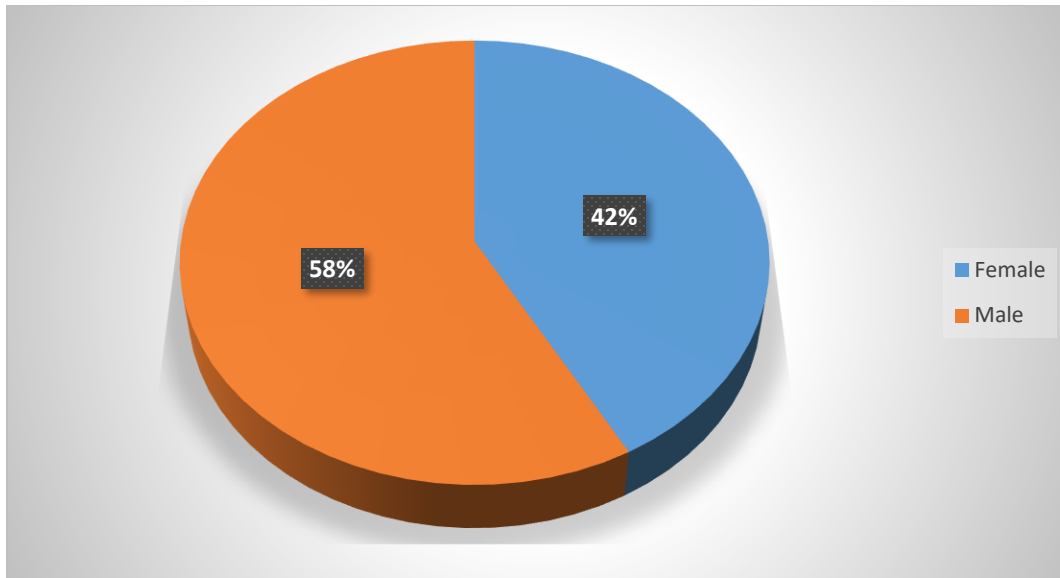


Figure 4.1 presents the distribution of enterprises by the gender of the enterprise owner. The results show that 58% of the enterprises are male-owned, while 42% are female-owned. This indicates that male-owned enterprises constitute the majority of enterprises in the study sample.

4.3 Objective One: Gender Differences in Enterprise Size Distribution

The first objective was to examine gender differences in enterprise size distribution. Table 4.2 presents the distribution of enterprises across the four MSME size categories by gender of ownership. Column percentages show each gender's internal distribution across size categories, while row percentages show the gender composition within each size category.

Table 4.2: presents the distribution of enterprises across the four MSME size categories by gender of ownership.

Size Category	Female-Owned (n)	Male-Owned (n)	Total (n)	Female Col %	Male Col %	Female Row %	Male Row %
Micro	8,661	10,201	18,862	35.2	30.3	45.9	54.1
Small	5,718	5,709	11,427	23.2	17.0	50.0	50.0
Medium	10,227	17,737	27,964	41.6	52.7	36.6	63.4
Large	3	10	13	0.0	0.0	23.1	76.9

Total	24,609	33,657	58,266	100.0	100.0	42.2	57.8
--------------	---------------	---------------	---------------	--------------	--------------	-------------	-------------

Chi-square test: $\chi^2 = 759.67$, $df = 3$, $p < 0.001$. Decision: H_0 rejected and H_1 accepted. There is a statistically significant difference in enterprise size distribution between male-owned and female-owned enterprises ($p < 0.001$).

The results reveal statistically significant gender disparities in enterprise size. Male-owned enterprises were substantially more concentrated at the medium scale: 52.7 percent of all male-owned enterprises were medium-sized, compared to only 41.6 percent of female-owned enterprises. Conversely, female-owned enterprises were more concentrated in micro (35.2 percent) and small (23.2 percent) categories relative to male-owned enterprises (30.3 percent and 17.0 percent respectively). Within each size category, male enterprises dominated at the medium and large scales, owning 63.4 percent and 76.9 percent of those establishments respectively. Small enterprises showed near gender parity (50.0 percent female vs 50.0 percent male). Note: the Large category contained only 13 enterprises in the analytical sample (10 male-owned, 3 female-owned), making the row percentages for this category (76.9 percent male, 23.1 percent female) statistically unreliable due to the very small base. All multivariate models therefore merged Large with Medium and Small into a single “Small/Medium/Large” binary category to avoid estimation instability.

The Chi-square test confirmed that the association between gender of ownership and enterprise size is highly statistically significant ($\chi^2 = 759.67$, $df = 3$, $p < 0.001$). These findings are consistent with World Bank (2020) and ILO (2018), which report that female-owned enterprises in Africa are generally constrained to smaller scales due to limited access to capital, collateral, and business networks. Institutional Theory (North, 1990) explains this pattern through unequal structural access to formal finance: collateral requirements and discriminatory lending practices disproportionately restrict women from investing in business expansion. Human Capital Theory (Becker, 1964) further suggests that differences in technical training and managerial experience limit female entrepreneurs’ capacity to manage larger, more complex operations.

4.4 Objective Two: Sectoral Distribution of Enterprises by Gender

The second objective was to analyse the sectoral distribution of enterprises by gender. Table 4.3 presents the distribution of male and female-owned enterprises across key ISIC sectors. Column percentages show each gender's portfolio composition and the female share column shows the proportion of each sector owned by women.

Table 4.3: presents the distribution of male and female-owned enterprises across key ISIC sectors.

Sector (ISIC)	Female (n)	Male (n)	Total (n)	Female %	Male %	Female Share of Sector %
Agriculture/Forestry/Fishing	86	608	694	0.3	1.8	12.4
Mining & Quarrying	20	56	76	0.1	0.2	26.3
Manufacturing	936	2,489	3,425	3.8	7.4	27.3
Construction	1	37	38	0.0	0.1	2.6
Wholesale & Retail Trade	16,180	20,823	37,003	65.7	61.9	43.7
Transport & Storage	17	106	123	0.1	0.3	13.8
Accommodation & Food Services	3,438	3,194	6,632	14.0	9.5	51.8
Information & Communication	27	331	358	0.1	1.0	7.5
Finance & Insurance	701	1,160	1,861	2.8	3.4	37.7
Health & Social Work	254	628	882	1.0	1.9	28.8
Other Services	2,692	3,094	5,786	10.9	9.2	46.5
All Other Sectors	257	1,131	1,388	1.0	3.4	18.5
Total	24,609	33,657	58,266	100.0	100.0	42.2

Chi-square test: $\chi^2 = 1,561.73$, $df = 19$, $p < 0.001$. Decision: H_0 rejected and H_1 accepted. There is a statistically significant difference in sectoral distribution between male-owned and female-owned enterprises ($p < 0.001$).

Wholesale and retail trade was the dominant sector for both genders, accounting for 65.7 percent of female-owned and 61.9 percent of male-owned enterprises. However, women represent only 43.7 percent of enterprises within this largest sector, indicating male dominance even in the sector most associated with female entrepreneurship. The most female-dominated sector was accommodation and food services, where women own 51.8 percent of establishments and the sector accounts for 14.0 percent of female entrepreneurs' portfolios, compared to just 9.5 percent for male entrepreneurs. Other services (10.9 percent female vs 9.2 percent male) is the only other sector with near-equal gender representation.

Male-owned enterprises dominated all capital-intensive and technical sectors: construction (97.4 percent male), information and communication (92.5 percent male), transport and storage (86.2 percent male), agriculture/forestry/fishing (87.6 percent male), and manufacturing (72.7 percent male). These high-value, high-growth sectors are largely absent from female entrepreneurs' portfolios, with women collectively accounting for less than 1 percent of construction and ICT enterprises.

The Chi-square test confirmed a highly significant association between gender and sectoral distribution ($\chi^2 = 1,561.73$, $df = 19$, $p < 0.001$). This strong sectoral segregation aligns with findings from the African Development Bank (2019) and ILO (2018) for East Africa. Theoretically, Gender Role Theory (West and Zimmerman, 1987) explains the concentration of women in food and personal services as a product of socially constructed norms that channel women toward sectors compatible with domestic roles. Institutional Theory (North, 1990) further explains the exclusion of women from capital-intensive sectors: entry barriers in construction, ICT, and manufacturing require capital, technical qualifications, and infrastructure access that women are systematically less likely to possess.

