

MAKERERE



UNIVERSITY

COLLEGE OF BUSINESS AND MANAGEMENT SCIENCES(COBAMS)

SCHOOL OF STATISTICS AND PLANNING

**ASSESSING THE RELATIONSHIP BETWEEN INDUSTRY TYPE, FIRM
CHARACTERISTICS AND EMPLOYMENT SIZE IN TESO SUB-REGION.**

BY

AMUJAL MARTHA

23/U/06115/PS

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

AUGUST, 2026.

DECLARATION.

I Amujal Martha solely declare that this report is my own work based on the knowledge and information gathered during the field attachment and that it has never been presented by anyone else from any institution. I have duly acknowledged other peoples' work and ideas through references, citations and quotations.

AMUJAL MARTHA.

23/U/06115/PS.

2300706115

Sign 

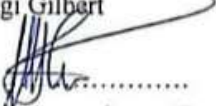
Date... 8 August, 2026 ...

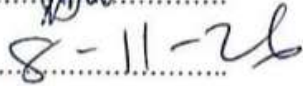
APPROVAL

This dissertation has been submitted for examination with approval by the undersigned supervisor.

University Supervisor:

Mr. Mutungi Gilbert

Sign 

Date..... 

ACKNOWLEDGEMENT.

I would like to sincerely extend my deepest gratitude to everyone, through their endless effort who contributed to the successful completion of my dissertation and all who guided me through the report writing.

First and foremost, I would like to thank God for his favor and wisdom. I would like to extend my sincere gratitude to the entire staff at the school of statistics, Makerere for the endless effort in installing the knowledge required in writing and completing this report. A special thanks goes to my supervisor, Mr. Mutungi Gilbert for his guidance during the entire dissertation.

I would also like to take this opportunity to thank my friends and parents for their guidance, prayers and financial support throughout the entire research process.

ABSTRACT.

This study assessed the relationship between industry type, firm characteristics, and employment size in the Teso sub-region. Previous studies have shown a shift from traditional sectors such as agriculture and manufacturing to trade and services. However, employment creation at the firm level has remained low.

The study used secondary data from the 2019/2020 Census of Business Establishments (COBE), comprising 1,835 enterprises across the 11 districts of the Teso sub-region. A quantitative cross-sectional research design was adopted to examine the influence of industry type, monthly turnover, business age, and ownership type on employment size. Descriptive statistics, Pearson correlation, Kruskal–Wallis tests, and negative binomial regression were used for data analysis.

The findings revealed that most firms employed an average of three workers, indicating that the region is dominated by micro and small enterprises. Trade was the most dominant industry (58.2%) however agriculture, despite having relatively few firms, employed the highest average number of workers per firm. Monthly turnover showed a strong positive relationship with employment size ($r = 0.6342$, $p < 0.001$), whereas business age had a weak relationship. Individual-owned enterprises constituted 87.8% of firms but employed fewer workers than formalized enterprises. The negative binomial regression identified monthly turnover as the strongest predictor of employment size, with a 72% increase in expected employment for each unit increase in turnover.

The study concludes that although firms have diversified into other industries, this has not translated into higher employment at the firm level. It recommends policies that enhance firm revenues through improved market access, infrastructure, and credit access, while promoting business formalization and agricultural modernization to increase employment.

TABLE OF CONTENTS

DECLARATION.....	i
APPROVAL	ii
ACKNOWLEDGEMENT.....	iii
ABSTRACT.....	iv
LIST OF TABLES.....	vii
LIST OF EQUATIONS.....	viii
LIST OF ABBREVIATIONS.	ix
CHAPTER ONE: INTRODUCTION.....	1
1.0 Introduction.	1
1.2 Problem statement.	3
1.3 Main objective.....	3
1.4 Specific objectives.....	3
1.5 Hypothesis.....	4
1.6 Scope.	4
1.6.1 Geographical scope.....	4
1.6.2 Content scope.	4
1.6.3 Time Scope.	5
1.7 Significance.....	5
1.8 Justification.	5
CHAPTER TWO: LITERATURE REVIEW.....	6
2.0 Introduction.	6
2.1 Review of Related Literature.	6
CHAPTER THREE: METHODOLOGY.	9
3.0 Introduction.	9
3.1 Research Design.....	9
3.2 Data Source and variables of study.	9
3.3 Study Population.	10
3.4 Data Processing and Management.	10
3.5 Data Analysis and test for significance.....	11
3.5.1 Descriptive statistics.	11

3.5.2 Bivariate analysis.....	11
3.5.3 Multivariate analysis.....	12
3.6 Ethical Considerations.....	13
3.7 Limitations of the Study.....	13
CHAPTER FOUR: FINDINGS AND DISCUSSION OF FINDINGS.....	14
4.1 Findings.....	14
4.1.1 Descriptive Statistics	14
4.1.2 Bivariate Analysis.....	17
4.1.3 Multivariate Analysis.	19
4.2 Discussion of Results.	21
CHAPTER FIVE: SUMMARY, CONCLUSSIONS AND RECOMMENDATIONS.....	23
5.1 Summary of Findings.....	23
5.2 Conclusions.	24
5.3 Recommendations.	25
REFERENCES.....	26

LIST OF TABLES.

