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ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF ACCOUNTING AND FINANCE

FACTORS AFFECTING TAX REVENUE IN ETHIOPIA

**A Thesis Submitted to the College of Business and Economics in partial Fulfillments of
Requirements for the Degree of Master of Science in Accounting and Finance**

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Addis Ababa, Ethiopia

DECLARATION

I hereby declare that this thesis entitled “Factors Affecting Tax Revenue in Ethiopia”, has been carried out by me under the guidance and supervision of Dr. Takele Fufa (PhD.)

The thesis is original and has not been submitted for the award of Degree, Diploma and any other title at any university or institutions.

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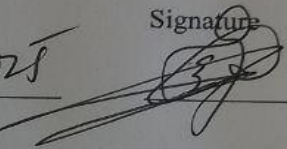
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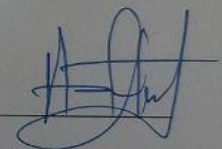
CERTIFICATE

This is to certify that the thesis entitles "Factors Affecting Tax Revenue in Ethiopia", Submitted to Addis Ababa University for the award of the Degree of Master of Accounting and finance and is a record of valuable research work carried out by Ms. Hendkie Tariku, under our guidance and supervision.

Therefore we hereby declare that no part of this thesis has been submitted to any other university or institutions for the award of any degree or diploma.

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ACRONYMS

FDI - Foreign Direct Investment

GDP - Gross Domestic Product

GNI - Gross National Income

IMF - International Monetary Fund

NBE- National Bank of Ethiopia

OECD - Organization for Economic Co-operation and Development

UNEM- Unemployment rate

VAT - Value-Added Tax

ABSTRACT

This study focuses on the key factors influencing tax revenue in Ethiopia from 2013 to 2023. By adopting a quantitative research approach underpinned by positivist philosophy, the research aims to uncover how variables such as Gross National Income (GNI), Gross Domestic Product (GDP), inflation rate, Foreign Direct Investment (FDI) inflows, and unemployment rate affect the country's tax revenue. The data, primarily sourced from the NBE, were analysed using multiple linear regression models to quantify these relationships. Comprehensive diagnostic tests ensure the robustness and validity of the findings. The results highlight significant effects

between the independent variables and tax revenue, offering critical insights into the economic forces shaping tax collection in Ethiopia. This study fills a notable gap in the literature concerning the economic determinants of tax revenue in developing countries, providing valuable policy implications. The findings suggest that macroeconomic stability and increased investment are crucial for enhancing tax revenues, offering guidance for policymakers to formulate strategies for sustainable economic growth. By understanding these dynamics, policymakers can better design effective fiscal policies that support Ethiopia's economic development. This research not only contributes to academic knowledge but also serves as a practical tool for enhancing the efficiency of tax systems in similar contexts.

Key Words; *factors affecting tax revenue, economic growth, time series*

CHAPTER ONE

INTRODUCTION

1.1 Background Of The Study

“Tax is a compulsory contribution payable by an economic unit to a government without expectation of direct and equivalent return from the government for the contribution made” (Bhatia 2003). Tax revenue is a critical component of government finance, essential for a country's economic development. In Ethiopia, tax revenue plays a pivotal role in funding public services, infrastructure projects, and social programs that are fundamental to achieving sustainable growth (Aamir, Qayyum, Nasir, Hussain, Khan and Butt, 2011). However, optimizing tax revenue collection has been challenging due to various economic, structural, and policy-related factors. Efficient tax collection enables governments to invest in public goods and services, reduce inequality, and promote economic stability (Kabana, 2016). In Ethiopia, this is particularly important given the country's ambitious development plans and the need to reduce reliance on foreign aid and debt.

Ethiopia faces several challenges in tax revenue collection, including a large informal sector, low number of investment, agricultural dominance, and low industrialization rates, which complicate tax collection efforts (NBE, 2009). Limited administrative capacity and technological infrastructure hinder efficient tax administration, while high levels of tax evasion and avoidance, partly due to weak enforcement mechanisms and a lack of taxpayer education, it reduces the effectiveness of tax policies. Inconsistent and sometimes regressive tax policies have also led to inefficiencies and inequities in the tax system (Vadde & Gundarapu, 2012).

Despite these challenges, recent years have seen efforts by the Ethiopian government to reform the tax system and enhance revenue collection. Initiatives include the modernization of tax administration, broadening the tax base, improving compliance, and adopting technology-driven solutions. These reforms aim to address structural issues and improve the efficiency and effectiveness of tax collection (African Economic Outlook, 2015).

Understanding the factors that affect tax revenue is essential for designing effective tax policies. This study focuses on key determinants such as Gross National Income (GNI), Gross Domestic Product (GDP), inflation, Foreign Direct Investment (FDI) net inflows, and unemployment. GNI represents the total income earned by a country's residents and businesses, both domestically and internationally, while GDP measures overall economic activity. Inflation affects the real value of tax revenue and can influence taxpayer behavior and government spending. FDI net inflows indicate the level of investment from foreign entities, which can expand the tax base through increased economic activity. High unemployment can reduce tax revenue through lower income taxes and increased social spending needs (World Bank, IMF).

This study aims to provide empirical insights into the factors affecting tax revenue in Ethiopia, contributing to the existing literature and informing policymakers. By identifying key determinants and understanding their impacts, the study seeks to offer practical recommendations for enhancing tax revenue collection in Ethiopia. Recent reports from the World Bank, IMF, African Development Bank, National Bank of Ethiopia, and OECD provide up-to-date information on the economic context and tax revenue challenges in Ethiopia, supporting the background and rationale of this study.

1.2 Statement of the problem

Despite the critical importance of tax revenue for economic development, Ethiopia has faced persistent challenges in optimizing its tax collection efforts. Existing literature highlights several obstacles, including a large informal sector, limited administrative capacity, and high levels of tax evasion and avoidance (World Bank, 2023; IMF, 2023). While various reforms have been implemented to address these issues, the effectiveness of these measures remains insufficiently explored. Furthermore, empirical research on the specific factors influencing tax revenue in Ethiopia is sparse and often outdated, leaving a significant knowledge gap.

Previous studies (Minyichil Baye, 2017, Wudinesh Sahle, 2019) have examined the impact of economic factors on tax revenue in different contexts, yet few have focused comprehensively on Ethiopia. For instance, while some research has investigated the effects of GDP, inflation, and unemployment on tax revenue, there is limited understanding of how these variables, alongside

Gross National Income (GNI) and Foreign Direct Investment (FDI) net inflows, interact and influence tax collection in the Ethiopian context (African Development Bank, 2023; National Bank of Ethiopia, 2023). Moreover, existing studies often rely on cross-sectional data, failing to capture the dynamic and longitudinal aspects of these relationships.

The need for this research is underscored by the Ethiopian government's ongoing efforts to reform its tax system. Despite policy initiatives aimed at modernizing tax administration and broadening the tax base, there is a lack of empirical evidence to support the effectiveness of these reforms and to guide future policy decisions (OECD, 2023). Understanding the specific factors that impact tax revenue is crucial for designing effective tax policies that can enhance revenue collection and support Ethiopia's development goals.

This study aims to fill this knowledge gap by providing a comprehensive analysis of the factors affecting tax revenue in Ethiopia. By employing recent data and advanced econometric techniques, this research will offer new insights into the relationships between tax revenue and key economic indicators such as GNI, GDP, inflation, FDI net inflows, and unemployment. The findings will contribute to the existing literature and provide policymakers with evidence-based recommendations to improve tax revenue collection in Ethiopia.

1.3 Objective Of The Study

1.3.1 General Objective

Factors affecting tax revenue in Ethiopia from 2014 to 2023.

1.3.2 Specific Objectives

1. To analyze the effect of Gross National Income (GNI) on tax revenue in Ethiopia.
2. To examine the effect of Gross Domestic Product (GDP) on tax revenue in Ethiopia.
3. To evaluate the effect of inflation on tax revenue in Ethiopia.
4. To investigate the effect of Foreign Direct Investment (FDI) net inflows (as a percentage of GDP) on tax revenue in Ethiopia.
5. To assess the effect of unemployment rates on tax revenue in Ethiopia.

1.4 Research Hypotheses

For the purpose of this research, the following hypotheses have been formulated according to the research objectives mentioned above. The hypotheses assume that Tax revenue is affected by and dependent on multiple factors based on the problem of the study, the following hypotheses were developed and tested.

- **Hypothesis 1 (H1):** There is a positive effect between Gross National Income (GNI) and tax revenue in Ethiopia.
- **Hypothesis 2 (H2):** Gross Domestic Product (GDP) positively affects tax revenue in Ethiopia.
- **Hypothesis 3 (H3):** Inflation negatively affects tax revenue in Ethiopia.
- **Hypothesis 4 (H4):** Foreign Direct Investment (FDI) net inflows has a positive effect on tax revenue in Ethiopia.
- **Hypothesis 5 (H5):** Higher unemployment rates negatively affect tax revenue in Ethiopia.

1.5 Significance of the study

This empirical investigation into the factors affecting tax revenue in Ethiopia carries profound implications across multiple spheres. At its core, the study serves as a beacon for policymakers, illuminating the path towards more effective tax policies that bolster revenue collection and fortify fiscal sustainability. By unraveling the intricate relationships between economic variables and tax revenue, the study empowers decision-makers to allocate resources judiciously, fostering robust economic development and resilience. Moreover, as a cornerstone of academic inquiry, this research enriches our understanding of taxation dynamics in Ethiopia, offering invaluable insights that transcend borders and inspire innovative approaches to public finance management globally.

Beyond academia and governance, this study resonates with citizens, elevating public awareness and accountability surrounding fiscal matters. By unveiling the complexities of tax revenue generation, it empowers individuals to engage meaningfully in the discourse on governance and

demand greater transparency and accountability from their leaders. Ultimately, this research not only illuminates the path to economic prosperity but also catalyzes a transformative journey towards a more equitable, accountable, and resilient fiscal landscape in Ethiopia and beyond.

1.6 Delimitation/Scope of the study

This study undertakes a comprehensive examination of the factors shaping tax revenue in Ethiopia, focusing on data collected between 2014 and 2023. The research seeks to illuminate the intricate relationship between tax revenue and key economic indicators, namely Gross National Income (GNI), Gross Domestic Product (GDP), inflation, Foreign Direct Investment (FDI) net inflows, and unemployment. By scrutinizing a 10-year timeframe, the study aims to capture nuanced trends and patterns in tax revenue dynamics, providing insights into both pre- and post-reform periods. Geographically, the study confines its analysis to Ethiopia, recognizing the nation's unique economic, social, and political milieu.

Methodologically, the study adopts a quantitative approach, employing econometric techniques such as regression analysis to explore the interplay between the identified variables. This methodological choice enables rigorous analysis and robust inference, facilitating a deeper understanding of the determinants of tax revenue in Ethiopia. The research aims to yield actionable insights for policymakers, researchers, and stakeholders invested in fiscal policy and economic development in Ethiopia. By shedding light on the factors influencing tax revenue, the study contributes to informed decision-making and strategic planning, ultimately fostering sustainable economic growth and development in the country.

In summary, this study represents a meticulous inquiry into the complexities of tax revenue dynamics in Ethiopia. Through meticulous analysis and rigorous methodology, it endeavors to offer valuable insights that resonate across academic, governmental, and societal realms. By elucidating the drivers of tax revenue, the research aims to empower stakeholders with the knowledge and understanding needed to navigate the fiscal landscape and chart a course towards prosperity and resilience in Ethiopia.

1.7 Limitation of the study

While this study endeavors to provide a comprehensive analysis of the factors influencing tax revenue in Ethiopia, it is important to acknowledge several limitations that may impact the interpretation and generalization of the findings. Firstly, the availability and quality of data pose significant constraints. While efforts have been made to utilize data spanning from 2014 to 2023, there may be gaps or inconsistencies in the data sources, which could affect the accuracy and reliability of the analysis. Additionally, the reliance on secondary data sources may limit the scope of the study, as it may not capture all relevant variables or factors that could potentially influence tax revenue dynamics.

Secondly, the study's methodology, while robust, has inherent limitations. Econometric techniques such as regression analysis provide valuable insights into the relationships between variables, but they are subject to assumptions and limitations. For instance, multicollinearity among independent variables or heteroscedasticity in the data could bias the results and undermine the validity of the findings. Moreover, the study's focus on quantitative analysis may overlook qualitative aspects that could provide deeper insights into the drivers of tax revenue in Ethiopia, such as institutional factors, cultural norms, or political dynamics.