4.5 Objective Three: Gender Differences in Employment Levels

The third objective was to compare employment levels between male and female-owned enterprises. Given the highly right-skewed distribution of employment data (skewness = 6.48 for

male-owned and 5.35 for female-owned enterprises), the Mann-Whitney U test was applied and median values are reported as the primary measure of central tendency.

Table 4.4: presents summary statistics for total employment by gender of ownership.

Statistic	Female-Owned Enterprises	Male-Owned Enterprises
Number of enterprises (n)	24,609	33,657
Mean number of employees	2.17	3.09
Median number of employees	1	1
25th percentile (employees)	1	1
75th percentile (employees)	2	3
Maximum number of employees	70	157
Standard deviation	3.35	4.82

Mann-Whitney U test: $U = 480,873,062$, $p < 0.001$

Both male and female-owned enterprises had a median employment of one worker, indicating that the majority of Uganda's enterprises operate as sole or near-sole proprietors regardless of ownership gender. However, the distributions diverge significantly at higher percentiles. The 75th percentile for male-owned enterprises was 3 employees, compared to 2 for female-owned enterprises. The maximum workforce in male-owned enterprises (157 workers) was more than double that in female-owned enterprises (70 workers). The mean employment gap (3.09 vs 2.17) further confirms that male-owned enterprises demonstrate greater workforce expansion capacity.

The Mann-Whitney U test confirmed that the employment distribution differs significantly between male and female-owned enterprises ($U = 480,873,062$, $p < 0.001$). Although the difference appears modest at the median, it is economically meaningful at the upper tail: male-owned enterprises consistently employ more workers at the 75th percentile and above, reflecting greater capacity for job creation. This is consistent with Human Capital Theory (Becker, 1964), which links differences in managerial skills, business experience, and access to capital to

differential enterprise growth capacity, and with Kabeer (2012), who identifies time constraints arising from women's dual productive and reproductive responsibilities as a further structural limit on female entrepreneurs' ability to manage larger workforces.

4.6 Objective Four: Gender Differences in Enterprise Performance (Annual Turnover)

The fourth objective was to assess differences in enterprise performance between male and female-owned enterprises, measured by annual turnover. The turnover distributions were severely right-skewed for both groups (skewness ≈ 37 for both male and female-owned enterprises), confirming that means are heavily distorted by outliers and that the Mann-Whitney U test and median-based comparisons constitute the appropriate analytical approach.

Table 4.5: presents summary statistics for annual turnover by gender of ownership. All values are in Uganda Shillings (UGX).

Statistic	Female-Owned Enterprises (UGX)	Male-Owned Enterprises (UGX)
Number of enterprises (n)	24,609	33,657
Mean annual turnover	27,448,783	45,705,159
Median annual turnover	7,200,000	12,000,000
25th percentile	3,600,000	4,320,000
75th percentile	18,000,000	26,383,000
Maximum annual turnover	12,000,000,000	30,000,000,000
Skewness	37.7	37.0

Mann-Whitney U test: $U = 465,404,668$, $p < 0.001$. Decision: H_0 rejected and H_1 accepted. There is a statistically significant difference in annual turnover between male-owned and female-owned enterprises ($p < 0.001$).

The median annual turnover for male-owned enterprises was UGX 12.0 million, compared to UGX 7.2 million for female-owned enterprises a performance gap of 40 percent. Mean turnover figures (UGX 45.7 million for male-owned vs UGX 27.4 million for female-owned) are substantially higher than medians for both groups, confirming that a small number of very high-

turnover enterprises inflate the means and should not be used as the primary comparative measure. The gap is consistent across the distribution: at the 25th percentile, male-owned enterprises generated UGX 4.32 million vs UGX 3.60 million for female-owned; at the 75th percentile, UGX 26.38 million vs UGX 18.00 million. The Mann-Whitney U test confirmed the difference was statistically significant ($U = 465,404,668$, $p < 0.001$).

This performance gap is substantially explained by the sectoral and size disparities documented in Sections 4.3 and 4.4. Male-owned enterprises are disproportionately present in capital-intensive, high-revenue sectors and at medium and large scales, both of which are strongly associated with higher turnover. Within-sector performance differences are also likely, as male-owned enterprises benefit from greater technology adoption (Section 4.8). Institutional Theory (North, 1990) provides the overarching structural explanation: persistent inequalities in access to credit markets, technology, and business networks create a performance ceiling for female-owned enterprises that cannot be overcome through individual effort alone. These findings align with World Bank (2020), which documents a consistent male-female revenue gap across African enterprise data, and with UBOS (2021), which reports similar patterns in Uganda.

4.7 Objective Five: Workforce Gender Composition by Ownership Gender

The fifth objective was to examine workforce gender composition by ownership gender. The female workforce share variable represents the percentage of each enterprise's employees who are female.

Table 4.6: presents summary statistics for this variable by ownership gender.

Statistic	Female-Owned Enterprises	Male-Owned Enterprises
Number of enterprises (n)	24,609	33,657
Mean female workforce share (%)	76.7	41.2
Median female workforce share (%)	100.0	37.9
25th percentile (%)	50.0	0.0
75th percentile (%)	100.0	100.0

Standard deviation (%)	35.9	40.8
-------------------------------	------	------

Mann-Whitney U test: $U = 223,819,028$, $p < 0.001$. Decision: H_0 rejected and H_1 accepted. There is a statistically significant difference in workforce gender composition between male-owned and female-owned enterprises ($p < 0.001$).

The findings reveal strong gender clustering in enterprise workforce composition. Female-owned enterprises had a mean female workforce share of 76.7 percent and a median of 100 percent, meaning that at least half of all female-owned enterprises employed an entirely female workforce. The 25th percentile for female-owned enterprises was 50 percent, indicating that even the least female-intensive quartile of female-owned enterprises had equal-gender workforces. In contrast, male-owned enterprises had a mean female workforce share of 41.2 percent and a median of 37.9 percent, indicating a male-majority workforce on average. Notably, the 25th percentile for male-owned enterprises was 0 percent, the least female-intensive quarter of male-owned enterprises employed no female workers at all. The Mann-Whitney U test confirmed the difference was highly statistically significant ($U = 223,819,028$, $p < 0.001$).

This strong gender clustering is consistent with ILO (2018) and Allen et al. (2008), who document similar patterns across developing economies. Two mechanisms explain the finding. First, social network-based hiring is prevalent in SMEs across sub-Saharan Africa which leads female entrepreneurs to recruit predominantly from female-dominated personal and community networks (Bates, 1990). Second, sectoral clustering reinforces gender workforce composition: female-owned enterprises are concentrated in accommodation, food services, and retail, sectors where the broader labour supply is already predominantly female. The finding has important labour market equity implications: given that female-owned enterprises serve as the primary employers of women in Uganda's private sector, barriers to female enterprise growth directly translate into constrained employment opportunities for female workers more broadly, making the growth of female-owned enterprises a policy lever for improving female labour market outcomes (Kabeer, 2012).

4.8 Additional Enterprise Characteristics: Formality Status and Technology Adoption

Beyond the five primary research objectives, the COBE 2019/20 data permit analysis of two additional enterprise characteristics that have important implications for understanding the performance gap documented in Section 4.6: enterprise formality status and technology adoption (computer use).

Table 4. 7 presents formality Status and Computer Use by Gender of Ownership

Characteristic	Female-Owned (%)	Male-Owned (%)	Chi-square (χ^2)	p-value
Formally registered enterprises	94.0	87.0	767.35	< 0.001
Enterprises using computers in operations	16.1	33.0	2,110.33	< 0.001

Female-owned enterprises showed a higher rate of formal registration (94.0 percent) compared to male-owned enterprises (87.0 percent), a statistically significant difference ($\chi^2 = 767.35$, $p < 0.001$). This finding is counter-intuitive relative to the common assumption that female enterprises are more likely to be informal. A plausible explanation is the concentration of female-owned enterprises in regulated service sectors such as retail trade and food services, where licensing and formal registration are more commonly required or enforced. This finding challenges the narrative that informality is a primarily female-enterprise characteristic and suggests that women entrepreneurs in Uganda are responsive to formal registration requirements when operating in regulated sectors.