Table 1: A table showing the list of abbreviations and their full form.	ix
Table 2.3: A table showing variable description	10
Table 3.4: A table showing descriptive description of continuous variables.	14
Table 4.4: A table showing a description of ownership type.....	15
Table 5.4: A table showing description of industry type.	16
Table 6.4: The Pearson correlation coefficient matrix for total employment, average years in operation and monthly turnover.....	17
Table 7.4: A table showing summary of employees per industry in Teso sub-region.....	18
Table 8.4. A table showing ownership structure in Teso sub-region.....	19
Table 9.4. A table showing values of the negative binomial.	20
Table 10.4: A table showing Model diagnostic tests.	21

LIST OF EQUATIONS.

Equation 1.3 : Formula for mean.	11
Equation 2.3 : Formula for standard deviation.	11
Equation 3.3: Formula for the Pearson correlation coefficient.	11

LIST OF ABBREVIATIONS.

Table 1: A table showing the list of abbreviations and their full form.

Abbreviation	Full Form
COBE	Census of Business Establishments
OECD	Organization for Economic Co-operation and Development
SME	Small and Medium enterprises
UBOS	Uganda Bureau Of Statistics
ISIC	International Standard Industrial Classification
NGOs	Non-Government Organizations
NLFS	National Labor Force Survey
BIC	Bayesian Information Criterion
AIC	Akaike Information Criterion
VIF	Variance Inflation Factor
IRR	Incidence Rate Ratio
ICT	Information and communication services
NB	Negative Binomial
C.I	Confidence Interval
LR	Likelihood Ratio

CHAPTER ONE: INTRODUCTION.

1.0 Introduction.

This chapter gives a general overview of the study on assessing the relationship between industry type, firm characteristics and employment size in Teso sub region. It consists of background, problem statement, objectives, hypothesis, scope, significance and justification.

1.1 Background.

Employment size refers to the total number of people employed in a firm within a given industry. It is commonly used to classify businesses into micro (1 to 4 employees), small (5 to 49 employees), medium (50 to 100 employees) and large (more than 100 employees) in Uganda (SME Brochure EDITED VERSION, n.d.). Employment size is an important indicator of firm growth and its contribution to job creation in an economy.

While industry type is a primary determinant of employment levels globally, it cannot be analyzed in isolation. Employment is heavily influenced by firm specific characteristics such as turnover, business age, and legal ownership. This explains why employment size often differs significantly between firms within the same industry. Therefore, there is a need to incorporate these factors to better understand the drivers of employment growth. (Okumu & Buyinza, 2020).

Employment is a key indicator of economic development and industries across the world are key drivers of job creation. However, the number of people employed within firms varies significantly across industries depending on their nature and structure. In particular, labor-intensive industries tend to employ more workers per firm compared to capital-intensive industries. In addition, firm-specific characteristics such as business age, turnover and legal ownership also influence employment size (Okumu & Buyinza, 2020).

Globally, there has been a structural transformation in employment patterns over time. Traditionally, agriculture and manufacturing employed a large share of the labor force, but there has been a gradual shift towards the service sector. For example, the service sector experienced an increase in employment share of about 12% between 1991 and 2019 (The Service Sector Now Represents about Half of Employment across the World, n.d.). Despite this shift, Small and Medium Enterprises (SMEs) continue to dominate the global business landscape and play a

significant role in employment creation with evidence showing that growing firms tend to increase the number of workers they employ. Similarly, firms with higher turnover are more likely to employ more workers (Which SMEs Scale Up?, 2021).

In Africa, rapid population growth has led to approximately 8 to 11 million youth entering the labor market each year, yet only about 3 million secure formal wage employments (Empower Africa's Youth to Create Jobs, Growth and Peace, 2024). Although agriculture remains the largest employer, accounting for more than half of total employment (African Development Bank Group & African Development Bank, 2019) most employment is concentrated in small-scale enterprises with low employment sizes. This suggests that while many people are employed, firms tend to employ only a few workers, highlighting the need to understand factors that influence employment size at the enterprise level.

In East Africa, there has been a shift in labor absorption from traditional agriculture to sectors such as trade, manufacturing and services (World Bank Document, n.d.). This transition has been driven by policies promoting industrialization as a strategy for employment creation. (African Development Bank Group & African Development Bank, 2019). However, the extent to which these emerging industries generate larger employment sizes at the firm level remains unclear.

Uganda reflects similar trends, while agriculture remains a dominant employer, its contribution to total employment declined from 41.2% in (2016-2017) to 36.0% in 2021 and manufacturing declined from 16.4% to 13.8% over the same period. In contrast, sectors such as trade, transport and services have expanded (National Employment Strategy For Uganda V.01.Pdf, n.d.).

Despite this structural shift, many businesses in Uganda remain small in terms of employment size. This pattern is also evident in the Teso sub-region in Eastern Uganda, which has traditionally been dominated by agriculture, particularly crop farming and cattle keeping. However, recent data from the Census of Business Establishments shows a growing presence of trade, accommodation, food services, and manufacturing activities. Despite this diversification, the majority of enterprises employ very few workers that is over 49% employ only one person, 33% employ between 2 to 4 workers, and only 3% employ more than 20 workers (ubosadmin, 2025).