Lastly, the generalizability of the study's findings may be limited by the specific context of Ethiopia. While the analysis offers valuable insights into tax revenue dynamics within the Ethiopian context, the findings may not be directly applicable to other countries or regions with different economic, social, and political conditions. Therefore, caution should be exercised when extrapolating the results to broader contexts, and further research may be needed to validate the findings and explore the applicability of the study's insights in other settings.

1.8 Organization of the study

This study was organized into five chapters; the first chapter consists Back ground of the Study, Statement of the Problem, Research Objectives, Research Hypothesis, Significance of the Study, Scope and Limitation of the study and Organization of the study The second chapter deals with the Review of Related Literature in the area which consists of Theoretical Discussion, Empirical Review, Conceptual Frame Work of the Study. The third chapter covers Research Methodology

and Design. The fourth chapter provides Data Analysis and Interpretation. The last chapter reports Summary of the Findings, Conclusions and Recommendations of the Research. Finally List of References and Appendix will annex at the end of the page.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The literature review provides a comprehensive examination of the factors influencing tax revenue in Ethiopia, drawing on theoretical frameworks and empirical studies to shed light on the complexities of tax systems and revenue collection. This section begins with an overview of tax revenue systems, highlighting the significance of tax revenue for government finance and economic development. It then introduces selected theories of taxation, including the ability-to-pay principle, the benefit principle, and deterrence theory, to provide theoretical foundations for understanding tax policy design and implementation. Through a synthesis of relevant literature, this review aims to elucidate the key determinants and challenges of tax revenue collection in Ethiopia, setting the stage for the subsequent analysis and discussion.

2.1 Theoretical Framework

2.1.1 Overview of Tax Revenue Systems

Tax revenue systems are the cornerstone of government finance, playing a crucial role in funding public goods and services, promoting economic development, and ensuring fiscal sustainability. The structure and efficiency of tax systems vary widely across countries, reflecting differences in economic structures, political institutions, and cultural norms. In Ethiopia, as in many developing nations, tax revenue systems face unique challenges and opportunities shaped by factors such as informality, low tax compliance, and limited administrative capacity (Wikipedia).

Ethiopia's tax revenue system comprises various taxes levied on income, consumption, and property, including income taxes, value-added taxes (VAT), excise taxes, and customs duties. The country's tax revenue efforts are primarily focused on mobilizing domestic resources to finance government expenditures, reduce dependence on external financing, and promote self-reliance. However, challenges such as a large informal sector, low tax compliance rates, and

administrative inefficiencies pose significant obstacles to effective tax revenue collection (Tilahun, 2014).

Despite these challenges, Ethiopia has implemented several reforms aimed at enhancing tax administration, broadening the tax base, and improving compliance. Initiatives such as the introduction of electronic tax filing systems, taxpayer education campaigns, and anti-corruption measures signal the government's commitment to strengthening the tax revenue system and fostering economic development. Additionally, Ethiopia has sought to leverage international support and expertise to bolster its tax revenue efforts, collaborating with organizations such as the World Bank, IMF, and OECD to implement best practices and reforms (IMF, 2006).

2.1.2 Selected Theories of Taxation

Several theories of taxation offer insights into the design and implementation of tax systems, including their impact on tax revenue collection. The ability-to-pay principle, proposed by economists such as Adam Smith and John Stuart Mill, suggests that taxes should be levied based on an individual's ability to pay, with those who benefit more from public services bearing a higher tax burden (Musgrave, 1959). In the Ethiopian context, the application of this principle may involve designing progressive tax systems that impose higher tax rates on individuals with higher incomes, thereby promoting equity and redistributive justice.

Another influential theory is the benefit principle, which posits that taxes should be levied based on the benefits received from government services or expenditures (Buchanan, 1963). In Ethiopia, this principle may guide the allocation of tax revenues towards sectors or regions that directly benefit from public investments, such as infrastructure development, healthcare, and education. By aligning tax revenues with public expenditures, the benefit principle can enhance transparency and accountability in the allocation of public resources.

The literature also highlights the importance of tax compliance and enforcement mechanisms in maximizing tax revenue collection. The deterrence theory of taxation suggests that the threat of punishment for non-compliance can influence taxpayer behavior and compliance levels (Allingham & Sandmo, 1972). In Ethiopia, strengthening tax enforcement mechanisms,

improving taxpayer education, and reducing opportunities for tax evasion and avoidance are essential for enhancing compliance and revenue collection.

Overall, the integration of these theories into tax policy formulation and implementation can contribute to more effective and equitable tax systems in Ethiopia, facilitating sustainable economic development and fiscal stability.

2.1.3 Key Theoretical Model

The Tax Revenue Determinants Framework serves as a cornerstone model for comprehensively understanding the intricate dynamics shaping tax revenue collection in Ethiopia. Drawing upon seminal theoretical perspectives and empirical insights, this framework encapsulates the multifaceted nature of tax revenue determinants, elucidating the interplay of economic, institutional, and behavioral factors.

2.1.3.1 Economic Factors

Economic variables, including Gross National Income (GNI), Gross Domestic Product (GDP), and inflation, are fundamental drivers of tax revenue dynamics (Bird, 2008). As posited by classical economic theory, robust economic growth and increased national income typically correspond to heightened tax revenue generation (Mankiw et al., 2015). Conversely, periods of economic downturn or high inflation rates may dampen tax revenue collection, as individuals and businesses contend with reduced purchasing power and income (Fjeldstad & Heggstad, 2012).

2.1.3.2 Institutional Factors

Institutional factors, encompassing the legal, administrative, and regulatory framework governing tax policy and administration, exert profound influences on revenue outcomes (Torgler, 2003). Effective tax enforcement mechanisms, simplified tax laws, and transparent governance structures are pivotal in fostering compliance and maximizing revenue mobilization (Besley & Persson, 2014). Conversely, weak institutional capacity, regulatory complexity, and corruption pose formidable challenges to revenue collection efforts (Alm et al., 2010).

2.1.3.3 Behavioral Factors

Behavioral determinants, rooted in individual and organizational attitudes towards taxation, significantly shape taxpayer compliance behaviors (Slemrod, 2007). Perceptions of tax fairness, trust in government institutions, and enforcement strategies play pivotal roles in influencing compliance levels (Cummings et al., 2009). Strategic interventions such as targeted taxpayer education campaigns, enhanced enforcement measures, and incentives for voluntary compliance are instrumental in curbing tax evasion and bolstering revenue collection (Luttmer, 2011).

2.1.3.4 Conclusion

The Tax Revenue Determinants Framework offers a nuanced and comprehensive lens through which policymakers and researchers can analyze and address the intricacies of tax revenue dynamics in Ethiopia. By synthesizing economic, institutional, and behavioral perspectives, this model facilitates evidence-based policy formulation aimed at optimizing revenue collection, enhancing fiscal sustainability, and advancing economic development objectives in Ethiopia and beyond.

2.1.4 Key Theoretical Concepts

The Tax Revenue Determinants Framework integrates pivotal theoretical concepts that correspond with the variables under study, providing a robust understanding of tax revenue dynamics in Ethiopia. Firstly, Gross National Income (GNI), which encapsulates the total income earned by residents and businesses, significantly influences tax revenue through its impact on economic activity and income levels (Bird, 2008). Similarly, Gross Domestic Product (GDP) growth serves as a pivotal determinant, reflecting the overall economic health and prosperity of the nation, thus impacting tax revenue levels (Mankiw et al., 2015).

Furthermore, inflation rates wield considerable influence on tax revenue dynamics by affecting real income and purchasing power, thereby shaping taxpayer behavior and revenue collection patterns (Fjeldstad & Heggstad, 2012). In parallel, institutional factors, including the efficacy of

tax enforcement mechanisms, transparency levels, and governance structures, significantly mold tax revenue outcomes by influencing compliance and administrative efficiency (Besley & Persson, 2014). Lastly, individual and organizational attitudes towards taxation, encompassing perceptions of fairness and compliance behavior, play pivotal roles in shaping tax revenue levels by influencing taxpayer compliance behaviors (Slemrod, 2007).

By assimilating these theoretical concepts into the framework, policymakers and researchers can attain nuanced insights into the multifaceted determinants of tax revenue in Ethiopia. Such a comprehensive understanding facilitates evidence-based policy formulation and strategic decision-making processes, thus fostering effective tax revenue management and sustainable economic development initiatives in the country.

2.1.5 Summary of Theoretical Review

The theoretical review offers a comprehensive examination of the factors influencing tax revenue in Ethiopia, integrating seminal theoretical perspectives and empirical insights to elucidate the complexities of tax revenue dynamics. Key theoretical concepts, including Gross National Income (GNI), Gross Domestic Product (GDP), inflation, institutional factors, and behavioral factors, serve as foundational pillars in understanding tax revenue determinants.

GNI and GDP, as indicators of economic activity and prosperity, exert significant influence on tax revenue levels, while inflation rates impact revenue dynamics by affecting real income and purchasing power. Institutional factors, encompassing tax enforcement mechanisms, transparency, and governance structures, play crucial roles in shaping tax revenue outcomes by influencing compliance and administrative efficiency. Moreover, individual and organizational attitudes towards taxation, such as perceptions of fairness and compliance behavior, significantly shape tax revenue levels by influencing taxpayer compliance behaviors.

By synthesizing these theoretical perspectives into a cohesive framework, policymakers and researchers gain nuanced insights into the multifaceted determinants of tax revenue in Ethiopia. This comprehensive understanding facilitates evidence-based policy formulation and strategic decision-making processes, ultimately fostering effective tax revenue management and sustainable economic development initiatives in the country.

This synthesis of theoretical perspectives offers a robust foundation for empirical analysis and policy formulation, paving the way for informed strategies to optimize tax revenue collection and promote fiscal sustainability in Ethiopia.

2.2 Empirical Review

2.2.1 Empirical Studies on Tax Revenue Determinants

Empirical studies on tax revenue determinants offer valuable insights into the factors shaping tax revenue dynamics in Ethiopia and other developing countries. A comprehensive review of the literature reveals a wealth of empirical evidence supporting the significance of various determinants in influencing tax revenue outcomes.

2.2.1.1 Gross National Income (GNI) and Gross Domestic Product (GDP): Empirical evidence consistently highlights the positive relationship between GNI, GDP, and tax revenue in developing countries (Gemmell et al., 2011; Bird & Gendron, 2007). Gemmell et al. (2011) found a significant positive relationship between GDP per capita and tax revenue in Sub-Saharan African countries, including Ethiopia. Similarly, Bird and Gendron (2007) observed a strong correlation between GNI per capita and tax revenue in developing countries, emphasizing the importance of economic growth in bolstering tax revenue collection.

2.2.1.2 Inflation: Studies indicate that inflation negatively affects tax revenue collection by eroding the real value of income and reducing purchasing power (Fjeldstad & Heggstad, 2012; Torgler, 2003). Research conducted in African countries, including Ethiopia, demonstrates the detrimental impact of high inflation rates on tax revenue generation, highlighting the need for inflation control measures to safeguard revenue stability (Fjeldstad & Heggstad, 2012).

2.2.1.3 Foreign Direct Investment (FDI) Inflows: Empirical evidence suggests that Foreign Direct Investment (FDI) inflows positively influence tax revenue in developing countries (Alfaro et al., 2009; Desai et al., 2006). Alfaro et al. (2009) found a positive relationship between FDI inflows and tax revenue in a sample of developing countries, indicating that increased FDI can lead to higher tax revenue through various channels, including corporate taxes and indirect taxes. Similarly, Desai et al. (2006) observed a positive correlation between FDI inflows and tax

revenue in Sub-Saharan African countries, underscoring the potential revenue benefits of attracting foreign investment.

2.2.1.4 Unemployment: Empirical studies suggest that unemployment rates negatively influence tax revenue by reducing income levels and consumer spending, thus limiting revenue from income and consumption taxes (Ozili, 2020; Isik & Hassan, 2019). Ozili (2020) found that high unemployment rates are associated with lower tax revenue collection in Sub-Saharan African countries, including Ethiopia. Similarly, Isik and Hassan (2019) observed a negative relationship between unemployment rates and tax revenue in a global sample of countries, emphasizing the adverse impact of unemployment on revenue generation.