In contrast, male-owned enterprises were more than twice as likely to use computers in business operations (33.0 percent vs 16.1 percent for female-owned enterprises), a difference that was highly statistically significant ($\chi^2 = 2,110.33$, $p < 0.001$). This technology adoption gap is economically significant. Cabrera and Mauricio (2017) identify technology adoption as one of

the strongest predictors of enterprise performance and revenue generation, and the lower computer use among female-owned enterprises likely contributes to the 40 percent turnover gap documented in Section 4.6. This finding points to digital literacy and technology access programs targeted at women entrepreneurs as a potentially high-impact policy intervention for reducing gender enterprise performance disparities in Uganda.

4.9 Multivariate Analysis: Isolating the Independent Effect of Gender

The bivariate results presented in Sections 4.3 to 4.8 establish that gender of enterprise ownership is associated with statistically significant differences across all five primary dimensions, as well as formality status and technology adoption. However, bivariate analysis cannot determine whether these associations reflect the independent effect of gender or whether they are confounded by other enterprise characteristics, since male-owned and female-owned enterprises also differ systematically in sector, region, enterprise age, and formality status. To address this, six multivariate regression models were estimated to isolate the direct effect of gender of ownership while controlling for sector (grouped into six categories: Agriculture, Industry, Trade, Accommodation & Food, Professional & Financial, and Other Services, to avoid the unstable estimates produced by the original nineteen-category sector classification), region, enterprise age, and, where applicable, formality status and enterprise size.

4.9.1 Binary Logistic Regression: Enterprise Size

A binary logistic regression was estimated with enterprise size recoded as a binary outcome (Micro = 0, Small/Medium/Large combined = 1), regressed on gender of ownership, sector group, region, and enterprise age, with robust standard errors. Formality status was excluded from this model because all 5,848 formally registered enterprises in the dataset were Small, Medium, or Large, with zero Formal Micro enterprises; formality therefore perfectly predicted the outcome and could not be estimated as a predictor. This is itself a substantive finding, indicating that formal registration is effectively absent among Micro-scale enterprises in Uganda regardless of ownership gender.

Controlling for sector, region, and age, male-owned enterprises had 38.3 percent higher odds of being Small, Medium, or Large rather than Micro (OR = 1.383, 95% CI: 1.325–1.444, $p < 0.001$). Enterprise age was negatively associated with the odds of being above Micro scale (OR =

0.942, $p < 0.001$), and all four regions outside Central Uganda had significantly lower odds than the Central region ($p < 0.001$ for all). The model correctly classified 69.5 percent of cases, with an area under the ROC curve of 0.688, indicating modest but meaningful discriminatory power. The Hosmer-Lemeshow test was statistically significant ($\chi^2 = 172.77$, $p < 0.001$), indicating some lack of fit, which is common in large-sample logistic models and does not undermine the substantive interpretation of the coefficients. Variance inflation factors were below 2 for gender, region, and age, but sector group categories showed elevated VIFs (up to 25.09 for Trade), indicating some multicollinearity among the sector dummies; this is addressed further as a limitation in Section 5.5.

4.9.2 Binary Logistic Regression: Formality Status

A parallel binary logistic regression was estimated for formality status (Informal = 0, Formal = 1), regressed on gender of ownership, sector group, region, and enterprise age. Enterprise size was excluded from this model for the mirror-image reason given above: all 18,862 Micro enterprises in the dataset were Informal, with zero Formal Micro enterprises, so enterprise size perfectly predicted formality status. Together, these two findings establish that formality and Micro scale are mutually exclusive categories in the COBE 2019/20 data.

Controlling for sector, region, and age, male-owned enterprises had 134.1 percent higher odds of being formally registered than female-owned enterprises (OR = 2.341, 95% CI: 2.170–2.526, $p < 0.001$). This finding is notable because it runs counter to the bivariate result reported in Section 4.8, where female-owned enterprises showed a higher raw formality rate (94.0 percent versus 87.0 percent). The reversal after controlling for sector and region indicates that the bivariate formality advantage for female-owned enterprises was confounded by their sectoral concentration in services with naturally high registration requirements, and that within comparable sectors, male-owned enterprises are in fact more likely to be formally registered. This is an important nuance that qualifies the descriptive finding in Section 4.8 and should be read alongside it. The model correctly classified 91.0 percent of cases (driven primarily by the high base rate of informality), with an area under the ROC curve of 0.691.

4.9.3 OLS Regression: Log-Transformed Annual Turnover

To examine whether the 40 percent raw turnover gap documented in Section 4.6 persists after controlling for confounding factors, annual turnover was log-transformed and regressed on gender of ownership, sector group, region, enterprise age, formality status, and enterprise size, with robust standard errors. The model explained 63.6 percent of the variance in log-turnover ($R^2 = 0.636$). Controlling for all other factors, male ownership remained associated with a 12.1 percent higher log-turnover ($\beta = 0.121$, 95% CI: 0.107–0.136, $p < 0.001$). This is the central multivariate finding of the study: although the raw 40 percent turnover gap is substantially explained by sectoral concentration, enterprise size, and formality status, which together account for the majority of the variance, a statistically significant direct effect of gender persists even after these factors are held constant. Formal registration was associated with substantially higher turnover ($\beta = 1.762$, $p < 0.001$), as was Small/Medium/Large size relative to Micro ($\beta = 1.571$, $p < 0.001$), confirming that formality and scale are the dominant drivers of turnover, with gender contributing an independent but comparatively smaller effect. Variance inflation factors were acceptable for all variables except the sector group dummies, mirroring the pattern observed in the size regression. A skewness-kurtosis test on the model residuals was statistically significant ($p < 0.001$), indicating that the residuals are not perfectly normally distributed; this is expected given the very large sample size, where even minor deviations from normality become statistically detectable, and does not invalidate the coefficient estimates given the use of robust standard errors and the very large sample.

4.9.4 OLS Regression: Log-Transformed Employment

A parallel model regressed log-transformed total employment on gender of ownership, sector group, region, enterprise age, and formality status (enterprise size was excluded to avoid circularity, since employment is one of the components used to define the MSME size classification). The model explained 75.2 percent of the variance in log-employment ($R^2 = 0.752$). Male ownership remained associated with a 5.5 percent higher log-employment after controlling for sector, region, age, and formality ($\beta = 0.055$, 95% CI: 0.049–0.060, $p < 0.001$), confirming the bivariate finding in Section 4.5 that male-owned enterprises employ more workers, independent of confounding factors. As with the turnover model, formality status was the dominant predictor ($\beta = 1.688$, $p < 0.001$).

4.9.5 Quantile Regression: The Gender Turnover Gap Across the Distribution

The OLS model in Section 4.9.3 estimates the average effect of gender on turnover, but this may obscure variation in the gender gap across the turnover distribution. Quantile regression was therefore used to estimate the male-ownership coefficient on log-turnover at the 10th, 25th, 50th, 75th, and 90th percentiles, controlling for sector group, region, enterprise age, and formality status throughout.

The results reveal that the gender turnover gap widens substantially as enterprise performance increases. At the 10th percentile, male ownership was associated with a 5.8 percent higher log-turnover ($\beta = 0.058$, $p < 0.001$). This effect rose to 13.5 percent at the 25th percentile, 14.8 percent at the median, 28.3 percent at the 75th percentile, and 33.2 percent at the 90th percentile (all $p < 0.001$). In other words, the gender gap among the lowest-performing enterprises is modest, but among the highest-performing enterprises, male-owned enterprises substantially outperform comparable female-owned enterprises even after controlling for sector, region, age, and formality. This pattern suggests that female entrepreneurs face a particularly pronounced “growth ceiling” at the upper end of the performance distribution, consistent with Institutional Theory’s prediction that structural barriers such as unequal access to growth capital, networks, and technology become increasingly binding as enterprises attempt to scale toward the highest tiers of performance, where these resources matter most.