1.2 Problem statement.

Despite the increase in the number of industries and structural shift from agriculture to sectors such as trade, services and manufacturing in Uganda, employment creation at the firm level of the different industries remains limited. Evidence from the Census of Business Establishments shows that the majority of enterprises employ very few workers that is, 49% employ only one person, 33% employ between 2 to 4 workers, and only 3% employ more than 20 workers. Furthermore, employment size varies across different industries with the highest employers being in the utilities sector (18 persons were employed per business) and the lowest being personal services (3 persons per business) (ubosadmin, 2025). This suggests that diversification of industries may not necessarily translate into increased employment size but firm characteristics (turnover, age of the business and legal ownership) play a crucial role in determine a firm's capacity to hire. Without clearly understanding these factors, policy interventions intended to increase employment size may fail to target the industries with the highest growth potential.

1.3 Main objective.

To examine the relationship between industry type, turnover, age of the business and legal ownership and employment size in Teso sub-region.

1.4 Specific objectives.

1. To examine the relationship between industry type and employment size in Teso sub-region.
2. To determine the association between age of the business and employment size in Teso sub region.
3. To analyze the relationship between business turnover and employment size in Teso sub-region.
4. To determine the relationship between legal ownership of enterprises and employment size in Teso sub-region.
5. To determine the business characteristics that affect employment.

1.5 Hypothesis.

Ho₁: There is no significant effect of industry type on the employment size in Teso sub-region.

Ho₂: There is no significant effect of the age of the business on the number of people employed in Teso sub-region.

Ho₃: There is no significant influence of industry turnover on the employment size in Teso sub-region

Ho₄: There is no significant impact of legal ownership of enterprises on the number of people employed in Teso sub-region.

Ho₅: Business characteristics have the same effect on employment.

1.6 Scope.

1.6.1 Geographical scope.

This study extracts data from COBE dataset for Teso sub-region, comprising of 11 districts of Amuria, Bukedea, Kaberamaido, Kalaki, Kapelebyong, Katakwi, Kumi, Ngora, Serere, Soroti and Soroti city.

1.6.2 Content scope.

This study is to explore the impact of industry type and firm characteristics on employment size in the Teso sub-region. The research will be using secondary data got from the Census of Business Establishments (COBE) 2019/2020 which was last modified on 28 November, 2025.

The researcher will use this data to generate variables of, employment size, industry, business Age group, monthly turnover and Legal Ownership.

This study does not distinguish between formal and informal business nor does it consider all the other sub-regions of Uganda.

1.6.3 Time Scope.

This study uses the Census of Business Establishments (COBE), 2019/20 which was last modified on 28 November, 2025. Analysis will be conducted in 2026.

1.7 Significance.

This study will help a number of people for example, Policy Makers and governments to identify which industries have the greatest potential to generate employment at the firm level and hence help in formulating intervention policies aimed at promoting job creation, training Institutions in curriculum development and skills training programs that align workforce skills with labor market demand.

1.8 Justification.

Although Uganda has experienced a shift from traditional agriculture to other industries such as trade and services and as well an increase in number of industries, there is still limited understanding of whether this transition has led to an increase in employment size at firm levels. This study aims to his study aim to jointly examine the effect of industry type and firm level characteristics (business age, turnover, and legal ownership) on employment size to critically analyze what firms need, besides being in a particular industry to boost employment size.

CHAPTER TWO: LITERATURE REVIEW.

2.0 Introduction.

In this chapter, the researcher tries to dig into the different other articles written on the factors affecting employment size to appreciate their work and to also to find out what is missing.

2.1 Review of Related Literature.

Globally, industries are classified using the International Standard Industrial Classification (ISIC), which defines an industry as a group of production units engaged primarily in the same or similar productive activities (United Nations, 2008). Industry type is one of the significant determinants of employment size. This is due to the fact that some are capital intensive (industries which mainly use machinery and technology for their operation) while others are labor intensive (mainly using human capital for production). Agriculture, manufacturing and construction typically require larger workforces, while industries like finance, telecommunications, mainly rely on use of machines hence employing fewer people (World Development Report 2020, 2020). This is what makes industry type one of the key influencers of employment size. However, industry type alone may not be sufficient to explain variation in employment size. Industries have different firm sizes which influences employment sizes. Industries dominated by small and informal enterprises have lower employment sizes compared to those comprised of mainly formal firms. (Cruz et al., n.d.). moreover, within the same industry, firms have different productivity levels due to variations in technology adoption, efficiency, and organizational practices (Technology Sophistication across Establishments, 2025). Although many sub-Saharan countries have experienced structural transformation from agriculture to services, there has been no significant job creation. most of the service firms consists of small-scale and informal enterprises that employ only a few workers. (Structural Transformation in Africa, Albert Zeufack 13 January 2021.). This is the same for Uganda with a large proportion of enterprises being small and informal employing fewer than five workers.(ubosadmin, 2025)

Turnover refers to the total revenue generated by a firm. Globally, firms with increasing turnover are more likely to expand their operations and employ more workers, as higher demand for goods and services necessitates additional labor (OECD, 2021a). However, since the firms are either labor or capital intensive, this relationship is inversely proportional for capital intensive industries

where firms may increase output through improvement in efficiency and technology and not significantly increase employment of labor the as compared to labor intensive industries (World Development Report 2020, 2020). In developing countries, turnover is closely linked to access to finance and business stability. Enterprises with low or irregular turnover may struggle to sustain employment, while those with consistent revenue streams are more likely to maintain or expand their workforce(Ullah, 2020). In Uganda particularly, turnover is affected by limited access to markets and finance. many small businesses experience low and unstable revenues, which restricts their ability to hire additional workers especially in rural regions where market access is limited. (“Uganda National Small Business Survey,” n.d.) which is not different in Teso sub-region where most enterprises operate at low level of turnover which has resulted into limited capacity to employ more workers which make it a critical factor in explaining differences in employment size across firms in the region. (ubosadmin, 2025).