2.2.1.5 Conclusion: The empirical literature on tax revenue determinants provides robust evidence supporting the significance of various economic factors, including GNI, GDP, inflation, FDI inflows, and unemployment, in shaping tax revenue outcomes in Ethiopia and other developing countries. By synthesizing findings from empirical studies, policymakers gain valuable insights into effective strategies for optimizing tax revenue collection and promoting fiscal sustainability.

2.3 Conceptual Framework

The conceptual framework for tax revenue determinants in Ethiopia offers a structured approach to understanding the complex interplay of factors influencing tax revenue outcomes in the country. This framework delineates the relationships between the dependent variable, Tax Revenue, and key independent variables, including Gross Domestic Product (GDP), Gross National Income (GNI), Inflation Rate, Foreign Direct Investment (FDI) Inflows, and Unemployment Rate. Each independent variable is conceptualized to have a distinct impact on tax revenue, with GDP and GNI expected to positively influence revenue generation through increased economic activity and income levels, while Inflation Rate and Unemployment Rate are anticipated to have negative effects by reducing real income and consumer spending. Moreover, FDI Inflows are expected to positively impact tax revenue by stimulating economic growth and investment. By elucidating these relationships, the conceptual framework provides policymakers

and researchers with a foundational understanding to develop evidence-based strategies for optimizing tax revenue collection and promoting fiscal sustainability in Ethiopia.

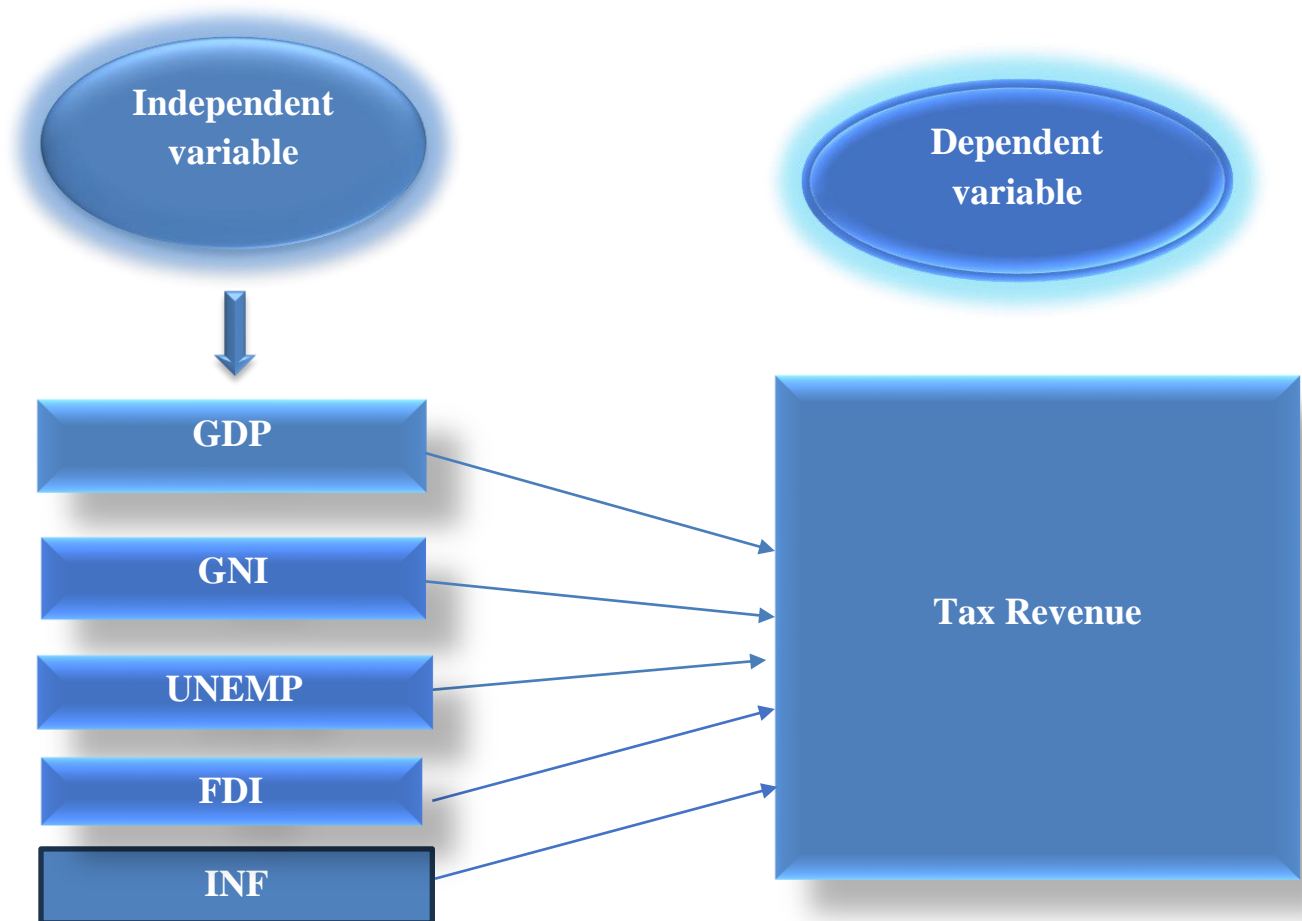


Figure 1: The conceptual framework for tax revenue determinants in Ethiopia

Key Variables:

Dependent Variable:

- Tax Revenue: Represents the total revenue collected by the Ethiopian government through various taxation mechanisms, including direct and indirect taxes.

Independent Variables:

1. **Gross National Income (GNI):** Represents the total income earned by residents and businesses in Ethiopia. Higher GNI levels are expected to positively influence tax revenue, reflecting increased economic activity and income generation.
2. **Gross Domestic Product (GDP):** Reflects the overall economic performance and output of Ethiopia. Higher GDP growth rates are anticipated to lead to greater tax revenue collection, indicating a stronger tax base and increased economic prosperity.
3. **Inflation Rate:** Measures the rate of change in the general price level of goods and services in Ethiopia. High inflation rates may negatively impact tax revenue by reducing real income and purchasing power, potentially limiting consumer spending and economic activity.
4. **Foreign Direct Investment (FDI) Inflows:** Represents the amount of foreign investment entering Ethiopia's economy. Increased FDI inflows are expected to positively influence tax revenue through various channels, including corporate taxes and indirect taxes.
5. **Unemployment Rate:** Unemployment can also refer to the situation of persons working zero hours and earning zero income. Unemployment occurs when a person who is actively searching for employment is unable to find work.

Conceptual Relationships

- Gross National Income (GNI) and Gross Domestic Product (GDP) are expected to have a positive relationship with tax revenue, reflecting increased economic activity and prosperity.
- Inflation rate is anticipated to have a negative relationship with tax revenue, as high inflation may erode real income and reduce consumer spending.
- Foreign Direct Investment (FDI) inflows are expected to positively influence tax revenue, reflecting increased economic activity and investment.

- Unemployment rate are anticipated to have a negative relationship with tax revenue, as high unemployment may erode income and reduce tax revenue.

Conclusion: The conceptual framework provides a structured approach to understanding the determinants of tax revenue in Ethiopia, integrating key economic variables and their anticipated relationships. By analyzing these factors, policymakers can develop evidence-based strategies to optimize tax revenue collection and promote fiscal sustainability in Ethiopia.

2.4 Measurement and Operationalization:

Dependent Variable: Tax Revenue Measurement: Tax revenue is measured as the total revenue collected by the Ethiopian government from various taxation sources, including income taxes, value-added taxes (VAT), corporate taxes, and customs duties. **Operationalization:** Tax revenue data was obtained from the National Bank of Ethiopia database for the years 2014 to 2023. The revenue figures was adjusted for inflation to ensure consistency over time.

Independent Variable: Gross National Income (GNI) Measurement: GNI represents the total income earned by residents and businesses in Ethiopia, including wages, profits, and investments, adjusted for net foreign income. **Operationalization:** GNI data was sourced from the National Bank of Ethiopia database. Annual GNI figures was used for the period of 2014 to 2023.

Independent Variable: Gross Domestic Product (GDP) Measurement: GDP reflects the total market value of all goods and services produced within Ethiopia's borders in a specific period. **Operationalization:** GDP data was obtained from the National Bank of Ethiopia database. Real GDP figures was used to account for inflation and provide consistent measurements over time.

Independent Variable: Inflation Rate Measurement: The inflation rate is measured as the annual percentage change in the general price level of goods and services in Ethiopia. **Operationalization:** Inflation rate data was collected from the National Bank of Ethiopia database. Year-on-year inflation rates was calculated using consumer price index (CPI) data.

Independent Variable: Foreign Direct Investment (FDI) Inflows Measurement: FDI inflows represent the total value of foreign investment entering Ethiopia's economy in a given period. Operationalization: FDI inflows data was sourced from the National Bank of Ethiopia database. Annual FDI inflow figures was used for the period of 2014 to 2023.

Independent Variable: Unemployment Rate Measurement: The unemployment rate is the percentage of the labor force that is unemployed and actively seeking employment. Operationalization: Unemployment rate data was obtained from the National Bank of Ethiopia database. Annual unemployment rate figures was used for the period of 2014 to 2023.

By operationalizing these variables with reliable data sources and consistent measurement methodologies, the study aims to analyze the impact of economic and institutional factors on tax revenue in Ethiopia over the specified period.

CHAPTER THREE

METHOLOGY OF THE STUDY

Introduction

3.1 Research Design

This study employs a quantitative research approach to investigate the determinants of tax revenue in Ethiopia. The research leverages econometric analysis to quantify the relationships between tax revenue and its determinants, including GNI, GDP, inflation rate, FDI inflows, and unemployment rate. The study period spans from 2014 to 2023, allowing for a comprehensive analysis of long-term trends and impacts (World Bank, 2023). The philosophical underpinning of this study is rooted in positivism, which supports the idea that knowledge is derived from sensory experience and interpreted through reason and logic (Creswell, 2014). A deductive approach is used, starting with the formulation of hypotheses based on existing theories and empirical studies, which are then tested using statistical methods.

3.2 Data Sources and Collection Methods

The study utilizes secondary data primarily sourced from the National Bank of Ethiopia (National Bank of Ethiopia, 2023). This database provides reliable and consistent annual data for the variables under investigation. To ensure data accuracy and reliability, the data was cross-verified with reports from the Ethiopian Ministry of Finance and the World Bank's World Development Indicators database.

3.3 Variables Definition and Measurement

Dependent Variable

Tax Revenue

- Measurement: Tax revenue is measured as the total revenue collected by the Ethiopian government from various taxation sources, including income taxes, value-added taxes (VAT), corporate taxes, and customs duties.
- Operationalization: Tax revenue data was obtained from the NBE database for the years 2014 to 2023. The revenue figures were adjusted for inflation to ensure consistency over time.

Independent Variable

Gross National Income (GNI)

- Measurement: GNI represents the total income earned by residents and businesses in Ethiopia, including wages, profits, and investments, adjusted for net foreign income.
- Operationalization: GNI data was sourced from the NBE Development Indicators database. Annual GNI figures were used for the period of 2014 to 2023.

Gross Domestic Product (GDP)

- Measurement: GDP reflects the total market value of all goods and services produced within Ethiopia's borders in a specific period.
- Operationalization: GDP data was obtained from the NBE database. Real GDP figures were used to account for inflation and provide consistent measurements over time.

Independent Variable: Inflation Rate

- Measurement: The inflation rate is measured as the annual percentage change in the general price level of goods and services in Ethiopia.
- Operationalization: Inflation rate data was collected from the NBE database. Year-on-year inflation rates were calculated using consumer price index (CPI) data.

Independent Variable: Foreign Direct Investment (FDI) Inflows

- Measurement: FDI inflows represent the total value of foreign investment entering Ethiopia's economy in a given period.

- Operationalization: FDI inflows data was sourced from the NBE. Annual FDI inflow figures used for the period of 2014 to 2023.