4.9.6 Multiple Hypothesis Testing

Given the number of bivariate and multivariate hypothesis tests conducted across this chapter (seven primary tests across the bivariate analyses in Sections 4.3 to 4.8, plus the multivariate models above), a Bonferroni correction was applied to assess the robustness of the findings to multiple comparisons. The Bonferroni-adjusted significance threshold for seven tests is $0.05/7 = 0.00714$. Every test reported in this chapter returned $p < 0.001$, well below this stricter threshold, so all findings remain statistically significant after correcting for multiple comparisons.

4.9.7 Synthesis of Multivariate Findings

The multivariate analysis confirms and extends the bivariate findings from Sections 4.3 to 4.8 in three important ways. First, gender of enterprise ownership has a statistically significant,

independent effect on enterprise size, turnover, and employment even after controlling for sector, region, enterprise age, and formality status, demonstrating that the disparities documented in this study are not merely artefacts of sectoral or locational confounding. Second, the quantile regression results reveal that this gender gap is not uniform across the performance distribution: it is modest among low-performing enterprises and substantially larger among high-performing enterprises, pointing to a structural growth ceiling that disproportionately constrains the highest-potential female-owned enterprises. Third, the logistic regressions reveal a previously hidden nuance in the formality finding: once sector and region are controlled for, male-owned enterprises are in fact more likely to be formally registered, reversing the direction implied by the raw bivariate comparison in Section 4.8. This finding underscores the value of multivariate analysis in this study and should inform how the formality-related recommendation in Section 5.3 is interpreted.

Table 4.8: provides a consolidated summary of all findings, including the test statistic, significance level, and direction of the gender difference for each dimension analyzed.

Dimension	Key Finding	Statistical Test	Test Statistic	p-value
Enterprise Size (Obj. 1)	Female enterprises more concentrated in micro/small; males dominate medium/large (63.4%)	Chi-square	$\chi^2 = 759.67$, df = 3	< 0.001
Sectoral Distribution (Obj. 2)	Females dominate accommodation & food (51.8%); males dominate construction (97.4%), ICT (92.5%),	Chi-square	$\chi^2 = 1,561.73$, df = 19	< 0.001

	agriculture (87.6%)			
Employment Levels (Obj. 3)	Equal medians (1 worker); male mean 3.09 vs female 2.17; males dominate at upper tail	Mann-Whitney U	U = 480,873,062	< 0.001
Annual Turnover (Obj. 4)	Male median UGX 12.0M vs female UGX 7.2M: a 40% performance gap	Mann-Whitney U	U = 465,404,668	< 0.001
Workforce Composition (Obj. 5)	Female enterprises: 76.7% female workforce (median 100%); male enterprises: 41.2% female	Mann-Whitney U	U = 223,819,028	< 0.001
Formality Status (Additional)	Female enterprises more formally registered (94.0% vs 87.0%)	Chi-square	$\chi^2 = 767.35$	< 0.001
Technology Adoption	Males more than twice as	Chi-square	$\chi^2 = 2,110.33$	< 0.001

(Additional)	likely to use computers (33.0% vs 16.1%)			
---------------------	---	--	--	--

4.10 Summary of Key Findings

All seven dimensions tested showed statistically significant differences between male and female-owned enterprises at the 0.1 percent significance level. The findings collectively confirm that gender disparities in enterprise development in Uganda are multidimensional and statistically robust across size, sector, employment, performance, and workforce composition. The direction and magnitude of disparities are consistent with the predictions of Human Capital Theory, Gender Role Theory, and Institutional Theory as outlined in the conceptual framework, and align with the empirical literature reviewed in Chapter Two. Three nuances deserve emphasis. First, the near-parity in enterprise size at the small scale and in sectoral composition within other services suggests that gender disparities are not uniform and some niches exist where female-owned enterprises are competitive. Second, the higher formality rate among female-owned enterprises challenges deficit-based narratives and points to strengths that policy can build upon. Third, the technology adoption gap emerges as a key mediating factor between ownership gender and performance, deserving targeted policy attention beyond the traditional focus on finance access.

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter synthesises the findings of the study into conclusions aligned with each research objective, derives policy recommendations grounded in the empirical evidence, discusses the theoretical contributions, states the limitations of the study, and identifies directions for future research. The chapter is structured around five sections: conclusions by objective (Section 5.2), recommendations (Section 5.3), policy implications (Section 5.4), limitations (Section 5.5), and areas for future research (Section 5.6).

5.2 Conclusions by Objective

5.2.1 Enterprise Size Distribution

The study found significant gender disparities in enterprise size distribution. Female-owned enterprises were more concentrated in micro (35.2 percent) and small (23.2 percent) categories, while male-owned enterprises dominated medium enterprises, accounting for 63.4 percent of all medium-scale establishments. The association between gender and enterprise size was highly statistically significant ($\chi^2 = 759.67$, $df = 3$, $p < 0.001$). These findings confirm that female-owned enterprises are systematically constrained to smaller scales, limiting their capacity to contribute to employment generation and economic output. The size gap is attributable to structural inequalities in access to finance, collateral, and business networks, consistent with Institutional Theory (North, 1990) and Human Capital Theory (Becker, 1964).

5.2.2 Sectoral Distribution

Strong and statistically significant gender-based sectoral segregation was observed ($\chi^2 = 1,561.73$, $df = 19$, $p < 0.001$). Female-owned enterprises were heavily concentrated in wholesale and retail trade (65.7 percent of female portfolios) and accommodation and food services (14.0 percent), with women owning 51.8 percent of all food and accommodation enterprises. In contrast, male-owned enterprises dominated all capital-intensive and high-growth sectors:

construction (97.4 percent male), information and communication (92.5 percent male), agriculture (87.6 percent male), and manufacturing (72.7 percent male). This sectoral segregation is rooted in socially constructed gender norms that channel women toward lower-return service activities (Gender Role Theory, West and Zimmerman, 1987) and structural barriers to entry in capital-intensive sectors (Institutional Theory, North, 1990). Sectoral concentration in low-value activities is a primary driver of the observed performance gap.

5.2.3 Employment Levels

Gender differences in employment were statistically significant (Mann-Whitney $U = 480,873,062$, $p < 0.001$). While both male and female-owned enterprises had a median employment of one worker, male-owned enterprises demonstrated greater workforce expansion capacity at higher percentiles: the 75th percentile for male-owned enterprises was 3 employees versus 2 for female-owned enterprises, and the maximum workforce in male-owned enterprises (157 workers) was more than double that in female-owned enterprises (70 workers). Mean employment was also higher for male-owned enterprises (3.09 vs 2.17). The employment gap reflects the combined effect of sectoral concentration in low-labour-demand activities, limited growth capital, and time constraints arising from women's dual productive and reproductive responsibilities (Kabeer, 2012).

5.2.4 Enterprise Performance (Annual Turnover)

The study found a statistically significant and economically meaningful gender gap in annual turnover (Mann-Whitney $U = 465,404,668$, $p < 0.001$). The median annual turnover for male-owned enterprises was UGX 12.0 million, compared to UGX 7.2 million for female-owned enterprises, representing a performance gap of 40 percent. This gap was consistent across the full distribution: at the 25th percentile, male-owned enterprises generated UGX 4.32 million versus UGX 3.60 million for female-owned; at the 75th percentile, UGX 26.38 million versus UGX 18.00 million. The performance gap is substantially explained by the sectoral and size disparities documented above, as well as by the technology adoption gap documented in Section 4.8. Multivariate regression confirms that gender retains a statistically significant independent effect on turnover (12.1 percent, $p < 0.001$) even after these confounding factors are held constant, indicating that sector and size explain a large share of the gap but not all of it. Quantile

regression further reveals that this gap is not uniform: it is a modest 5.8 percent at the 10th percentile but widens to 33.2 percent at the 90th percentile, indicating a pronounced growth ceiling that disproportionately affects the highest-performing female-owned enterprises. These findings align with World Bank (2020) and UBOS (2021) and confirm that the revenue disadvantage of female entrepreneurs in Uganda is structural rather than individual.