Among the factors affecting employment size is the age of the business. Business all over the world usually start small and gradually expand as they gain experience, expand their customer numbers which eventually leads to improvement of their operations. Globally, younger firms are often associated with higher growth rates and greater job creation compared to older firms. This is because new firms tend to expand rapidly as they establish themselves in the market and employ more people though their jobs are volatile as they can either stay or exit the market while older firms employ fewer people though they more stable employment over time (OECD, 2021a). In many developing economies, a large number of firms remain small regardless of their age. This implies that experience alone does not guarantee expansion in employment (Karlsson, 2021a). Uganda for one is characterized by a large number of young and informal enterprises, many of which face challenges in sustaining operations beyond the early stages. This is reflected in the high levels of informal and transitional employment reported by the Uganda Bureau of Statistics. (ubosadmin, 2022). This trend is the same for Teso sub region which is mainly dominated by small scale firms. This implies that although young firms create jobs, the jobs are not stable which implies as people lose jobs as soon, they get them. This is probably the reason why we have unemployment issues in Uganda as a whole. This leaves us with a question on how we can make these jobs stable? what factor should we strengthen to cub this?

Legal ownership (sole proprietorship, partnership, limited company) refers to the structure under which a business operates, such as sole proprietorship, partnership, or limited company. This structure influences how businesses access resources, make decisions (including employment decisions), and manage risks. Firms with more formal ownership structures (Partnerships and corporations) allow for the separation of ownership and control. This enables the employment of professional managers and specialized staff and they in in a better position to handle the administrative burdens of a larger workforce, such as payroll, training and regulatory compliance (Wang et al., 2022). Sole proprietorships are essential for initial entry of firms but they create fewer jobs hence there is a need to make them more formal and move from managing a livelihood to managing an organization. Policies aimed at increasing employment size must therefore focus not just on business survival, but on encouraging the transition from informal sole ownership to structured corporate entities (Abebe Mamo et al., 2024). In Uganda, the majority of businesses are sole proprietorships. These enterprises dominate the informal sector and generally employ very few workers. Limited access to credit and managerial capacity further constrains their growth. so is it the same is in Teso sub-region (ubosadmin, 2025). This implies that employment size is influenced by a number of factors ranging from industry type to firm-specific factors. Industry type provides a general context for labor demand but firm-level characteristics such as turnover, age and ownership play a more direct role in determining how many workers are employed on firm basis therefore studying individual factors alone does not properly explain and help to understand employment size and to properly identify the main determinant of employment size and policies to improve the number of people employed in the firms. This study seeks to address this gap by providing a comprehensive analysis of the factors affecting employment size using firm-level data.

CHAPTER THREE: METHODOLOGY.

3.0 Introduction.

In this chapter, the researcher presents the approach, techniques and procedures that will be used to carry out the study.

3.1 Research Design.

The study will adopt a quantitative cross-sectional design since it utilized secondary data collected at one point in time (2019/20) from the Census of Business Establishments (COBE). This allowed the researcher to examine relationships between the independent variables and the dependent variable across firms in the Teso sub-region.

3.2 Data Source and variables of study.

The study used secondary data obtained from the Census of Business Establishments (COBE) 2019/20, which was last updated in November 2025.

It provided detailed information on firm characteristics of which variables of industry type, age of the business, turnover, legal ownership and employment size of firms in Teso sub region were extracted.

The dependent variable was employment size which is the number of people employed by a firm which is a count variable. The independent variables were, age of business which is a continuous variable measuring the average number of years the business has operated, Monthly Turnover also a continuous variable representing firm revenue and lastly Legal Ownership and industry type are categorical variables.

Table 2.3: A table showing variable description.

Variable	Description	measurement
Employment size	Total number of workers both male and female working in an enterprise	Discrete
Monthly turnover	Average monthly sales/revenue of the businesses	Continuous
Average age of the business	The number of years an establishment has been in operation	Continuous
Industry type	The primary economic activity an enterprise operates classified according ISIC Rev 4	Categorical
Legal ownership	The legal structure registered, operates. Determines liabilities, governance, and decision making	Categorical

3.3 Study Population.

The study population consisted of all business establishments recorded in the COBE dataset situated in Teso sub-region consisting of the districts of Amuria, Bukedea, Kaberamaido, Kalaki, Kapelebyong, Katakwi, Kumi, Ngora, Serere, Soroti, and Soroti City.

3.4 Data Processing and Management.

The dataset was cleaned and prepared in Microsoft excel before analysis. This involved, checking for missing values, range checks for values out of the normal ranges, inconsistencies in the data will also be checked as well as creating transformed variables to cater for overly dispersed data

The data was analyzed using Stata.

3.5 Data Analysis and test for significance.

3.5.1 Descriptive statistics.

The researcher used descriptive statistics to summarize the data.

For continuous variables like age of the business and monthly turn over mean and standard deviation were used where,

$$\text{mean, } \bar{x} = \frac{\sum_{i=1}^n x_i}{n}$$

Equation 1.3 : Formula for mean.

$$\text{standard deviations, } s = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n-1}}$$

Equation 2.3 : Formula for standard deviation.

where x_i = each data value and n = number of observations

Frequencies and percentages were used for the categorical variables of legal ownership and industry type.