Independent Variable: The unemployment rate

- The unemployment rate is a key indicator of economic health and reflects the percentage of the labor force that is unemployed and actively seeking employment. Here's how the measurement is typically done:

3.4 Model Specification

The relationships between the dependent variable (tax revenue) and the independent variables (GNI, GDP, inflation rate, FDI inflows, and unemployment rate) was analyzed using a multiple linear regression model. The regression equation was specified as:

$$\text{Tax Revenue} = \beta_0 + \beta_1 \text{GNI} + \beta_2 \text{GDP} + \beta_3 \text{Inflation Rate} + \beta_4 \text{FDI Inflows} + \beta_5 \text{Unemployment Rate} + \epsilon$$

Where:

- Tax Revenue is the dependent variable.
- GNI, GDP, Inflation Rate, FDI Inflows, and Unemployment Rate are the independent variables.
- β_0 is the intercept.
- $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ are the coefficients of the independent variables.
- ϵ is the error term (Wooldridge, 2015).

3.5 Estimation Techniques

The data analysis was conducted using econometric techniques to assess the impact of the independent variables on tax revenue. The following steps were taken:

1. **Descriptive Statistics:** Summary statistics (mean, median, standard deviation) were calculated for each variable to understand the basic characteristics of the data (Gujarati & Porter, 2009).
2. **Correlation Analysis:** Pearson correlation coefficients were computed to examine the linear relationships between tax revenue and each independent variable (Maddala, 2001).
3. **Multiple Regression Analysis:** The multiple linear regression model specified above was estimated to quantify the impact of GNI, GDP, inflation rate, FDI inflows, and unemployment rate on tax revenue (Wooldridge, 2015).
4. **Diagnostic Tests:** Various diagnostic tests, including tests for multicollinearity (Variance Inflation Factor), heteroscedasticity (Breusch-Pagan test), and autocorrelation (Durbin-Watson test), were conducted to ensure the robustness and validity of the regression model (Greene, 2012).
5. **Interpretation of Results:** The results of the regression analysis were interpreted to determine the statistical significance and economic relevance of each independent variable's impact on tax revenue. Policy implications were derived based on the findings (Stock & Watson, 2011).

3.6 Ethical Considerations

This study relies on secondary data, thus minimizing ethical concerns related to data collection. Proper citation and acknowledgment of data sources were maintained to uphold academic integrity. Additionally, the research will ensure confidentiality and respect for all data providers (Creswell, 2014).

By employing this rigorous methodology, the study aims to provide a comprehensive and reliable analysis of the factors affecting tax revenue in Ethiopia, contributing to informed policy-making and economic planning.

CHAPTER FOUR

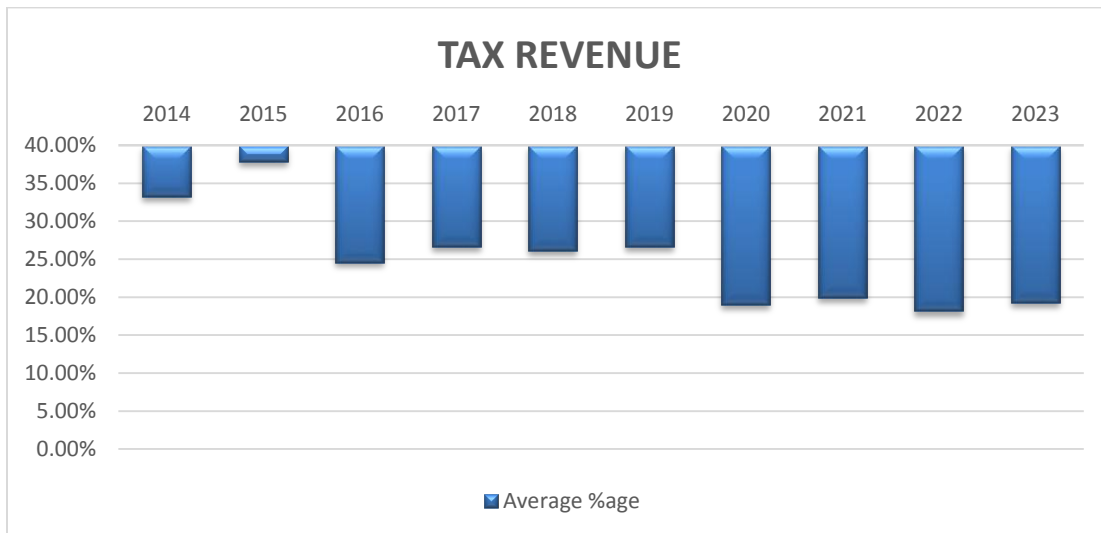
DATA ANALYSIS AND RESULTS

Introduction

This chapter presents the analysis, findings, and discussions of the study as outlined in the research objectives and methodology. The aim of this chapter is to identify the factors affecting tax revenue collection in Ethiopia. The data was gathered exclusively NBE. This chapter was discussed the data through descriptive statistics.

4.1 Descriptive Statistics on Tax Revenue

Table 4.1 Descriptive Statistics on Tax Revenue



Source: Source: NBE data from 2014 – 2023

Tax revenue is defined as the revenues collected from taxes that are levied on income and profits, social security contributions, taxes levied on goods and services, payroll taxes, taxes on the ownership and transfer of property, and other taxes. Table 4.1 shown that tax revenue in Ethiopia is increasing from time to time.

4.2 Descriptive Statistics of Study Variables.

This section provides the research findings as presented in tables. The main purpose of the study was to investigate how independent variables affect tax revenue. The researcher analyzed the following variables for the study such as: - Gross Domestic Product, Gross National Income, Unemployment Rate, Foreign Direct Investment, Gross Capital Formation and Inflation Rate. Before analysis, the collected data was checked for completeness and consistency. The data was analyzed using SPSS software version 25.0. Analysis was done using descriptive statistics showing the standard deviation, mean, frequency distribution, percentages, and Pearson correlation statistical tool to establish the strength and significance of the relationships between factors affecting tax revenue in Ethiopia. The presentation of this information was done by using the mean, frequency, and percentage of every respondent; accordingly, demographic information was calculated from the frequencies by using the analysis.

Table 4.2 descriptive statistics of study variables

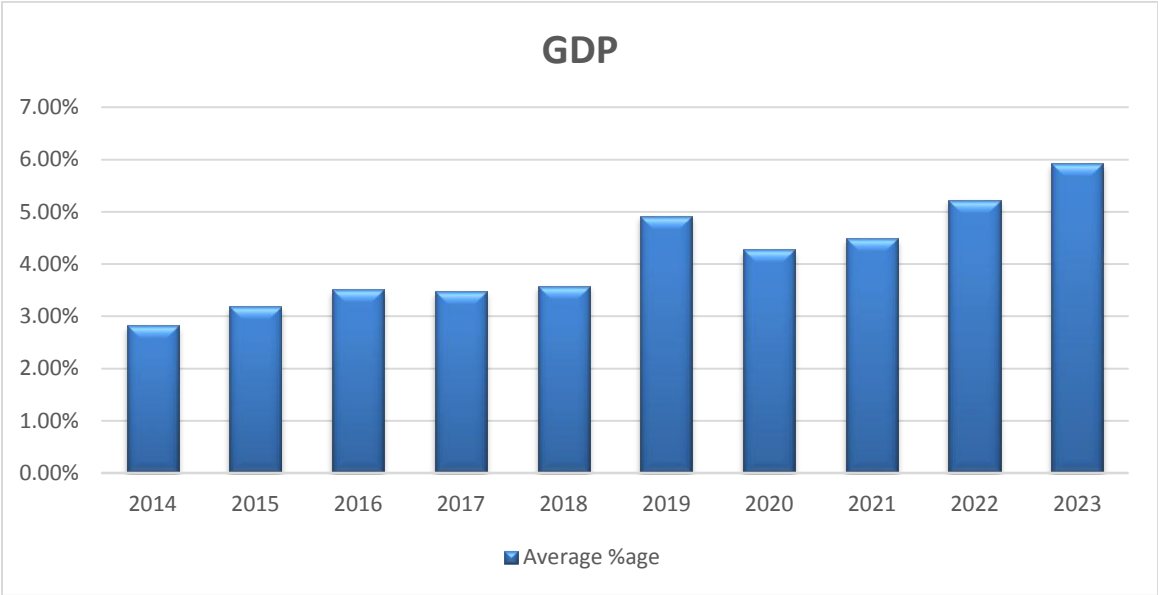
Descriptive Statistics			
	N	Mean	Std. Deviation
Gross Domestic Product	10	.1370	.00823
Gross National Income	10	.3110	.06173
Unemployment Rate	10	.3820	.09235
Foreign Direct Investment	10	.0410	.00994
Inflation rate	10	.1530	.09214
Valid N (list wise)	10		

Source spss output

In the table 4.2 mean of **GDP** is .1370 and standard deviation is .00823. In many poor developing countries, a low tax-revenue GDP ratio prevents the country from undertaking ambitious expenditure programs. Although the economy has been growing at a remarkable rate averaging more than 10 percent, the slow growth in the tax to GDP ratio suggests the growth in tax collection is not commensurate with the economic growth perhaps indicating a huge untaxed potential. (UNDP 2016). It means that the Ethiopia Economy has not contributed significantly to the national expenditure. I also shows that there is enough positional to mop-up extra revenue in taxation by careful planning of the tax. The fiscal policy of government of Ethiopia also has been aimed at generating the required budgetary finance to support the country’s development. But the countries only 69% budget is covered with revenue. (MOFEC 2017)

4.2.1 Descriptive Statistics for Gross Domestic Product

Table 4.3 Descriptive Statistics for Gross Domestic Product



Source: NBE data from 2014 – 2023

In the table 4.2 mean of GNI is. 3110 and standard deviation is .06173 The relationship between a country's gross national income (GNI) and tax revenue can be complex, but here are some things to consider:

Tax-to-GDP ratio, the percentage of a country's GDP that is collected by the government through taxes is a measure of how much control the government has over the country's resources. A tax-to-GDP ratio of 15% is considered an important threshold for a country to be viable and grow.

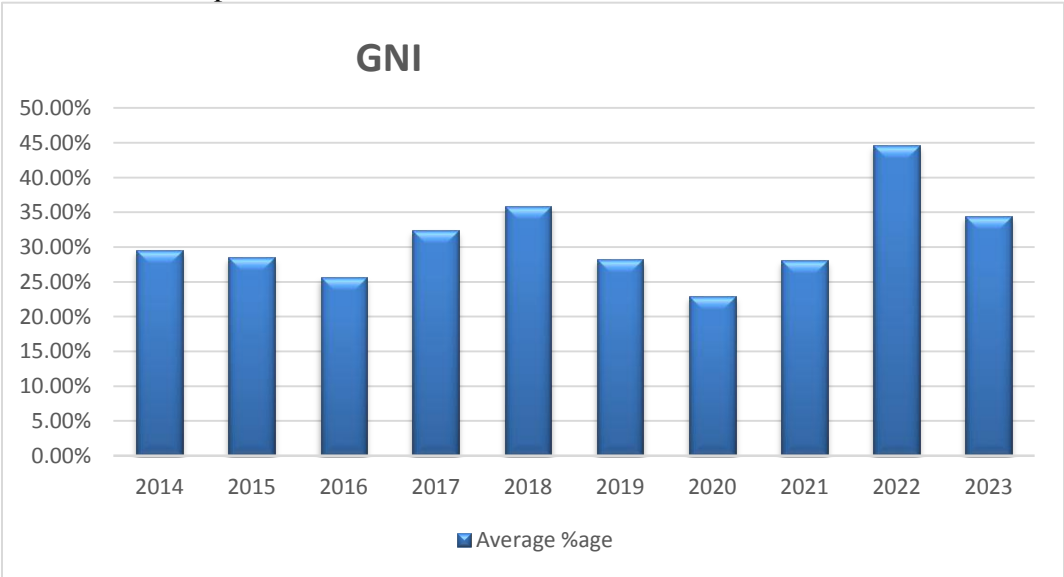
The relationship between economic growth and tax revenues is theoretical, but it's generally expected that the two are related. If the long-term buoyancy is above one, the tax-to-GDP ratio will increase to unsustainable levels. If it's below one, the ratio will decline to zero.

Structural reforms can improve economic efficiency, resource allocation, and competitiveness, which can lead to increased tax revenue also the flexibility of a country's tax system and tax-specific characteristics, can affect how tax revenues respond to changes in the tax base

The conflict in northern Ethiopia caused \$22.7 billion worth of damage to infrastructure and a further \$6 billion of productivity losses – equivalent to 26% of GDP – between 2022 and 2023 alone, according to an Ethiopian government assessment.