5.2.5 Workforce Gender Composition

Female-owned enterprises employed a significantly higher proportion of female workers than male-owned enterprises (Mann-Whitney $U = 223,819,028$, $p < 0.001$). The mean female workforce share in female-owned enterprises was 76.7 percent, with a median of 100 percent, meaning the majority of female-owned enterprises employed exclusively female workforces. In contrast, male-owned enterprises had a mean female workforce share of 41.2 percent and a median of 37.9 percent. This strong gender clustering in employment reflects both social network-based hiring practices and the sectoral concentration of female-owned enterprises in feminized labour markets. The finding has important equity implications: female-owned enterprises serve as the primary employment pathway for women in Uganda's private sector, making their growth a lever for broader female labour market outcomes.

5.2.6 Additional Findings: Formality and Technology Adoption

Two supplementary findings add important nuance to the conclusions. First, female-owned enterprises were more formally registered (94.0 percent) than male-owned enterprises (87.0 percent) ($\chi^2 = 767.35$, $p < 0.001$), challenging the common assumption that informality is primarily a female enterprise characteristic. This finding suggests that female entrepreneurs in Uganda are responsive to regulatory requirements and that barriers to female enterprise growth are not primarily about compliance. Second, male-owned enterprises were more than twice as likely to use computers in operations (33.0 percent vs 16.1 percent) ($\chi^2 = 2,110.33$, $p < 0.001$), pointing to a significant digital divide that is likely a mediating factor in the observed performance gap.

5.2.7 Conclusion

The study concludes that gender disparities in enterprise development in Uganda are statistically significant, multidimensional, and structurally rooted. All seven dimensions tested showed highly significant differences ($p < 0.001$). The disparities are not reducible to any single factor but reflect the interlocking effects of unequal access to capital (Institutional Theory), differential human capital accumulation (Human Capital Theory), and socially constructed occupational norms (Gender Role Theory). Notably, female entrepreneurs demonstrate strengths that are often overlooked: higher formality rates and strong employment outcomes for female workers. Effective policy must build on these strengths while addressing the structural barriers that suppress enterprise scale, sectoral diversification, and performance.

5.3 Recommendations

Strengthen Gender-Targeted Financial Inclusion

The concentration of female-owned enterprises in micro and small categories and the 40 percent median turnover gap both point to capital access as a binding constraint on female enterprise growth. Policymakers and financial institutions should design and scale gender-responsive financial products including collateral-free microloans, group lending schemes, and mobile-based credit facilities specifically tailored to the operational contexts of female entrepreneurs. The Uganda Development Bank and commercial banks should be required to report on the gender disaggregation of their SME lending portfolios to ensure accountability for inclusive financial access.

Promote Female Entry into High-Growth Sectors

The near-total exclusion of female-owned enterprises from construction (2.6 percent female share), ICT (7.5 percent), and agriculture (12.4 percent) reflects deep structural and normative barriers. Government ministries, particularly the Ministry of Gender, Labour and Social Development and the Ministry of Trade, Industry and Cooperatives, should develop targeted sector entry programs that combine technical skills training, mentorship from established enterprises, and preferential procurement policies that create initial market access for female

entrepreneurs in these sectors. Business incubation programs in technology and agribusiness should reserve a minimum proportion of places for women entrepreneurs.

Expand Business Skills and Management Training

The employment and turnover gaps observed in this study are partly attributable to differential managerial experience and business training between male and female entrepreneurs, as predicted by Human Capital Theory (Becker, 1964). Enterprise Uganda, the Private Sector Foundation Uganda (PSFU), and development partners should scale up accessible, practically-oriented business management training programs for women entrepreneurs, with particular focus on financial management, business planning, hiring and workforce management, and supply chain development. Training programs should be designed around the time constraints of women entrepreneurs by offering flexible scheduling and community-based delivery.

Launch Targeted Digital Literacy Programmes

The technology adoption gap documented in this study (16.1 percent computer use in female-owned enterprises vs 33.0 percent in male-owned enterprises) is likely a significant mediating factor in the performance gap. The National Information Technology Authority of Uganda (NITA-U), in partnership with development organisations, should design and fund digital literacy and technology adoption programmes specifically targeted at women-owned MSMEs. These programmes should cover basic computer use, digital record-keeping, e-commerce platforms, and mobile financial services. Special attention should be given to reaching female entrepreneurs in rural and peri-urban areas where the digital divide is most pronounced.

Build on Female Enterprise Formality Strengths

The finding that female-owned enterprises are more formally registered (94.0 percent) than male-owned enterprises (87.0 percent) represents an underutilised strength at the raw, descriptive level. It is worth noting that the multivariate analysis in Section 4.9.2 found that this advantage reverses once sector and region are controlled for, with male-owned enterprises showing higher odds of formal registration within comparable sectors; the raw female formality advantage therefore appears to be driven substantially by the sectors in which female-owned enterprises are

concentrated, rather than by gender itself. This recommendation should accordingly be read as building on a real but sector-specific descriptive strength, rather than a universal gender-based advantage in formalisation behaviour. Policy interventions should leverage this higher formality rate to connect female entrepreneurs to formal financing, government procurement opportunities, and business development services that are contingent on formal registration. The Uganda Revenue Authority (URA) and Uganda Registration Services Bureau (URSB) should design outreach programs that specifically inform formally registered female entrepreneurs of the financing and market access opportunities available to them.

Design Gender-Responsive Enterprise Support Ecosystems

The multidimensional nature of the disparities documented in this study means that single-intervention approaches will be insufficient. Coordinated, ecosystem-level responses are required that simultaneously address finance access, skills development, technology adoption, sectoral barriers, and market linkages. Development partners supporting Uganda's private sector should integrate gender-disaggregated enterprise outcome targets into their programmes and reporting frameworks, and should fund longitudinal evaluations of gender-targeted enterprise support interventions to build the evidence base for what works in the Ugandan context.

Table 5.1 makes the link between each recommendation above and the specific empirical finding it addresses explicit, and indicates priority status to guide implementation sequencing

Table 5. 1: Mapping of Recommendations to Empirical Findings

Recommendation	Empirical finding addressed	Lead stakeholder	Priority
Digital literacy and technology adoption programmes	33.0% vs 16.1% computer use gap (Section 4.8)	NITA-U	Must-have
Sector diversification support away from low-revenue services	Female concentration in retail/services vs male dominance of manufacturing,	Ministry of Trade, Industry and Cooperatives	Must-have

	construction, ICT (Section 4.4)		
Expanded access to growth capital for scaling beyond micro/small	35.2% of female enterprises remain micro vs 30.3% of male (Section 4.3)	Uganda Development Bank	Must-have
Leverage female formality advantage for financing access	94.0% vs 87.0% formal registration rate (Section 4.8)	URA / URSB	Nice-to-have
Gender-disaggregated monitoring in enterprise support programmes	Multidimensional disparities across all five objectives (Sections 4.3–4.7)	Ministry of Gender, Labour and Social Development	Nice-to-have

Progress on the technology adoption and sector diversification recommendations could be monitored, for example, by tracking the proportion of female-owned enterprises using computers for business operations against a target of raising this from the current 16.1 percent to 30 percent by 2030, in line with NDP III digital transformation goals.

5.4 Policy Implications

The findings of this study carry several important policy implications for Uganda's National Development Plan III (NDP III) and its overarching goal of inclusive economic growth and transformation.

First, gender equity in enterprise development cannot be achieved through participation targets alone. Uganda has made progress in increasing women's enterprise ownership rates (42.2 percent of all enterprises in COBE 2019/20), but this study demonstrates that ownership parity has not translated into performance parity. Policy must shift its focus from counting female enterprise owners to improving the scale, sector, and performance of female-owned enterprises.

Second, the technology adoption gap identified in this study suggests that Uganda's digital economy agenda, including the rollout of mobile money, e-commerce platforms, and digital

business registration, will not automatically benefit female entrepreneurs unless access gaps are specifically addressed. Gender-disaggregated monitoring of digital adoption rates in the enterprise sector should be embedded in national statistics systems.

Third, the strong gender clustering in employment documented in this study means that the growth of female-owned enterprises has multiplier effects on female employment. Investments in female enterprise development are therefore simultaneously investments in women's labour market inclusion, making the case for substantial public resourcing of gender-targeted enterprise support.