Frequency = count of each variable.

3.5.2 Bivariate analysis.

Bivariate analysis was conducted to examine relationships between variable that is Correlation analysis to study relationship continuous variables of age of the business and turnover and employment size

$$\text{Pearson correlation, } r = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2 \sum_{i=1}^n (y_i - \bar{y})^2}}$$

Equation 3.3: Formula for the Pearson correlation coefficient.

Where;

r ranges from +1(perfect positive relationship) to -1(perfect negative relationship) and 0 implying no linear relationship

Where;

x_i = data value of one variable and $\bar{x}$ their mean

y_i = data value of the other comparable variable and $\bar{y}$ as their mean

while Kruskal-Walli's test and summary tables were used to assess differences in mean employment size across categorical variables such as industry type and legal ownership. Kruskal-Walli's test was used because employment size was right skewed

3.5.3 Multivariate analysis.

The researcher used multivariate analysis to determine the association of all the variables with employment size. Negative Binomial Regression model was used since employment size was a count and to account for over dispersion of a few big farms among the many small firms.

Model Specification.

$$\ln(\lambda_i) = \beta_0 + \beta_1 \text{Industrytype}_i + \beta_2 \text{Age of business}_i + \beta_3 \ln(\text{Turnover}_i) + \beta_4 \text{Ownership}_i + \varepsilon_i$$

Where:

λ_i = Expected employment size for firm i .

$\beta_1, \beta_2, \beta_3, \beta_4$ = Coefficients

ε_i = Error term

$\ln(\text{Turnover}_i + 1)$ was used to stabilize the variance since turnover can be very large.

To ensure the validity of the results, the following tests will be performed:

Comparison of variance and mean, Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC) values. Used to confirm if Negative Binomial is superior to the Poisson model.

Likelihood Ratio (LR) tests. Used to confirm if Negative Binomial was a good fit.

Multicollinearity Test. The researcher used Variance Inflation Factor (VIF) to ensure independent variables were not highly correlated.

Hypotheses will be tested at a 5% level of significance.

If $p\text{-value} < 0.05$, reject the null hypothesis

If $p\text{-value} \geq 0.05$, fail to reject the null hypothesis.

3.6 Ethical Considerations.

This study used secondary data accessed through UBOS data portal after creating a user account and providing legitimate academic research justification for its need.

Proper citation of data sources will be maintained in the reference section.

3.7 Limitations of the Study.

This study relied on secondary data and therefore, there was limited control over data quality

Cross-sectional data does not show cause and effect relationship between variables.

CHAPTER FOUR: FINDINGS AND DISCUSSION OF FINDINGS.

4.1 Findings

4.1.1 Descriptive Statistics

On average, firm in Teso sub region employ 3 people with the smallest number of people employed a firm being 1 and the largest being 59 people employed in a firm. This implies that Teso sub region is dominated by small and medium size enterprises. The firms have lasted on average 9 years with other lasting over 50 years. They earn on average 995,500 Ugandan shillings on a monthly basis with the least earning of the firms being of 87,904 Ugandan shillings while the largest firm earnings are 1,498,903,983 Ugandan shillings.

Table 3.4: A table showing descriptive description of continuous variables.

Variable	Mean	Minimum	Maximum
Employment size(both males and female)	3	1	59
Average years in operation	9	4	50
Monthly turn over	995, 500	87,904	1,498,903,983

Most of the industries in Teso sub region are owned by individuals (under sole proprietorship) covering over 87.8% followed by the Private Limited Company whereas government owned and religious organizations are the least owned.

Table 4.4: A table showing a description of ownership type.

Ownership type	Frequency	Percentage(%)
Sole Proprietorship	1610	87.8
Private Limited Company	189	10.3
Partnership	20	1
Cooperative	8	0.4
Non-Government Organization	3	0.2
Others	2	0.1
Government	1	0.1
Religious Organization	1	0.1
Total	1834	100

Teso sub region is dominated by trade covering over 58.2% are under the trade industry. this implies that commerce, retail, or wholesale activities are the major economic activity in this region. This is followed by industries such as Accommodation and Food Services, Recreation and Personal services and Education whereas there is low engagement in construction, forestry and fishing in this region. This generally shows a shift in economic activity from agriculture and manufacturing to industries like trade.

Table 5.4: A table showing description of industry type.

Industry	Frequency	Percentage(%)
Trade	1068	58.2
Accommodation and Food Services	179	9.8
Recreation and Personal Services	167	9.1
Education	161	8.8
Financial and Insurance Services	74	4
Other Manufacturing	69	3.8
Health and Social Work	31	1.7
Real Estate Business Services	29	1.6
Agriculture	22	1.2
Food Processing	21	1.1
Information and Communication	6	0.3
Fishing	4	0.2
Construction	2	0.1
Forestry	1	0.1
Total	1834	100

4.1.2 Bivariate Analysis.

To examine the relationship between employment size, mean years in operation and monthly turnover, Pearson correlation coefficient was computed. Total employment size and mean years in operation gave r of 0.1958. this implies that as firm grow in age, they employ more workers. This implies that mean number of years in operation only accounts for 3.8% of variation in employment size.

Total employment size and monthly turnover gave a Pearson coefficient, r of 0.6342 which implies that 40.2% of variation in total employment size is determined by monthly turnover of the businesses. Monthly turnover is a strong predictor of employment size in Teso sub-region.

Table 6.4: The Pearson correlation coefficient matrix for total employment, average years in operation and monthly turnover.