4.2.2 Descriptive Statistics for Gross National Income

Table 4.4 Descriptive Statistics for Gross National Income



Source: NBE data from 2014 – 2023

Unemployment rate as the percentage of persons among the labor force (15-65 years) excluding students and those medically unfit, who are available for work but could not secure work. Unemployment can also refer to the situation of persons working zero hours and earning zero income. Unemployment occurs when a person who is actively searching for employment is unable to find work.

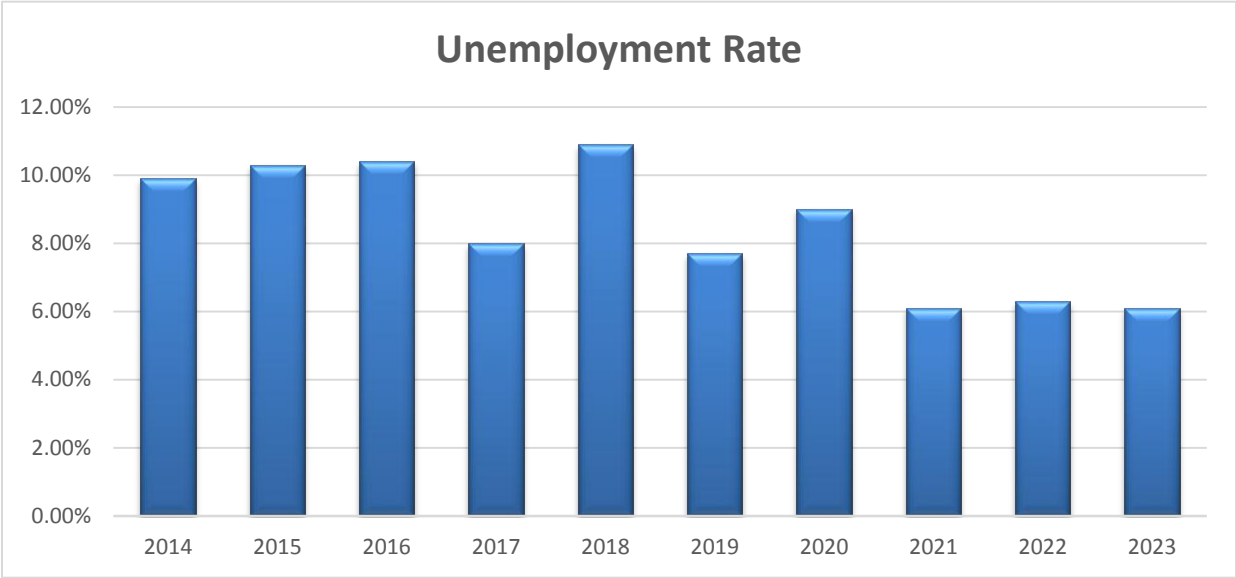
According to the Organization for Economic Co-operation and Development (OECD) are persons above a specified age (usually 15) not being in paid employment or self-employment but

currently available for work during the reference period. However, the International Labor Organization (ILO, 2020) are of the opinion that unemployed people are those without a job, have been actively seeking work in the past four weeks and are available to start in the next two weeks or those out of a job and are waiting to start in the next two weeks.

Table 4.2 shown that mean of Unemployment rate is .3820 and standard deviation is .09235 and in the table 4.5 shown that up and down of Unemployment rate trends in Ethiopia it is high at 2018 and decreasing from time to time.

4.2.3 Descriptive Statistics on UN employment Rate

Table 4.5 Descriptive Statistics on UN employment Rate



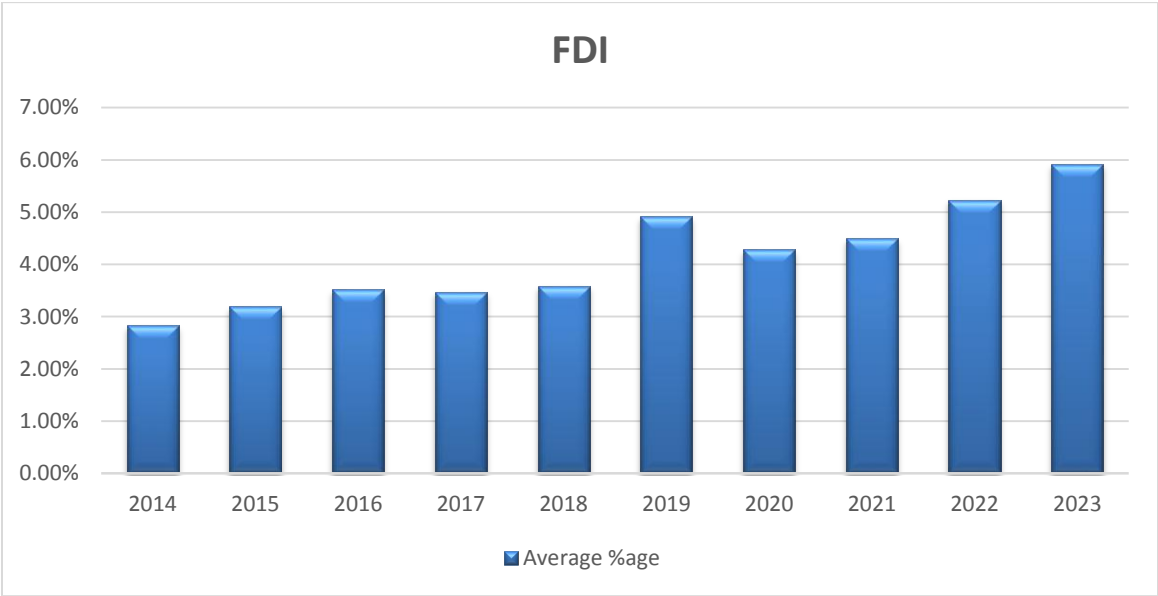
Source: NBE data from 2014 – 2023

Internal resource mobilization remains a big challenge for developing countries. While many studies have attempted to highlight several strategies to increase tax revenues, the contribution of foreign direct investment (FDI) inflows in this process has received little attention. This paper provides an empirical answer to the crucial role of FDI inflows in tax revenue mobilization.

Using a System GMM estimator for 90 developing countries from 1996 to 2017, our results strongly suggest that FDI inflows lead to a significant tax revenue increase. Nevertheless, this effect is not observed in resource-exporting countries where tax revenues seem statistically insensitive to FDI inflows. The table 4.2 shown that a mean of FDI is 0.410, standard deviation is .00994, and in table 4.6 reveals, FDI has shown an incremental trend form the year 2014 to 2023.

4.2.4 Descriptive Statistics on Foreign Direct investment

Table 4.6 Descriptive Statistics on Foreign Direct investment



Source: NBE data from 2014 – 2023

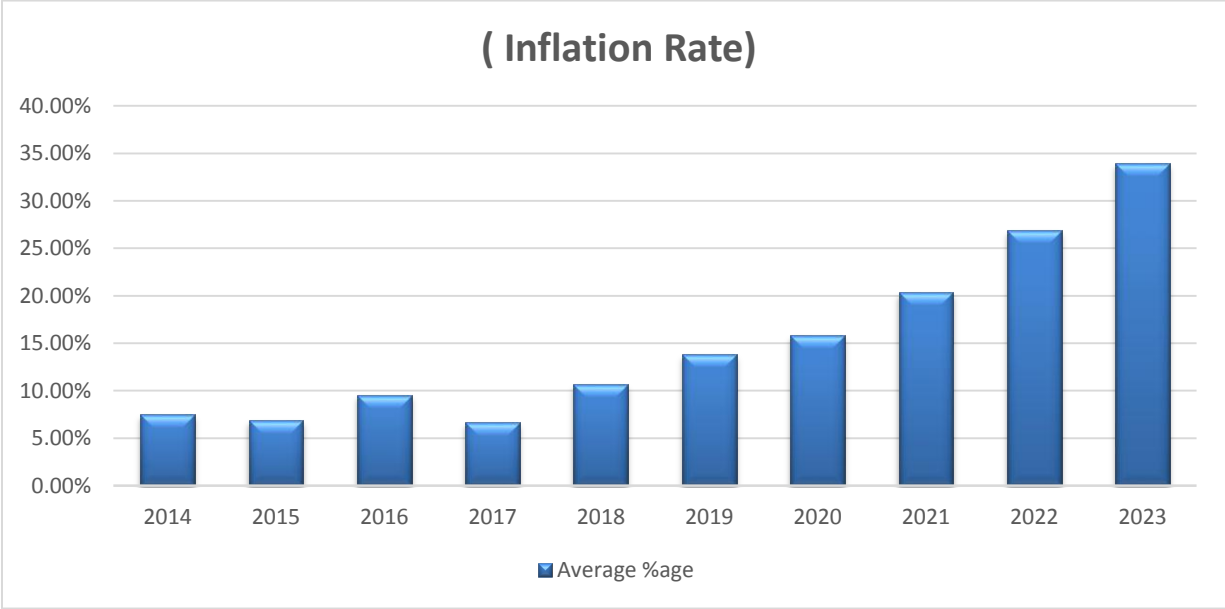
There is no consensus among literatures as far as the determinants of tax revenue are concerned. For instance, Eltony (2002) found foreign aid and foreign debt to have positive influence on tax revenue, whereas; Gupta (2007) indicated that both have negative effect on tax revenue. As far as the relation between tax revenue inflation rates is concerned, Mahdavi (2008) indicated that

tax revenue is negatively affected by inflation. Tesfaye (2015) forwarded that, foreign direct investment to GDP percentage negative significant influence on tax revenue, but Belay (2015) in his study reveals that foreign direct investment has significant positive relationship with tax revenue. In 2019 and 10.2 percent in 2020 (World Bank, 2018). Inflation also remained high in Burundi and Ethiopia and extremely high (43.4 percent in 2018) in Sudan.

As it is shown in table 4.2 a mean of Inflation Rate .1530 and standard deviation is .09214 and also table 4-8 reveals that. The maximum inflation rate was recorded in the year 2023 (33.94%) followed by the year 2022 (26.84%) and the minimum inflation rate which was recorded in the year 2017 (6.63%). As it is shown in the figure, the inflation rate was shown consistent increment from 2018 and reaches its maximum in the year 2023.

4.2.5 Descriptive Statistics on macro-economic variable (Inflation Rate)

Table 4.7 Descriptive Statistics on macro-economic variable (Inflation Rate)



Source: NBE data from 2014 – 2023

4.3 Stationary Test

A stationarity test is a statistical method used to determine if a time series data set has constant statistical properties over time. In simpler terms, it checks if the data's mean, variance, and autocorrelation remain roughly the same regardless of when you observe the data. It is necessary because, many time series forecasting models assume that the data is stationary. If you use a non-stationary series with these models, the forecasts may be unreliable and misleading. Stationarity makes it easier to analyze and model time series data because you can focus on the consistent patterns rather than dealing with shifting trends or variances.

Two Common Tests:

➤ Augmented Dickey-Fuller (ADF) Test:

Null hypothesis: The series is non-stationary (has a unit root).

If the p-value is low (typically ≤ 0.05), you reject the null hypothesis and conclude that the series is stationary.

➤ Kwiatkowski-Phillips-Schmidt-Shin (KPSS) Test:

Null hypothesis: The series is stationary.

If the p-value is low (typically ≤ 0.05), you reject the null hypothesis and conclude that the series is non-stationary.

Stationary test

Variable	ADF Test Result	ADF Statistic	ADF p-value	KPSS Test Result	KPSS Statistic	KPSS p-value
TAX Rev	Non-stationary	-2.333	0.161	Non-stationary	0.958	0.01
GDP	Non-stationary	-2.355	0.155	Non-stationary	0.818	0.015
GNI	Non-stationary	-2.046	0.266	Non-stationary	0.766	0.021
FDI	Non-stationary	-1	0.753	Non-stationary	0.889	0.01
INFR	Stationary	-3	0.035	Non-stationary	0.6	0.047
Unemp	Non-stationary	-1.714	0.422	Non-stationary	0.958	0.01

Interpretation:

- Overall Non-Stationarity:
 - The majority of the variables (TAXRev, GDP, GNI, FDI, unemp) show strong evidence of non-stationarity based on both the ADF and KPSS tests. This indicates that their statistical properties change over time, which can complicate time series analysis and forecasting.
- INFR Discrepancy:
 - The "INFR" variable presents a discrepancy. The ADF test suggests stationarity, while the KPSS test indicates non-stationarity. This highlights the importance of considering both tests, as they have different null hypotheses. In this case, because the KPSS test shows non-stationarity, and given the small sample size, it is best to assume that this variable is also likely non-stationary.
- Small Sample Size Impact:
 - It's crucial to emphasize that the small sample size (10 data points) significantly limits the reliability of these tests. Results should be interpreted with caution.