Fourth, the sectoral segregation findings underscore the need for sector-specific rather than generic gender policies. Interventions targeting women in agriculture, manufacturing, and ICT will require different designs from those targeting women in retail and food services, and national enterprise support programs should be structured accordingly.

5.5 Limitations of the Study

The study has five main limitations that should be considered when interpreting the findings and designing future research.

First, the cross-sectional design of the COBE 2019/20 dataset limits the ability to establish causal relationships between gender of ownership and enterprise outcomes. The associations documented in this study are robust and statistically significant, but they cannot confirm that gender causes the observed disparities rather than being correlated with other underlying factors such as sector, education, or age of business. Longitudinal data would be required to establish causality.

Second, 10,436 establishments (15.2 percent of the full dataset) had uncodeable ownership gender values and were excluded from the gender-stratified analysis. A systematic comparison (reported in Section 3.7) confirmed that this exclusion is not random: the excluded establishments differ significantly from the retained analytical sample on region, sector, enterprise size, formality status, employment, turnover, and age ($p < 0.001$ for all comparisons). The excluded establishments are disproportionately large, formally registered, and concentrated in the Education sector, most likely reflecting a data collection artefact specific to institutional establishments rather than a behavioural pattern related to gender. This means the analytical

sample under-represents large, formal, education-sector establishments, and the findings of this study should be interpreted as applying most directly to the commercial MSME population rather than to the full population of registered establishments in Uganda. Future surveys should improve the completeness of the ownership gender variable through better enumeration protocols, particularly for institutional and education-sector establishments.

Third, while the Mann-Whitney U test appropriately handles the severely skewed distributions of turnover and employment (skewness ≈ 37 for turnover), the bivariate analyses in Sections 4.3 to 4.8 do not control for confounding variables such as sector, region, or enterprise age simultaneously. To address this, multivariate logistic, OLS, and quantile regression models controlling for these factors were estimated and reported in Section 4.9. These models confirm that gender of ownership has a statistically significant independent effect on enterprise size, turnover, and employment even after controlling for sector, region, age, and formality status, though the magnitude of the effect is smaller than the raw bivariate gaps, confirming that sectoral and locational composition explain a substantial share, though not all, of the observed disparities.

Fourth, the dataset does not include entrepreneur-level characteristics such as education level, years of business experience, household income, or access to credit, which are recognised predictors of enterprise performance in the literature and represent important omitted variables. The observed gender gaps in this study therefore reflect the combined effect of ownership gender and all correlated characteristics, rather than the isolated effect of gender per se.

Fifth, the sector group variable used in the multivariate models in Section 4.9 showed elevated variance inflation factors (up to 25.09 for the Trade category), indicating multicollinearity among the sector dummy variables, most likely because Trade accounts for 63.5 percent of the analytical sample and is therefore highly correlated with the omitted reference category. While this does not bias the gender coefficient, which remained stable in sign, magnitude, and significance across all six multivariate models, it does mean that the individual sector coefficients should be interpreted with some caution, and that the precision of sector-specific estimates may be lower than the standard errors alone would suggest. Two further data-driven exclusions were necessary in the multivariate models: formality status could not be included as a predictor in the enterprise size model because all Formal-registered enterprises in the dataset were Small, Medium, or Large with zero Formal Micro enterprises, and conversely enterprise

size could not be included in the formality model because all Micro enterprises were Informal. Both exclusions reflect genuine structural features of the Ugandan MSME population rather than estimation errors, but they mean that the size and formality models could not be estimated jointly in a single specification.

5.6 Areas for Future Research

This study opens several avenues for future research that would deepen understanding of gender disparities in enterprise development in Uganda.

First, future studies should apply multivariate econometric methods such as binary logistic regression, OLS regression, or quantile regression to the COBE 2019/20 data to identify the independent predictors of enterprise size, turnover, and employment while simultaneously controlling for sector, region, and enterprise age. This would allow researchers to isolate the marginal effect of ownership gender from the composition effects of sector and scale documented in this study.

Second, longitudinal research tracking the same enterprises over multiple census rounds would enable analysis of enterprise growth trajectories by gender, providing causal evidence on whether and how gender disparities in enterprise outcomes evolve over time and in response to policy interventions. The upcoming COBE 2024/25, when available, would provide a valuable second data point for such analysis.

Third, mixed-methods research combining the COBE census data with primary qualitative data from female entrepreneurs would enrich understanding of the mechanisms underlying the observed disparities. Qualitative evidence on how female entrepreneurs experience access to credit, sectoral barriers, and technology adoption would complement the quantitative findings of this study and generate more nuanced policy recommendations.

Fourth, research specifically examining the technology adoption gap documented in this study investigating why female entrepreneurs are less likely to use computers and digital tools, and what interventions are effective in increasing adoption would fill an important evidence gap given the likely role of digital tools in mediating the performance gap between male and female-owned enterprises.

Fifth, comparative studies across East African countries using similar business census data would enable researchers to identify whether the patterns observed in Uganda are Uganda-specific or reflect broader regional dynamics, and would strengthen the generalisability of recommendations to the East African policy context.

REFERENCES.

- Acs, Z. J., & Audretsch, D. B. (1990). *Innovation and small firms*. MIT Press.
- African Development Bank. (2019). *Empowering women entrepreneurs in Africa: Challenges and opportunities*. African Development Bank Group.
- Allen, I. E., Elam, A., Langowitz, N., & Dean, M. (2008). *Global entrepreneurship monitor: 2007 report on women and entrepreneurship*. Babson College.
- Bates, T. (1990). Entrepreneur human capital inputs and small business longevity. *Review of Economics and Statistics*, 72(4), 551–559.
- Becker, G. S. (1964). *Human capital: A theoretical and empirical analysis, with special reference to education*. University of Chicago Press.
- Blanchflower, D. G., & Oswald, A. J. (1998). What makes an entrepreneur? *Journal of Labor Economics*, 16(1), 26–60.
- Cabrera, E. M., & Mauricio, D. (2017). Factors affecting the growth of microenterprises: A review. *Journal of Small Business and Enterprise Development*, 24(2), 194–222.
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147–160.
- International Labour Organization (ILO). (2018). *Women and men in the informal economy: A statistical picture* (3rd ed.). ILO Publications.
- International Labour Organization (ILO). (2019). *Small matters: Global evidence on the contribution to employment by the self-employed, micro-enterprises and SMEs*. ILO Publications.
- Kabeer, N. (2012). *Women's economic empowerment and inclusive growth: Labour markets and enterprise development*. International Development Research Centre.
- Mansfield, E. (1962). Entry, Gibrat's law, innovation, and the growth of firms. *American Economic Review*, 52(5), 1023–1051.
- Minniti, M., & Naudé, W. (2010). What do we know about the patterns and determinants of female entrepreneurship across countries? *European Journal of Development Research*, 22(3), 277–293.
- Moses, N. (2014). Determinants of enterprise growth in Uganda. *African Journal of Business Management*, 8(14), 557–566.
- North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge University Press.

- OECD. (2017). Enhancing the contributions of SMEs in a global and digitalised economy. OECD Publishing.
- Penrose, E. T. (1959). The theory of the growth of the firm. Blackwell.
- Scott, W. R. (2001). Institutions and organizations (2nd ed.). Sage Publications.
- Storey, D. J. (1994). Understanding the small business sector. Routledge.
- Uganda Bureau of Statistics (UBOS). (2021). Census of business establishments 2019/20: Main report. Uganda Bureau of Statistics.
- Uganda Bureau of Statistics (UBOS). (2022). Statistical abstract 2022. Uganda Bureau of Statistics.
- United Nations. (2015). Transforming our world: The 2030 agenda for sustainable development. United Nations.
- West, C., & Zimmerman, D. H. (1987). Doing gender. *Gender and Society*, 1(2), 125–151.
- World Bank. (2020). Women, business and the law 2020. World Bank Group.
- World Bank. (2021). Uganda economic update: Accelerating Uganda's development by investing in its people. World Bank Group.