	Employment size	Monthly turnover	Av. years in operation
Employment size	1		
Monthly turnover	0.6342	1	
Av. years in operation	0.1958	0.1743	1

Industry types a significant impact on employment size that is p value equal to 0.0001. this implies that different industries employ different number of employees. There has been a shift from agriculture to sectors like trade, however, though trade has a large number of industries and employing many workers than agriculture, each business employees about 2 workers as compared to agriculture which employs about 9 workers.

Table 7.4: A table showing summary of employees per industry in Teso sub-region.

Industry	Number of employees	Percentage(%)	Median employees	Mean employees
Trade	2194	39.21	1	2.05
Education	1410	25.20	6	8.76
Accommodation and Food Services	477	8.52	2	2.66
Recreation and Personal Services	389	6.95	1	2.33
Financial and Insurance Services	346	6.18	1	4.68
Other Manufacturing	318	5.68	3	4.61
Agriculture	197	3.52	9	8.95
Food Processing	89	1.59	1	4.24
Health and Social Work	77	1.38	1	2.48
Real Estate Business Services	66	1.18	1	2.28
Construction	12	0.21	6	6
Forestry	9	0.16	9	9
Fishing	6	0.11	1.5	1.5
ICT	6	0.11	1	1
Total	5596	100		

Businesses in Teso sub region are mainly individual owned that is about 1610 of them are under sole proprietorships which employ few workers about 2 workers per business. Private limited companies tend to employ more worker, an average of 9 workers per business. Although non-government organization are few, only three, they tend to employ the largest number of employs about 18 employees . This is followed by cooperatives. Which structurally function as small, single-owner operations with minimal employee counts.

Table 8.4. A table showing ownership structure in Teso sub-region.

Ownership Type	Frequency	Percentage(%)	Median Employment	Mean Employment
Sole Proprietorship	1610	87.78626	1	2.26
Private Limited Company	189	10.30534	6	8.68
Partnership	20	1.090513	4	6.8
Cooperative	8	0.436205	9	10.13
NGOs	3	0.163577	20	18.33
Others	2	0.109051	10	10
Government	1	0.054526	9	9
Religious Organization	1	0.054526	9	9
Total	1834	100		

4.1.3 Multivariate Analysis.

Results from the negative binomial model showed that a one-year increase in the average number of years in operation increases the number of employees by 0.9% and a 1% increase in a unit of monthly turnover is associated with 72% increase in the number of people employed by businesses

in Teso sub region whereas all other industries employed fewer workers than businesses engaged in agriculture.

Table 9.4. A table showing values of the negative binomial.

	irr	Std. Err.	Z	P > Z	[95% C.I]	
					Lower Limit	Upper Limit
Industry						
Forestry	1.204	0.665	0.34	0.737	0.407	3.557
Fishing	0.348	0.169	-2.18	0.029	0.134	0.9
Food processing	0.505	0.108	-3.2	0.001	0.332	0.768
Other manufacturing	0.788	0.135	-1.39	0.166	0.563	1.104
Construction	0.113	0.057	-4.33	0.000	0.042	0.303
Trade	0.305	0.048	-7.57	0.000	0.225	0.415
Accommodation and food	0.5	0.083	-4.2	0.000	0.362	0.691
ICT	0.228	0.108	-3.13	0.002	0.09	0.577
Financial and insurance	0.306	0.052	-6.92	0.000	0.219	0.428
Real estate business services	0.386	0.084	-4.38	0.000	0.252	0.591
Education	0.413	0.075	-4.84	0.000	0.288	0.591
Health and social works	0.353	0.073	-5.04	0.000	0.236	0.529
Recreation services	0.473	0.079	-4.46	0.000	0.34	0.657
Legal ownership						
Government	0.941	0.52	-0.11	0.913	0.318	2.782
Others	0.673	0.265	-1.01	0.314	0.312	1.455
NGOs	1.99	0.573	2.39	0.017	1.132	3.497
Cooperatives	1.224	0.273	0.9	0.366	0.79	1.895
Partnership	0.922	0.144	-0.52	0.602	0.678	1.253
Private limited companies	1.028	0.126	0.23	0.820	0.809	1.308
Years in operation	1.009	0.002	4.22	0.000	1.005	1.014
ln (turnover)	1.72	0.025	36.94	0.000	1.671	1.77

Testing for fitness of the model.

The negative binomial model was a better predictor than the Poisson model. This was evidenced by comparison variance and mean, AIC and the BIC values. This also showed that the model is a good fit with the LR. The model was also tested for multicollinearity among the independent variables using mean VIF value

Table 10.4: A table showing Model diagnostic tests.

Test	Value	Decision
mean vs variance	3.051 vs 23.18	Over dispersion present in data
LR Test(Poisson vs NB)	0	Model is a good fit
AIC(Poisson vs NB)	7000.409 vs 6429.053	NB is superior
BIC(Poisson vs NB)	7121.722 vs 6555.881	NB is superior
mean VIF	5.85	acceptable
Alpha	0.17	Over dispersion accounted for

4.2 Discussion of Results.

The finding reveals a structural shift from traditional industries like agriculture to other sectors like trade that is to say that in Teso sub region, the number of businesses adventuring into other industries has greatly increases as compared to number of businesses in traditional industries. However, this study showed though the shift has happened, it has not translated into increased employment size at firm level as agricultural firms though few in number that is 22 enterprises employ on average 9 workers per firm. This is further supported by a research conducted by (Structural Transformation in Africa, Albert Zeufack 13 January 2021.). Furthermore labour intensive industries like agriculture and construction employed more workers compared to capital intensive industries of information and communication which employed an average of 1 employees per firm which is in line with findings by (World Development Report 2020, 2020).