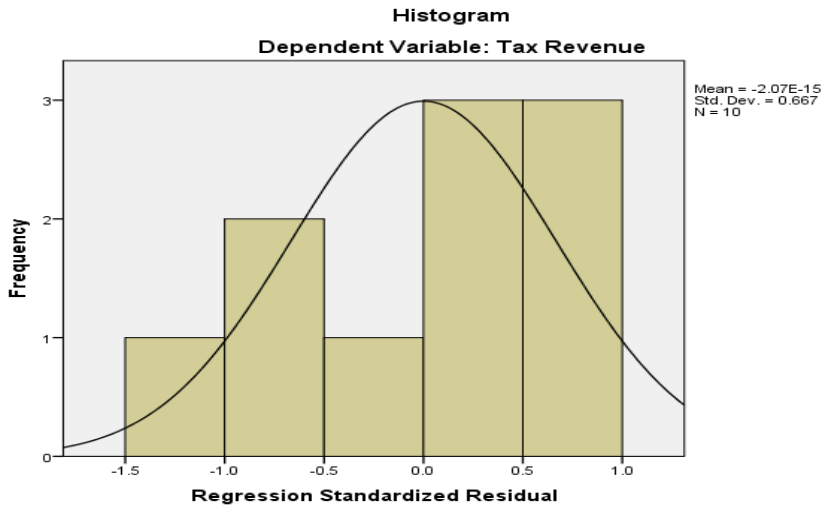
4.4 Assessment of Ordinary Least Square Assumptions

The following assumptions must be considered when using multiple regression analysis. The assumptions are met; essentially this means that it is the most accurate estimate of the effect of X on Y (Dan and Sherlock, 2008).

4.3.1 Assessment of Normality

In order to test the normality of data, Kolmogorov-Smirnova test of normality were used and conducted on SPSS 22. According to Field (2009), when the test is non-significant ($p > 0.05$) it shows that the distribution of the sample is not significantly different from a normal distribution.

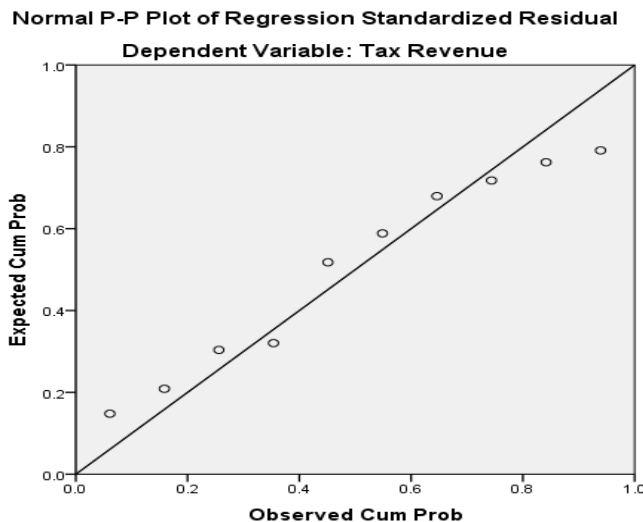
Figure 4-1 Test of Normality



Source: SPSS regression output, 2025

Accordingly, the result of test showed in the figure 4.1 that most variables were found to be normal and the presence of normality was accepted at $p > 0.05$. Moreover, the histogram is more or less bell shaped and closed of variables are normally distributed which are found between negative 1.5 and positive 1 rather than this most of outlier are closed and near to zero that i can show on the above histogram.

Figure 4-2 p-p plot of regression standardized residual



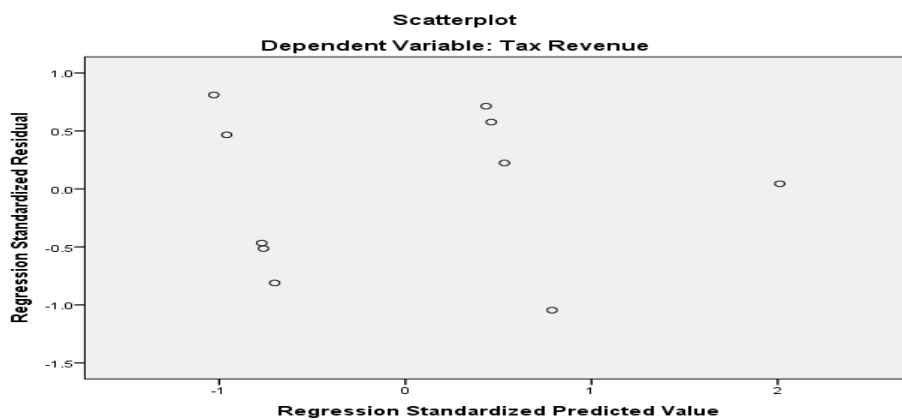
Source: SPSS regression output, 2025

As indicates figure 4-2 above, indicate that whether the data are normally distributed or not. The error term should be normally distributed at the mean of 9.4 and standard deviation 0.57, here in this model the mean is approximately 10 and the standard deviation is 0.6 so, the model is normally distributed. The researcher watched from the histogram and from the p- p plot too.

4.3.2 Test of Heteroskedasticity

As indicates in the figure 4-3 below, reveal that another assumption test of Heteroskedasticity assumptions that the variance of the residuals is homogeneous across levels of the predicted values, also known as homoscedasticity. If the Variance of the residuals is non – constant, then the residual variance is said to be Heteroskedasticity. Bellow I see the scatter plot sub command to plot standard residuals by the predicted values. One can see that the pattern of the data points is getting together towards the right; this is an indication of the mild Heteroskedasticity.

Figure 4-3 Test of Heteroskedasticity



Source: SPSS regression output, 2025

4.3.3 Assessment of Multicollinearity

The aim of this test is to analyze whether the independent variables are correlated each other. This test is done by analyzing the value of tolerance and variance inflation factor (VIF). Multicollinearity exists when tolerance value below 0.10 and Variance Inflation factor (VIF) greater than 10 in the correlation matrix are the causes for the Multicollinearity existence (Field, 2009; Adhista, 2015). Tolerance is a statistics used to indicate the variability of the

specified independent variable that is not explained by the other independent variables in the model.

Table 4.8 Co-linearity Statistics

Coefficients			
Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Gross Domestic Product	.518	1.930
	Gross National Income	.670	1.492
	Unemployment Rate	.198	5.039
	Foreign Direct investment	.142	7.050
	Inflation Rate	.077	3.055
a. Dependent Variable: Tax Revenue			

Source: SPSS regression output, 2025

The above table 4-8 collinearity statistics result shows that there is no Multicollinearity between different variables. The value of tolerance from all independent variables are more than 0.1 While, the values of VIF are less than 10. It means that all independent variables are not correlated each other and free from Multicollinearity. In the same way, Multicollinearity exists when there are strong correlations among the predictors and the existence of r value greater than 0.80 (Field, 2009). The correlation matrix of majority the variables have the paired values among the predictors are less than 0.80 see table 4-9 above indicates that there were no Multicollinearity problems that alters the analysis of the findings, rather it leads to the acceptance of r value, tolerance and VIF values.

Table 4.9 Pearson Correlations Matrix

Pearson Correlation	Tax Revenue	Gross Domestic Product	Gross National Income	Unemployment Rate	Foreign Direct investment	Inflation Rate
Tax Revenue	1					
Gross Domestic Product	.756**	1				
Gross National Income	.314	-.110	1			
Un employment Rate	-.621*	.603*	.293	1*		
Foreign Direct investment	.452	-.213	-.074	-.514	1	
Inflation Rate	-.678*	-.339	-.297	-.772*	.875	1*

Source: SPSS regression output, 2025

The Pearson correlation coefficient (r) is the most common way of measuring a linear correlation it is a number between -1 and 1 that measures the strength and direction of the relationship between two variables .If Pearson correlation is between 0 and 1 is a positive correlation when one variable changes other variable changes in the same direction. If Pearson correlation is 0 there is no correlation or no relationship between the variables. And if Pearson correlation is between 0 and – 1 is a negative correlation when one variable changes the other variable changes in the opposite direction.

Table 4-10 shown that the correlation range of the variables such as Gross Domestic Product ,Gross National Income, Unemployment Rate, Foreign Direct investment, Gross Capital Formation and Inflation rate is negative or correlation range is between 0 and -1 which indicated that when one variable changes the variables change in the opposite direction. The variable such as Gross Domestic Product, Gross National Income and Unemployment Rate have a positive correlation. Which means when one variable changes the variables change in the same direction?

4.4 Regression Results and Hypothesis Testing

The regression result that are obtained by regressing the internal control system in adding value for the Banks liquidity status and the banks liquidity status ability in adding value for their Capital adequacy, Bank ,size, Loan growth, Interest rate margin, GDP growth, Inflation rate. Finally, the hypothesis tests were undertaken based on the regression output results.

4.4.1 Regression Analysis Results

The regression analysis was used to examine a dependent variable of Gross Domestic Product, Gross National Income, Unemployment Rate, Foreign Direct investment; Gross Capital Formation and Inflation rate the result shows, Tax Revenue by using the variables identified in the model. When doing regression analysis the researcher determines whether or not there is a relationship between the attributes and Tax Revenue examining the ANOVA result.

Table 4.10 ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.043	5	.009	44.344	.001 ^b
	Residual	.001	4	.000		
	Total	.044	9			

a. Dependent Variable: Tax Revenue

b. Predictors: (Constant), Gross Domestic Product, Gross National Income, Unemployment Rate, Foreign Direct investment; Gross Capital Formation and Inflation rate

Source: SPSS regression output, 2025

If the F statistic is significant, can assume the independent variables taken together have a relationship with the dependent variable. In this study the probability of the F statistic for the regression analysis is 44.3 and significant is .001^a, less than the level of significance of 0.05. Hence, the dependent variable (Tax Revenue) has relationship with the independent variable Gross Domestic Product, Gross National Income, Unemployment Rate, Foreign Direct

investment; Gross Capital Formation and Inflation rate identified in this study. Generally, it is possible to say the model is a good fit for the variable identified in this study

Table 4.11 Model summary

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.991a	.982	.960	.0140	1.750
a. Predictors: (Constant), Gross Domestic Product, Gross National Income, Unemployment Rate, Foreign Direct investment; and Inflation rate					
b. Dependent Variable: Tax Revenue					

Source: SPSS regression output, 2025

The model summary of the study is shown in table 4-12. R statistic represents the strength of the relationship between Tax Revenue and other independent variables. In this study the adjusted R square statistic tells us the proportion of variance in the independent variable that is accounted for to explain the dependent variable.

Table 4-12 shows that the adjusted R Square value is 96%. It means that the ability of independent variables to explain the dependent variable is 96.% the model was very good to fit, while; 9.9% is affected by another factors beyond this research. In other words, the overall contribution of Gross Domestic Product, Gross National Income, UN employment Rate, Foreign Direct investment; Gross Capital Formation and Inflation rate for 96% to explain the Tax Revenue

According to Singh (2007), an adjusted R square above 75 percent is very good; adjusted R square values in the range of 50–75 percent is good; adjusted R square values in the range of 25–50 percent is fair and adjusted R square value below 25 percent is poor. Therefore, the adjusted R square of this study is 96% which is in the range of it approaches to the range of very well.

Table 4.12 Coefficients

Coefficients						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	.479	.053		9.026	.001
	Gross Domestic Product	.096	.010	.918	9.930	.001
	Gross National Income	.130	.040	.264	3.250	.031
	Unemployment Rate	-.472	.085	-.830	-5.554	.005
	Foreign Direct investment	1.052	.293	.634	3.589	.023
	Inflation Rate	-1.230	.199	-1.484	-6.169	.004

Source: SPSS regression output, 2025

The contribution of each independent variable in the model, the beta (β) sign also shows the positive and negative effect of the independent variables coefficient over the dependent variable. In this study, beta sign 4 independent variable such as GDP, GNI and FDI shows the positive and positive effect and Unemployment rate and Inflation Rate shows negative and negative effect on the predicted dependent variable. That means any increase or decrease in the independent variable lead to increase and decrease in the dependent variables such GDP, GNI, FDI Un employment rate and Inflation rate Based on the statistical significances of the independent variable over the dependent variable, all independent variables GDP, GNI, FDI, Unemployment Inflation rate are significant 5% level of significance.