APPENDIX A: Stata Code for Data Analysis

* Loading the dataset

```
use "C:\Users\hp\OneDrive\Desktop\dissertation\COBE_2019_20_10PERCENT.dta"
```

*DATA PREPARATION AND CLEANING

```
describe
```

```
tab OWNER_male_female, missing
```

```
drop if OWNER_male_female == "" | OWNER_male_female == "."
```

```
tab OWNER_male_female
```

* SECTION 2: DESCRIPTIVE OVERVIEW (TABLE 4.1)

```
tab REGION
```

```
tab MSML
```

```
summarize AGE_OF_BUSINESS
```

*SECTION 3: NORMALITY CHECKS FOR CONTINUOUS VARIABLES

```
summarize TURNOVER_ANNUAL if OWNER_male_female == "Male", detail
```

```
summarize TURNOVER_ANNUAL if OWNER_male_female == "Female", detail
```

```
summarize TOTAL_EMPLOYMEES if OWNER_male_female == "Male", detail
```

```
summarize TOTAL_EMPLOYMEES if OWNER_male_female == "Female", detail
```

```
summarize female_share if OWNER_male_female == "Male", detail
```

```
summarize female_share if OWNER_male_female == "Female", detail
```

* SECTION 4: OBJECTIVE 1 - ENTERPRISE SIZE (TABLE 4.2)

```
tab MSML OWNER_male_female, col
```

```
tab MSML OWNER_male_female, row
```

* SECTION 5: OBJECTIVE 2 - SECTORAL DISTRIBUTION (TABLE 4.3)

tab SECTION OWNER_male_female, col

tab SECTION OWNER_male_female, row

tab SECTION OWNER_male_female, chi2

* SECTION 6: OBJECTIVE 3 - EMPLOYMENT LEVELS (TABLE 4.4)

summarize TOTAL_EMPLOYMEES if OWNER_male_female == "Female", detail

summarize TOTAL_EMPLOYMEES if OWNER_male_female == "Male", detail

ranksum TOTAL_EMPLOYMEES , by(OWNER_male_female)

* SECTION 7: OBJECTIVE 4 - ANNUAL TURNOVER (TABLE 4.5)

summarize TURNOVER_ANNUAL if OWNER_male_female == "Female", detail

summarize TURNOVER_ANNUAL if OWNER_male_female == "Male", detail

ranksum TURNOVER_ANNUAL, by(OWNER_male_female)

* SECTION 8: OBJECTIVE 5 - WORKFORCE COMPOSITION (TABLE 4.6)

summarize female_share if OWNER_male_female == "Female", detail

summarize female_share if OWNER_male_female == "Male", detail

ranksum female_share, by(OWNER_male_female)

* SECTION 9: FORMALITY AND TECHNOLOGY ADOPTION (TABLE 4.7)

tab Formal OWNER_male_female, col chi2

tab USE_COMP_YESNO OWNER_male_female, col chi2

APPENDIX B: Regression Diagnostic Outputs

This appendix presents diagnostic outputs from the multivariate regression models reported in Section 4.9. These outputs support the interpretation of model fit and residual behaviour discussed in the text.

Figure B1: ROC Curve Binary Logistic Regression for Enterprise Size (AUC = 0.688)

The ROC curve for the formality logistic regression model (Section 4.9.2) shows the trade-off between sensitivity and specificity across all classification thresholds. The area under the curve

(AUC = 0.691) indicates the model correctly discriminates between formal and informal enterprises approximately 69 percent of the time, which represents acceptable discriminatory power for this type of large-scale cross-sectional data.

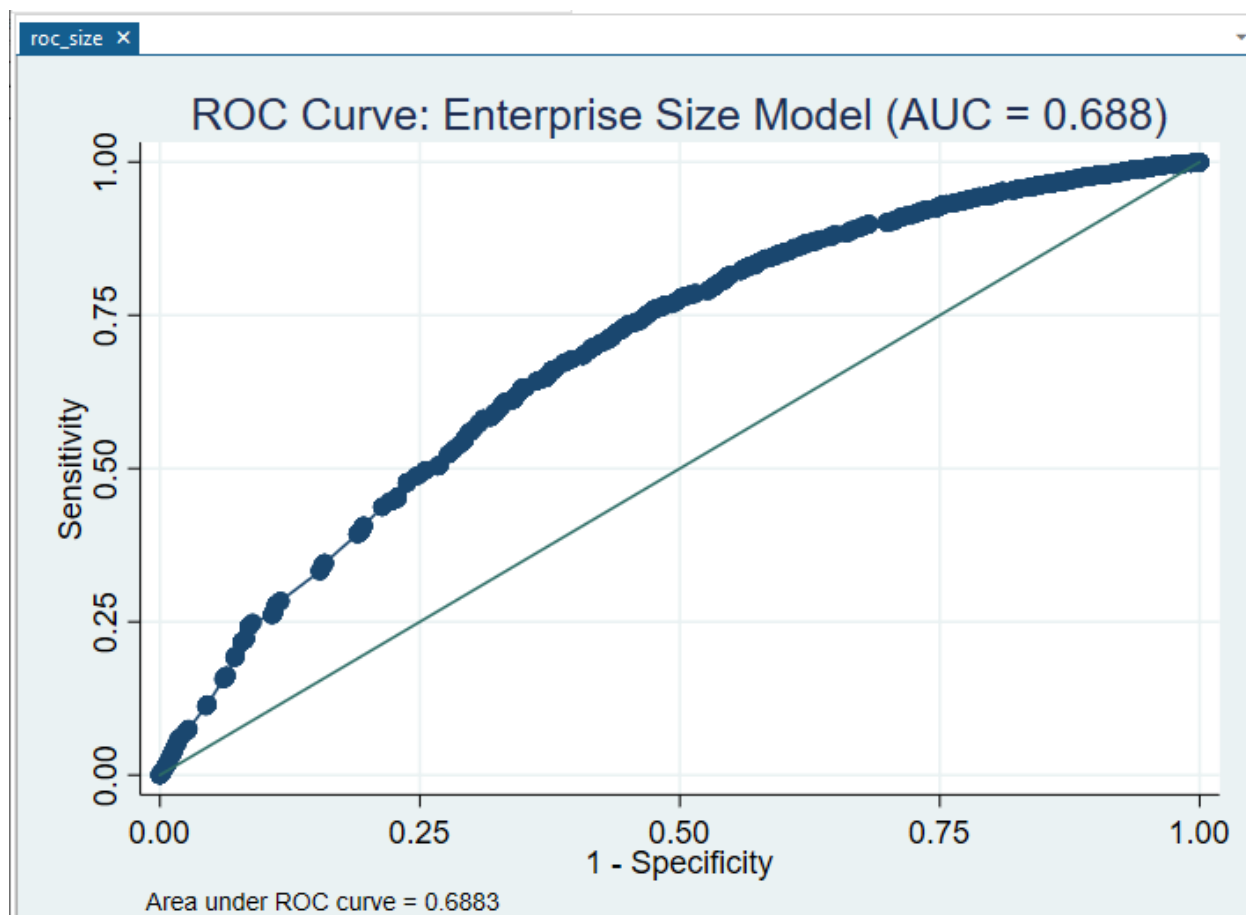


Figure B2: ROC Curve Binary Logistic Regression for Turnover (AUC = 0.6907)

The histogram shows the distribution of residuals from the OLS log-turnover regression (Section 4.9.3) with the normal distribution overlay. The residuals are approximately normally distributed and centred around zero, which supports the validity of the OLS estimates. The minor right skew (visible in the tail extending beyond 2) was statistically detectable by the skewness-kurtosis test given the very large sample size ($N = 43,196$), but is not practically meaningful given the use of robust standard errors throughout.