This therefore shows that industry type in which a firm belongs greatly affects employment size and there is need to embrace labour intensive industries which absorb more workers.

The study also revealed that as firms grow in age, they tend to employ more workers hence answering objective 2. However, this relationship is very weak with increase in employment size ($r = 0.1958$) that is to say that each additional year in operation increases employment size by only 0.9%. This proves that market experience alone does not increase employment size as older firms' employment becomes stagnant though stable which is in line with previous studies by (Karlsson, 2021b) and (OECD, 2021b).

The Pearson correlation revealed a strong positive association between monthly turnover and employment size ($r = 0.6342$, $p < 0.001$), indicating that it accounts for 40.2% variation employment size. This was further confirmed by the negative binomial model which showed that a percentage increase in a unit of log-transformed monthly turnover yields a 72% expected increase in employment size. This confirms turnover is key in increasing employment creation. This finding are further supported by research done by (OECD, 2021b) and (Ullah, 2020). For Teso sub region where firms' average turnover is 995,500. it implies that most firms in this region employed few workers which findings are the same as those found by (ubosadmin, 2025).

Previous study by (Abebe Mamo et al., 2024) showed that Sole proprietorships are essential for initial entry of firms but they create fewer jobs hence there is a need to make them more formal and this study revealed that sole proprietorship business on average employed a few workers (2 workers per firm) as compared to formal enterprises like partnerships, cooperatives which though few in numbers (20 and 8 respectively) employed on average 8 and 10 workers per firm. This because formal entities have professional managers and specialized staff and they in in a better position to handle the administrative burdens of a larger workforce, such as payroll, training and regulatory compliance as proved by (Wang et al., 2022) as well as the fact that they have access to credit (ubosadmin, 2025) and broader consumer markets than sole proprietorships. Hence Teso sub region comprised mainly of informal enterprises tends to employ few workers of firm level.

Employment size is mainly affected by the age of the business, industry type and monthly turnover. However, monthly turnover has the greatest impact on employment size hence financial capability and a firm's market determine its job creation capability.

CHAPTER FIVE: SUMMARY, CONCLUSSIONS AND RECOMMENDATIONS.

5.1 Summary of Findings.

The main objective of this study was to examine the relationship between industry type, turnover, age of the business and legal ownership and employment size in Teso sub-region. The researcher utilized secondary data from the 2019/2020 Census of Business Establishments (COBE) comprising 1,835 enterprises across 11 districts in Teso to address five specific objectives.

Findings from this study revealed that most firms in the Teso sub-region employed on average three workers per firm implying most of them are small and micro firms and on average, this firms have operated for 9 years, while monthly turnover average 995,500 Ugandan shillings. Trade is the most dominant industry in this region accounting for 58.2% of all business establishments while most firms were under sole proprietorship which comprised 87.8% of all businesses in the region.

Bivariate analysis demonstrated that although most firms in Teso sub-region were under trade, agricultural enterprises generated a higher on average employment size per firm. Kruskal–Wallis test results confirmed significant differences employment across different industry categories ($p < 0.05$). Correlation analysis indicated a positive but weak relationship between the age of the business and total employment size, an r value of 0.1958 suggesting that older age alone doesn't imply increase in absorption of labour though to a small extent influence employment size. It also indicated that monthly turnover had a positive correlation with employment size having an r of 0.6342 and a p value less than 0.001 implying that for a firm to employ more workers, it needs to have high revenues. Sole proprietorships employed fewer workers on average as compared to formalized enterprises like Private Limited Companies, Partnerships, and Non-Government Organizations and cooperatives.

Under multivariate analysis, the negative binomial identified monthly turnover as the strongest overall predictor of employment size being associated with a 72% increase in expected employment size.

Hence employment creation at firm level is constrained by low business monthly turnover and informal ownership structures rather than industry classification alone.

5.2 Conclusions.

Based on the findings, this study concludes that;

Although Teso sub-region dominated by trade industries, they mainly employ fewer workers compared to agricultural and construction industries, though fewer in number, demonstrated higher employment levels on firm level. This study therefore concludes that although an industry may be dominant, it does not automatically translate into higher job creation and that to increase employment size, focus should be given to labour intensive industries.

The older the firm does not necessarily guarantee increase in employment size. The weak positive correlation observed indicates that many firms remain have stayed over long period of times but have remained small and not employing more workers. This suggests that age alone is insufficient to drive an increase in employment

Monthly turnover the most critical determinant of a firm's capacity to increase employment. The strong, positive relationship between monthly turnover and employment size with a confirmation of multivariate regression demonstrated this fact. Policies aimed at increasing firm revenues, such as improving market linkage, access to credit and provision of incentives to reduce cost of operating necessary for increase in job creation in the region.

Informal sole-proprietorship ownership limits employment creation. Hence there is a need to transition these enterprises into formal structures such as Private Limited Companies, Partnerships, cooperatives and Non-Governmental Organizations so they are able to sustain larger workforce.

Finally, the negative binomial model concluded that monthly turnover outweighs industry type in influencing employment size in the Teso sub-region. Hence to addressing regional unemployment and underemployment , there is need to boost firms' revenues.