Other things being constant, a unit increases in GDP to an increase in Tax Revenue by 0.096 units (birr) on average. The result indicated that in GDP factors have positive and significant effects on Tax Revenue.

Other things being constant, a unit increases in GNI to an increase in Tax Revenue by 0.130 units (birr) on average. The finding indicated that GNI have positive and significant effect on Tax Revenue

Other things being constant, a unit increases in FDI to an increase in Tax Revenue by 1.052 (birr) on average. The finding indicated that the variable have positive and significant effect on Tax

Other things being constant, a unit increases in Unemployment Rate to decrease in Tax Revenue by -472 (birr) on average. The finding indicated that the variable have Negative and significant effect on Tax Revenue

Finally, other things being constant, a unit increases in Inflation rate to decrease Tax Revenue by 1.230 units (birr) on average.

Therefore from the above table concluded that there is a positive relationship between GDP, GNI, FDI and Tax and a negative relationship between Tax Revenue, Unemployment and inflation rate The study further revealed that the P-value was less than 0.05 in all the variables, which shows that all the independent variable was statistically significant.

The Regression model is formed as

$$Y_1 = 0.479 + 0.096X_1 + 0.130X_2 + -0.472X_3 + 1.052X_4 + -0.1230X_5 + 0.052$$

The results of multiple regressions, as presented in table 4.14, above, revealed that the Gross Domestic Product, Gross National Income, Unemployment Rate, Foreign Direct investment In addition, Inflation Rate on Tax Revenue. The adjusted R square is 0.96 of the variance in the Tax Revenue strategies has significant effect on it. Therefore, the variables have a positive and significant effect on Tax Revenue. Show the standardize beta coefficient, which tell us the unique contribution of each factor to the model. A high beta value and a small p value (.005) indicate the variable has little or no significant contribution to the model (Gorge et al., 2003).

4.4.2 Hypotheses Test

In this section I have tested different hypotheses on the determinants of Tax Revenue. For the purpose of this studied 5 hypothesis were developed, brief discussion on each hypothesis is given below.

H₁: Gross Domestic Product (GDP) positively affects tax revenue in Ethiopia.

The first hypothesis of this research revealed that there were the GDP has a positive and significant effect on tax revenue. These hypotheses were supported by the regression result as of the regression results significantly related with the tax revenue.

.As shown in the above table 4-13 the coefficient of GDP ($\beta = 0.096$) has a positive effect and statistically ($p = 0.001$) significant relationship with the tax revenue. Based on the result i can fall to reject the formulated hypotheses since there is a positive and significant relationship between Domestic Product (GDP) and tax revenue. The finding results are consistent with IMF Report According to IMF report (2016) the ratio of taxation revenue to GDP in Ethiopia was 23.47 percent which is lower the standard of East African Countries (29%) and that of Sub-Saharan African countries (26%). As a result, the increasing budget deficit has raised concerns regarding the sustainability of government debt, the control of inflation, exchange rate control and the fiscal program in general. Suri and Shome, (2013) also witnessed that as in many developing countries, tax revenue in Ethiopia is too low to finance government expenditure which in turn resulted in continuous budgetary deficits. For instance, world bank report dated (2014) indicated that general government budget deficit increased to 2.6 percent of GDP in 2013/14, compared to 1.9 percent of GDP in the previous year whereas, government revenues declined from 14.3 percent to 14.0 percent of GDP in 2013/14. In addition, World Bank Report (2013) indicates that Ethiopia's tax revenue to GDP ratio was 23.5% expected 25%, which is less than sub-Saharan country (26%). A number of factors have mentioned to contribute to such weak contribution of taxation to the economic progress of developing nation. For instance Karagoz (2013) posited the share of agriculture and industry sectors to GDP, foreign debt stock, economy monetization rate, and rate of urbanization as main determinants of tax revenue in Turkey. In a similar fashion, Muibi & Sinbo (2013) analyzed forty two years data and come up with the conclusion that the

level of change in income, rate of inflation and exchange rate are the main determinants of tax revenue in Nigeria. Velaj & Prendi (2014) also witnessed that inflation; unemployment and GDP are the significant determinants of tax revenue in Albania. But relying on these factors and generalizing to Ethiopian context leads to wrong conclusion as there are peculiarities in social, economic, political and technological structures among countries.

H₂: There is a positive effect between Gross National Income (GNI) and tax revenue in Ethiopia.

The second hypothesis of this study proposed that Gross National Income (GNI) is directly related with tax revenue. The positive beta sign and a statistically significant result of Gross National Income (GNI) with the tax revenue. ($\beta = 0.130$, $P = 0.031$). The regression result supports this hypothesis at given level of significance. GNI has positive and significantly effect on tax revenue. The finding results also support the study.

Increase in per capita income is a desirable macroeconomic goal, which aims at raising the standard of living of the society. Increase in real GDP per capita income enhances the capacity of inhabitants of a country to pay their tax liability. In countries like Ethiopia, where income tax share significant part of direct tax, increase in income of each individual contributes much to tax revenue. Also, with economic growth the demand for public services expanded and the purchasing ability of peoples will improve. Besides, economic development is associated with broadening the tax base which helps to increase domestic product per capita income.

H₃: There is a Negative effect between unemployment rate and tax revenue in Ethiopia

I cannot Reject the formulated hypothesis because table 4-13 shows unemployment rate is $\beta = -0.472$ and P-value is 0.005. The result of the model showed that unemployment rate has a negative and also significant effect on tax revenue the result shows that when other explanatory variables remain constant as the unemployment rate by 1% tax revenue was decreased by - 0.472 % and also statistically significant.

The relationship between unemployment rates and tax revenue is significant and multifaceted. Here's a breakdown of how changes in the unemployment rate can affect tax revenues:

Reduction in Income Tax Revenue Lower Earnings: Higher unemployment usually means fewer people are earning wages, which directly leads to a decline in income tax collections. As individuals, lose jobs or work fewer hours, their taxable income decreases, resulting in lower tax revenues for governments. Unemployed individuals may qualify for various tax deductions or credits, which can further reduce the tax base. In addition, Unemployment reduces the number of people contributing to payroll taxes, which fund Social Security, Medicare, and other social insurance programs. With fewer workers on the payroll, total payroll tax revenue declines.

Higher unemployment generally leads to decreased consumer confidence and spending. This, in turn, can lower sales tax revenues, sales tax being a significant source of revenue for state and local governments. In addition Shift in Spending Patterns: Unemployed individuals may shift their spending toward essential goods and services, which could affect the types of taxes collected.

H4: There is a positive effect between Foreign Direct Investment and tax revenue in Ethiopia.

The result of the model cannot reject the formulated hypothesis. As table 4-13 showed the effect of Foreign Direct Investment on tax revenue is positive Foreign Direct Investment has a positive $\beta = 1.052$ and also p-value is 0.023 this is a significant effect on tax revenue. The result shows that when other explanatory variables remain constant as: Foreign Direct Investment increase by 1% tax revenue was increased by 1.052 and also statistically significant. The finding is supported by the study made by Haider M. and A.R.chaudhary, 2013 According to the study result the impact of foreign direct Investment on tax revenue, the study uses FDI and GDP per person employed as independent variables and tax revenue as the dependent variable. Evans et al., (2017). Explained that Econometric estimations using panel data show that: First, FDI affects positively and significantly total tax revenue, especially tax on income and profits, but the effect on international trade tax revenue is not significant. Thus, a 10% increase in FDI leads to a 4.78% increase in total tax revenue. Second, total tax revenue and taxes on income and profits, the contribution of FDI allocated to the agricultural sector is less harmful than the contribution of FDI allocated to industrial and mining sectors. According to Boly et al. (2020). The empirical results are twofold. First, we find that cuts in statutory CIT rate increase FDI net inflows to the host country and in the other neighboring countries in the short and long terms. Therefore,

powering the tax is an economic policy instrument that can attract more FDI. However, to reduce the negative effects of lower tax revenues, governments can broaden the tax base and strengthen tax collection capacities to finance development needs. In 2014, the average tax-to-GDP ratio in Africa was only about 17.1 percent, which is much lower than the estimated level of about 25 percent required for financing basic development needs (AEO, 2018). Ongo Nkoa (2014) states that foreign direct investment is introduced as a factor of production. The study shows that FDI contributes positively and significantly both to economic growth across the sub-region as well as in individual member states.

H₅: Inflation negatively influences tax revenue in Ethiopia.

The results of the model reject the formulated hypothesis. As table 4-13 showed the effect of Inflation rate on tax revenue is negative. The Inflation rate has a negative $\beta = -1.230$ and also p-value is 0.004 this is a significant effect on tax revenue. The result shows that when other explanatory variables remain constant as Inflation rate increase by 1% tax revenue was decreased by -1.230 and also statistically significant. The result is consistent with the study by Tanzi (1992) found out that inflation has a negative influence on tax revenue, the so-called Olivera-Tanzi effect. Reduction in tax revenue value by inflation tends to explain this inverse relationship, since it exists for some tax categories time-lag from imposition period to the effective collection of these taxes. Therefore, by maintaining lower levels of inflation and increasing value of tax revenue theoretically, inflation targeting may reduce a state's tax collection.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

Summary of findings

This is the last chapter of the paper, which deals about the summary, conclusion driven from the analysis of the study, and possible policy recommendations that are made by researcher based on the major findings of the study.

Tax revenues are a critical component of government finances, influencing public spending and economic stability. Several key macroeconomic factors influence tax revenues, including Gross Domestic Product (GDP), Gross National Income (GNI), Foreign Direct Investment (FDI), unemployment rate, and inflation rate. This summary outlines the relationships between these factors and tax revenues based on empirical research and economic theory.

GDP is a primary determinant of tax revenues, as it reflects the overall economic activity within a country. Higher GDP typically leads to increased tax revenues due to more transactions and higher incomes. Progressive tax designs mean that as incomes rise, the tax base expands, resulting in increased revenue collection. Research indicates a positive correlation between GDP growth and the capacity of governments to generate tax revenues.

GNI, which adjusts GDP by net income received from overseas, also affects tax revenues. Countries with high GNI are often able to collect more taxes, particularly if they have significant income from abroad. The relationship is less direct than with GDP, but substantial GNI can enhance government capacity to tax through the inclusion of international income.

FDI can have a multifaceted impact on tax revenues. Inflow of foreign investment can spur economic growth, create jobs, and increase the tax base. However, the effect of FDI on tax revenues can vary based on tax incentives and regulatory environments designed to attract foreign investors. Some studies show that countries providing favorable tax treatment to FDI may experience short-term gains, but long-term benefits depend on the sustainability of such practices.

The unemployment rate negatively impacts tax revenues. Higher unemployment leads to less income tax collection, as fewer individuals are employed and paying taxes. Additionally, increased unemployment often necessitates higher public spending on social services, reducing overall tax capacities. Conversely, lower unemployment typically correlates with higher tax revenues due to increased employment and income levels.

The relationship between inflation and tax revenues is complex. Moderate inflation can potentially increase nominal tax revenues

Inflation and Tax Brackets: Inflation can lead to "fiscal drag," where taxpayers are pushed into higher income brackets due to inflationary increases in nominal income, even if their real income remains unchanged. This results in higher income tax revenues without any change in tax rates. While inflation increases nominal tax revenues in the short term, it can erode the real value of tax revenues over the long term. As prices rise, the purchasing power of tax revenues diminishes, which could reduce the effective funding available for public service

Inflation can influence corporate profits. In an inflationary environment, businesses may experience rising costs that can influence their profitability and, subsequently, corporate tax revenues. Additionally, if inflation leads to uncertainty about economic conditions, it may deter investment and affect tax collections over time.

Higher inflation can lead to changes in taxpayer behavior, such as increased tax evasion or avoidance as individuals and businesses attempt to shield themselves from the economic impact. This can have a negative effect on tax revenues.

5.1 Conclusion

This study employed a regression analysis to examine the factors influencing tax revenue in Ethiopia between 2013 and 2023. Ethiopia, like many developing nations, faces a critical need to mobilize domestic revenue (increase tax collection) to fund essential development goals due to limited resources. Understanding the determinants of tax revenue is crucial for policymakers to design effective strategies for boosting tax collection.