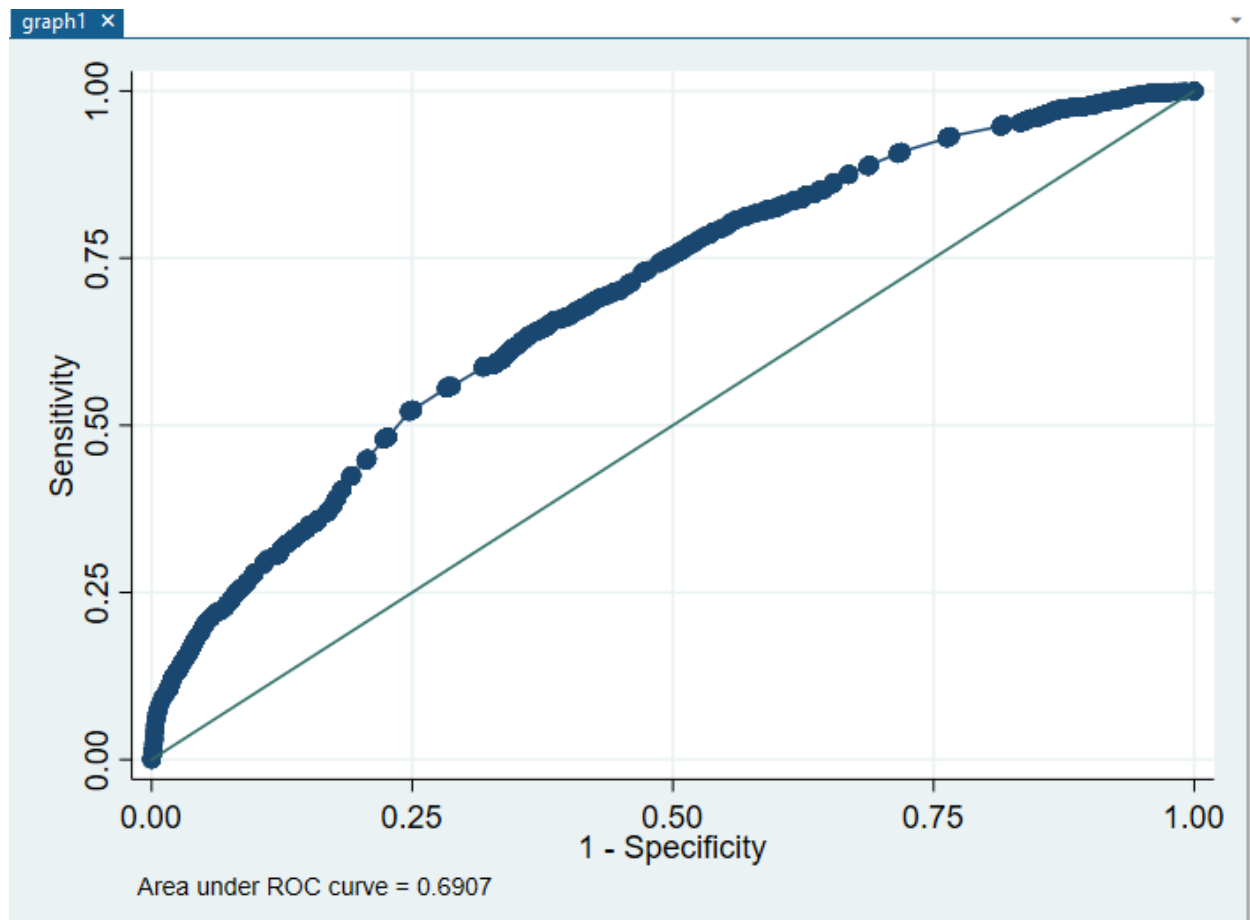


Figure B3: Turnover Model Residual Distribution

The histogram shows the distribution of residuals from the OLS log-turnover regression (Section 4.9.3) with the normal distribution overlay. The residuals are approximately normally distributed and centred around zero, which supports the validity of the OLS estimates. The minor right skew (visible in the tail extending beyond 2) was statistically detectable by the skewness-kurtosis test given the very large sample size ($N = 43,196$), but is not practically meaningful given the use of robust standard errors throughout.

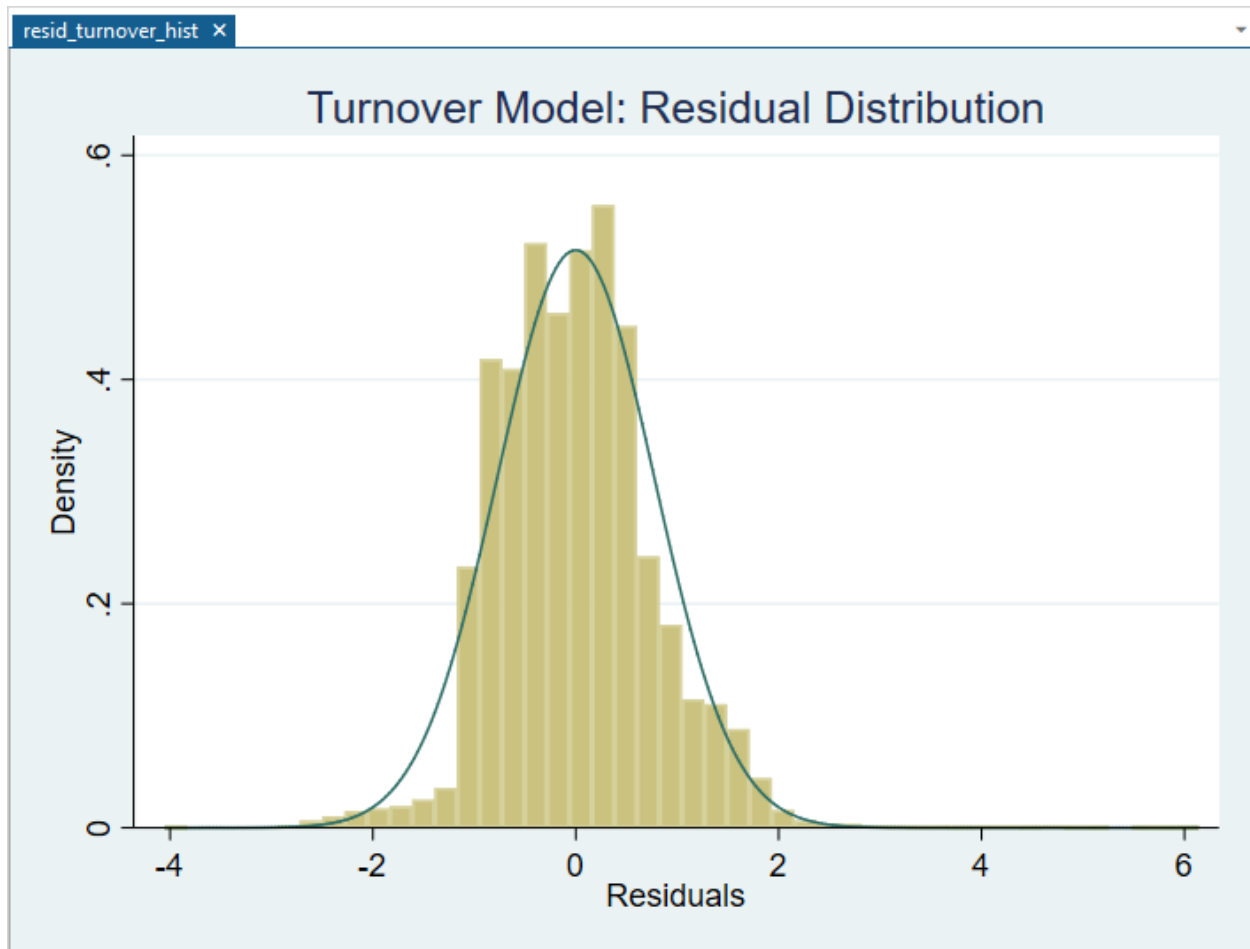


Figure B3: Employment Model Residual Distribution

The histogram shows the distribution of residuals from the OLS log-employment regression (Section 4.9.4). Unlike the turnover model, the employment residuals deviate substantially from normality, with a sharp spike at zero and a pronounced right tail. This reflects the highly discrete nature of employment in the COBE dataset, where the majority of enterprises employ exactly one worker, producing a log-employment distribution that is far from continuous and approximately normal. While robust standard errors mitigate the impact of this non-normality on coefficient estimates, the employment regression results should be interpreted with greater

caution than the turnover results, and quantile regression on employment is recommended as a priority for future research. The residual distribution is presented in Appendix B, Figure B3.