5.3 Recommendations.

The government should strengthen programs on infrastructure to facilitate business like trade which are growing up rapidly.

The government should also provide support to businesses in form of subsidies, tax holidays in order to increase monthly turn over which would in turn increase employment size.

Although employment patterns are shifting, Government should still focus on developing traditional industries because although they are few in number, they still absorb more labor force.

The government should encourage businesses to register and become more formalized so as to increase market access, access to credit which will in turn increase the level of employment per firm.

REFERENCES.

- Abebe Mamo, Y., Mesele Sisay, A., Dessalegn WoldeSilassie, B., & Worku Angaw, K. (2024). Corporate social responsibilities contribution for sustainable community development: Evidence from industries in Southern Ethiopia. *Cogent Economics & Finance*, 12(1), 2373540. <https://doi.org/10.1080/23322039.2024.2373540>
- African Development Bank Group & African Development Bank (Eds.). (2019). African economic outlook 2019. African Development Bank.
- Cruz, M., Moelders, F., Salgado, E., & Volk, A. (n.d.). Estimating the Number of Firms in Africa. Empower Africa's youth to create jobs, growth and peace. (2024, January 9). World Economic Forum. <https://www.weforum.org/stories/2024/01/empower-africa-s-youth-to-create-jobs-growth-and-peace/>
- Karlsson, J. (2021a). Firm size and growth barriers: A data-driven approach. *Small Business Economics*, 57(3), 1319–1338. <https://doi.org/10.1007/s11187-020-00350-y>
- Karlsson, J. (2021b). Firm size and growth barriers: A data-driven approach. *Small Business Economics*, 57(3), 1319–1338. <https://doi.org/10.1007/s11187-020-00350-y>
- National Employment Strategy For Uganda V.01.pdf. (n.d.). Retrieved March 14, 2026, from <https://mglsd.go.ug/wp-content/uploads/2022/11/DRAFT-NATIONAL-EMPLOYMENT-STRATEGY-FOR-UGANDA-V.01.pdf>
- OECD. (2021a). Understanding Firm Growth: Helping SMEs Scale Up. OECD Publishing. <https://doi.org/10.1787/fc60b04c-en>
- OECD. (2021b). Understanding Firm Growth: Helping SMEs Scale Up. OECD Publishing. <https://doi.org/10.1787/fc60b04c-en>
- Okumu, I. M., & Buyinza, F. (2020). Performance of small and medium-sized enterprises in Uganda: The role of innovation. African Economic Research Consortium.
- SME Brochure EDITED VERSION. (n.d.). Retrieved March 17, 2026, from <https://www.ugandainvest.go.ug/wp-content/uploads/2016/02/New-SME-Brochure.pdf>
- Structural Transformation in Africa, Albert Zeufack 13 January 2021. (n.d.). Retrieved July 23, 2026,
- Technology Sophistication across Establishments. (2025). <https://doi.org/10.1596/1813-9450-11051>

The service sector now represents about half of employment across the world. (n.d.). Our World in Data. Retrieved March 14, 2026, from <https://ourworldindata.org/data-insights/the-service-sector-now-represents-about-half-of-employment-across-the-world>

ubosadmin. (2022, November 30). National Labour Force Survey 2021 Main Report. Uganda Bureau of Statistics. <https://www.ubos.org/national-labour-force-survey-2021-main-report/>

ubosadmin. (2025a, August 14). 2019/2020 Census Of Business Establishments (COBE) Report. Uganda Bureau of Statistics. <https://www.ubos.org/2019-2020-census-of-business-establishments-cobe-report/>

ubosadmin. (2025b, August 14). 2019/2020 Census Of Business Establishments (COBE) Report. Uganda Bureau of Statistics. <https://www.ubos.org/2019-2020-census-of-business-establishments-cobe-report/>

ubosadmin. (2025c, August 14). 2019/2020 Census Of Business Establishments (COBE) Report. Uganda Bureau of Statistics. <https://www.ubos.org/2019-2020-census-of-business-establishments-cobe-report/>

Uganda National Small Business Survey. (n.d.). Financial Sector Deepening Uganda (FSD Uganda). Retrieved July 23, 2026, from https://fsduganda.or.ug/b_a_goals/uganda-national-small-business-survey/

Ullah, B. (2020). Financial constraints, corruption, and SME growth in transition economies. *The Quarterly Review of Economics and Finance*, 75, 120–132. <https://doi.org/10.1016/j.qref.2019.05.009>

United Nations. (2008). International Standard industrial classification of all economic activities (ISIC) (Rev. 4). United Nations.

Wang, N., Cui, D., Geng, C., & Xia, Z. (2022). The role of business environment optimization on entrepreneurship enhancement. *Journal of Economic Analysis*, 1(2), 66–81. <https://doi.org/10.58567/jea01020005>

Which SMEs scale up? Understanding Firm Growth. (2021, November 16). OECD. https://www.oecd.org/en/publications/understanding-firm-growth_fc60b04c-en/full-report/component-6.html

World Bank Document. (n.d.). Retrieved March 14, 2026, from <https://documents1.worldbank.org/curated/en/653121569909327847/pdf/Structural-Transformation-in-Sub-Saharan-Africa.pdf?>

World Development Report 2020: Trading for development in the age of global value chains (World Development Report 2020). (2020). World Bank. <https://digitallibrary.un.org/record/3850531>