The impact of national income (GNI) on the tax revenue ratio in Ethiopia presented a complex picture. The model indicated a potential positive association, suggesting that higher national income could lead to a higher tax revenue ratio. However, limitations like the high correlation between GNI and GDP in the model make it difficult to isolate the independent effect of GNI. Further exploration or model adjustments might be needed to definitively understand this relationship. GNI, which adjusts GDP by accounting for income earned by residents from investments abroad and excluding income earned by foreign residents, can also influence tax revenues. Countries with high GNI may have substantial tax revenue due to significant income from abroad. GNI reflects overall economic health and the source of income, influencing how much individuals and corporations can contribute to tax revenues.

Similar to national income, the effect of GDP on the tax revenue ratio in Ethiopia remained unclear based on the analysis. The negative coefficient for GDP seemed to counteract the potential positive effect of GNI. The high correlation between these two variables makes it challenging to determine their independent contributions using this model.

GDP is a primary determinant of tax revenues. Higher GDP typically indicates a larger economy and increased economic activity, leading to higher income and consumption, which in turn generates more tax revenue. As GDP grows, so does the taxable base, with increases in corporate profits and individual incomes resulting in greater corporate and income tax collections.

The connection between inflation and tax revenue in Ethiopia was inconclusive. The analysis showed a possible weak positive association between the two variables based on the positive coefficient for inflation. However, the lack of statistical significance for this coefficient suggests we cannot definitively say that inflation has a clear impact on tax revenue in this model. More data or a more complex model might be necessary to explore this relationship further.

Similar to inflation, the impact of foreign investment on tax revenue in Ethiopia remained uncertain based on the analysis. The positive coefficient for foreign investment hinted at a possible weak positive association. However, the non-significant p-value suggests we can't draw a strong conclusion about the independent effect of foreign investment on tax revenue within this model. Further investigation or a more intricate model design might be necessary to understand the true influence of foreign investment. The relationship between inflation and tax revenue can be complex. Moderate inflation can increase nominal tax revenues (for instance, due to bracket creep in progressive tax systems), but high inflation can distort economic decision-making, harm investments, and erode

FDI can boost tax revenues significantly by increasing the number of businesses operating in a country, creating jobs, and generating taxes on profits and employment. FDI can lead to technology transfer, increased productivity, and enhanced competitiveness, contributing to GDP growth and subsequently tax revenue growth.

This analysis highlights the crucial role of unemployment in shaping Ethiopia's tax revenue. The negative relationship suggests that addressing unemployment is vital for boosting tax collection. Impact: Higher unemployment rates generally lead to lower tax revenues. When fewer people are employed, income tax revenue declines, and more individuals may rely on social safety nets, increasing government expenditures. A higher unemployment rate translates to less consumer spending, lower consumption taxes (such as VAT or sales tax), and reduced profits for businesses, which can decrease corporate taxes.

The effects of other factors like national income, GDP, inflation, and foreign investment were less clear-cut, requiring further investigation or model refinements for a more comprehensive understanding.

5.2 Recommendations

Based on the findings of this study the following recommendation and policy implications were forwarded as an alternative to improve the performance of the tax system, having in mind the contributions it makes to the development of the economy in general.

1. Address Unemployment to Enhance Tax Revenue:

The significant negative relationship between unemployment and tax revenue underscores the importance of prioritizing policies that reduce unemployment in Ethiopia. This could involve:

- Skills development programs to equip the workforce with in-demand skills, improving employability.
- Investment in infrastructure to create jobs and stimulate economic growth.
- Targeted social safety nets to support unemployed individuals and families, mitigating the decline the taxable income.

2. Investigate the Relationship Between National Income and Tax Revenue:

The unclear impact of national income on tax revenue in this model suggests the need for further exploration. Policymakers could consider:

- Analyzing tax collection efficiency to identify areas for improvement in capturing potential tax revenue as national income grows.
- Exploring alternative tax structures that might be more responsive to increases in national income.

3. Refine Tax Policy Based on Future Research:

The inconclusive findings regarding GDP, inflation, and foreign investment highlight the need for ongoing research:

- Gather more data over a longer period to strengthen the analysis of these variables.
- Develop more complex models that can account for potential non-linear relationships between these factors and tax revenue.

By implementing these recommendations and conducting further research, Ethiopian policymakers can develop a more comprehensive understanding of the factors influencing tax revenue. This knowledge can then be used to design effective strategies for mobilizing domestic resources and achieving sustainable economic development.

5.3 Future Research Direction

1. Deepen the Analysis of National Income and GDP:

The current study highlighted the complexity surrounding the relationship between national income (GNI), GDP, and tax revenue in Ethiopia. Future research can delve deeper into this area by:

- **Decomposing National Income:** Analyzing the various components of national income (e.g., wages, salaries, and profits) can reveal which sectors contribute most significantly to tax revenue generation.
- **Disaggregating GDP:** Exploring how different sectors within the GDP (e.g., agriculture, industry, services) impact tax revenue is crucial. This could involve sector-specific tax policy analysis to understand how each sector interacts with the tax system.
- **Employing panel data analysis:** Utilizing panel data that includes information on different regions within Ethiopia could be insightful. This might reveal regional variations in the relationship between national income/GDP and tax revenue. Understanding these regional differences can inform targeted policy interventions.

2. Investigate the Long-Term Effects of Inflation and Foreign Investment:

The inconclusive findings regarding inflation and foreign investment necessitate further investigation. Future research could address these areas by:

- **Time-series analysis:** Employing time-series analysis techniques can help us understand the long-term impact of inflation on tax revenue dynamics. This might involve using a longer data series or utilizing methods that account for time-dependent relationships between variables.
- **Foreign investment composition:** Differentiating between types of foreign investment (e.g., foreign direct investment, portfolio investment) can provide a clearer picture of their varying impacts on tax revenue. Understanding the nature of foreign investment can help design policies that maximize its contribution to the tax base.

- **Case studies:** Conducting case studies of specific countries or regions with high foreign investment can offer valuable insights. Studying how these regions successfully translate foreign investment into tax revenue can inform policy design in Ethiopia.

3. Explore Additional Determinants:

In addition to the factors already considered, future research could explore the influence of other variables on tax revenue in Ethiopia:

- **Tax policy changes:** Analyzing the impact of specific tax policy changes (e.g., introduction of new taxes, modifications to tax rates) on tax revenue collection is crucial. Employing event study methodology can help isolate the effects of these policy changes.
- **Tax administration efficiency:** Investigating the effectiveness of tax collection processes and identifying areas for improvement can significantly enhance tax revenue collection. This might involve analyzing data on tax audits, tax compliance rates, and administrative costs.
- **Informal sector:** The informal sector plays a significant role in the Ethiopian economy. Exploring its potential contribution to tax revenue and developing strategies for integrating the informal sector into the tax base can be a valuable future research direction.

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APPENDIX

Correlations

Pearson Correlation	Tax Revenue	Gross Domestic Product	Gross National Income	Un employment Rate	Foreign Direct investment	Inflation Rate
Tax Revenue	1	.756**	.314	.621	-.452**	-.678
Gross Domestic Product	.756**	1	-.110	.603**	-.213	-.339**
Gross National Income	.314	-.110	1	.293	-.074	-.297
Un employment Rate	.621*	.603*	.293	1*	-.514*	-.772*
Foreign Direct investment	-.452	-.213	-.074	-.514	1	.875
Gross Capital Formation	. ^c	. ^c	. ^c	. ^c	. ^c	. ^c
Inflation Rate	-.678*	-.339	-.297	-.772*	.875	1*

** . Correlation is significant at the 0.01 level (1-tailed).

* . Correlation is significant at the 0.05 level (1-tailed).

c. Cannot be computed because at least one of the variables is constant.

Regression

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.991 ^a	.982	.960	.0140	1.750

a. Predictors: (Constant), Inflation Rate, Gross National Income, Gross Domestic Product, Unemployment Rate, Foreign Direct Investment

b. Dependent Variable: Tax Revenue

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.043	5	.009	44.344	.001 ^b
	Residual	.001	4	.000		
	Total	.044	9			

a. Dependent Variable: Tax Revenue

b. Predictors: (Constant), Inflation Rate, Gross National Income, Gross Domestic Product, Unemployment Rate, Foreign Direct Investment

Coefficients

Model	Collinearity Statistics	
	Tolerance	VIF
1		
(Constant)		
Gross Domestic Product	.518	1.930
Gross National Income	.670	1.492
Unemployment Rate	.198	5.039
Foreign Direct Investment	.142	7.050
Inflation Rate	.077	3.055

a. Dependent Variable: Tax Revenue

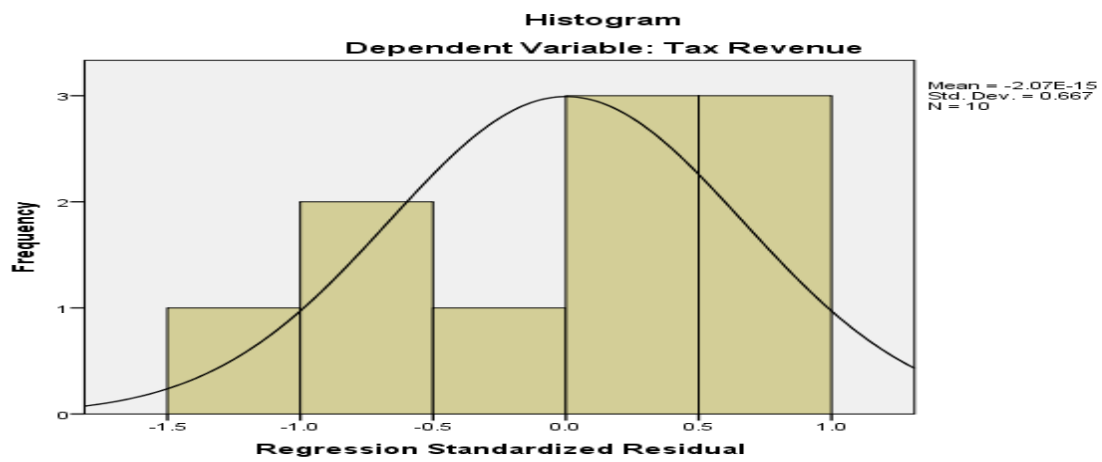
Residuals Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	.189	.399	.260	.0693	10
Residual	-.0146	.0113	.0000	.0093	10

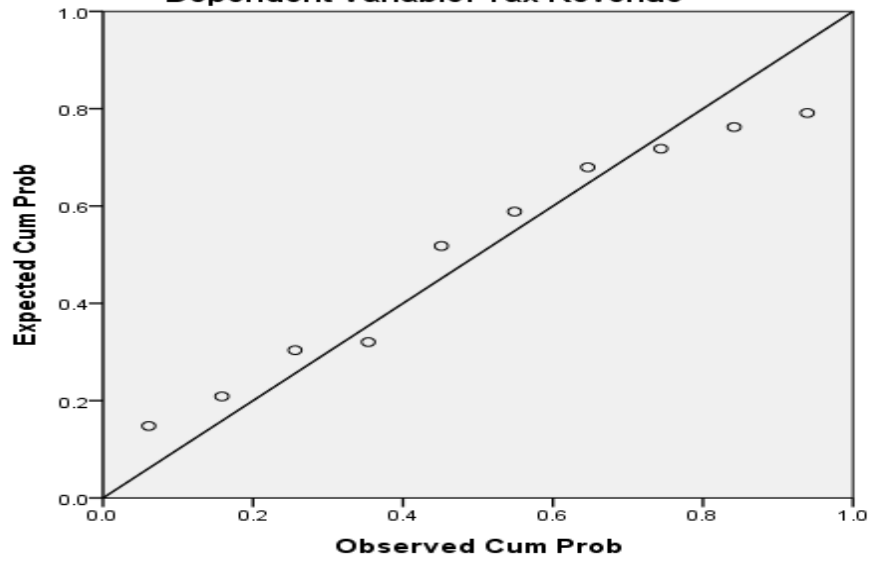
Std. Predicted Value	-1.029	2.011	.000	1.000	10
Std. Residual	-1.045	.811	.000	.667	10

a. Dependent Variable: Tax Revenue

Charts



Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Tax Revenue



Scatterplot
Dependent Variable: Tax Revenue

