KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

THE EFFECT OF FINANCIAL INCLUSION ON TAX REVENUE GENERATION IN GHANA

BY

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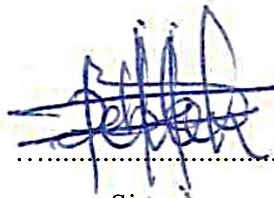
DECLARATION

I hereby declare that this research is the result of my work towards the Master of Science Degree in Accounting and Finance Programme and that, to the best of my knowledge, it contains no material previously published by another person except where due acknowledgment has been made, nor material which has been accepted for the award of any other degree elsewhere.



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DEDICATION

I dedicate this research work to Almighty God and my lovely family for the favour, guidance, support and love shown throughout the study.

ACKNOWLEDGEMENT

My first appreciation goes to the Almighty God for seeing me through this dissertation. I am grateful to my supervisor, Dr Joseph Agana for his supervision and guidance contributed to the success of this dissertation. My gratitude also goes to the entire authors I referenced in this dissertation from whom I got materials for this research.

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ABSTRACT

The research study entitled "The Effect of Financial Inclusion on Tax Revenue Generation in Ghana" sought to investigate the impact of four primary financial inclusion indicators on the generation of tax revenue. The selected indicators for analysis were Private Credit to Gross Domestic Product (GDP) ratio by deposit money banks, Deposit Money Banks' Assets to GDP ratio, Liquid Liabilities to GDP ratio, and Central Bank Assets to GDP ratio. The study utilized data spanning from 1992 to 2021 and employed a multiple regression analysis to examine the impact of various variables on the generation of tax revenue. The validity of the regression results was ensured by testing all the assumptions of the model. The study's results indicate that although there existed a favorable association between Private Credit by Deposit Money Banks to GDP, Deposit Money Banks' Assets to GDP, Liquid Liabilities to GDP, and tax revenue generation, these connections did not demonstrate statistical significance. The evidence provided by the researchers was not sufficiently robust to indicate that the aforementioned components of financial inclusion exert a substantial influence on the generation of tax revenue in Ghana. The research revealed a noteworthy inverse correlation between the proportion of Central Bank Assets to Gross Domestic Product and the generation of tax revenue. This implies an inverse relationship between the ratio of Central Bank assets to GDP and the generation of tax revenue. The research suggests that policymakers should endorse measures that foster private credit, fortify financial institutions, enhance liquidity management, and meticulously scrutinize the Central Bank's function to optimize tax revenue generation. The results emphasize the necessity of adopting a comprehensive approach that takes into account multiple aspects of financial inclusion when formulating strategies for generating tax revenue. In summary, the impact of financial inclusion on tax revenue generation in Ghana is inconclusive. However, it is worth noting that the inclusive financial sector has the potential to exert a positive influence on tax revenue generation. It is imperative for policymakers to comprehend these dynamics in order to effectively leverage the advantages of financial inclusion and optimize strategies for generating tax revenue

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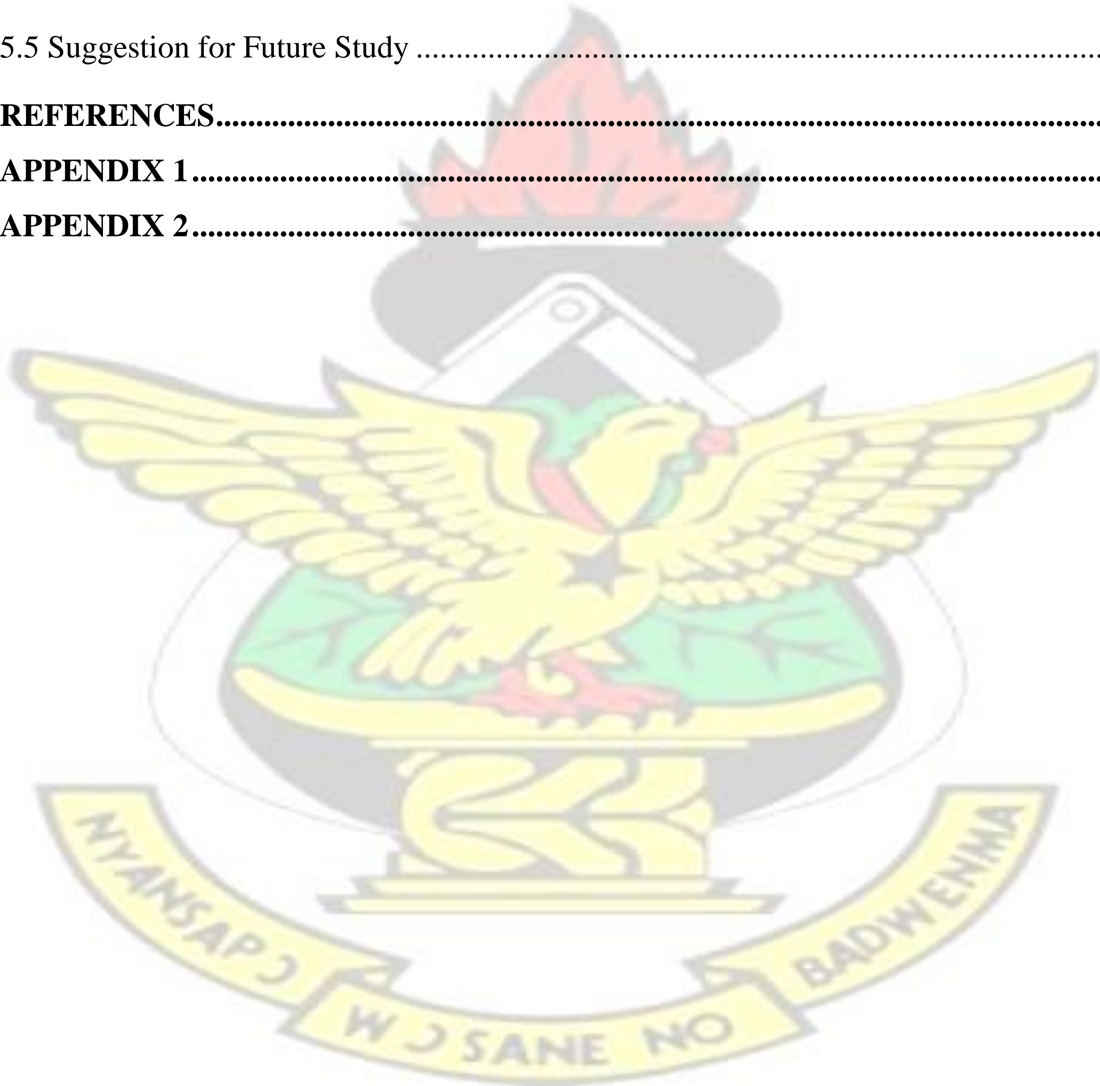

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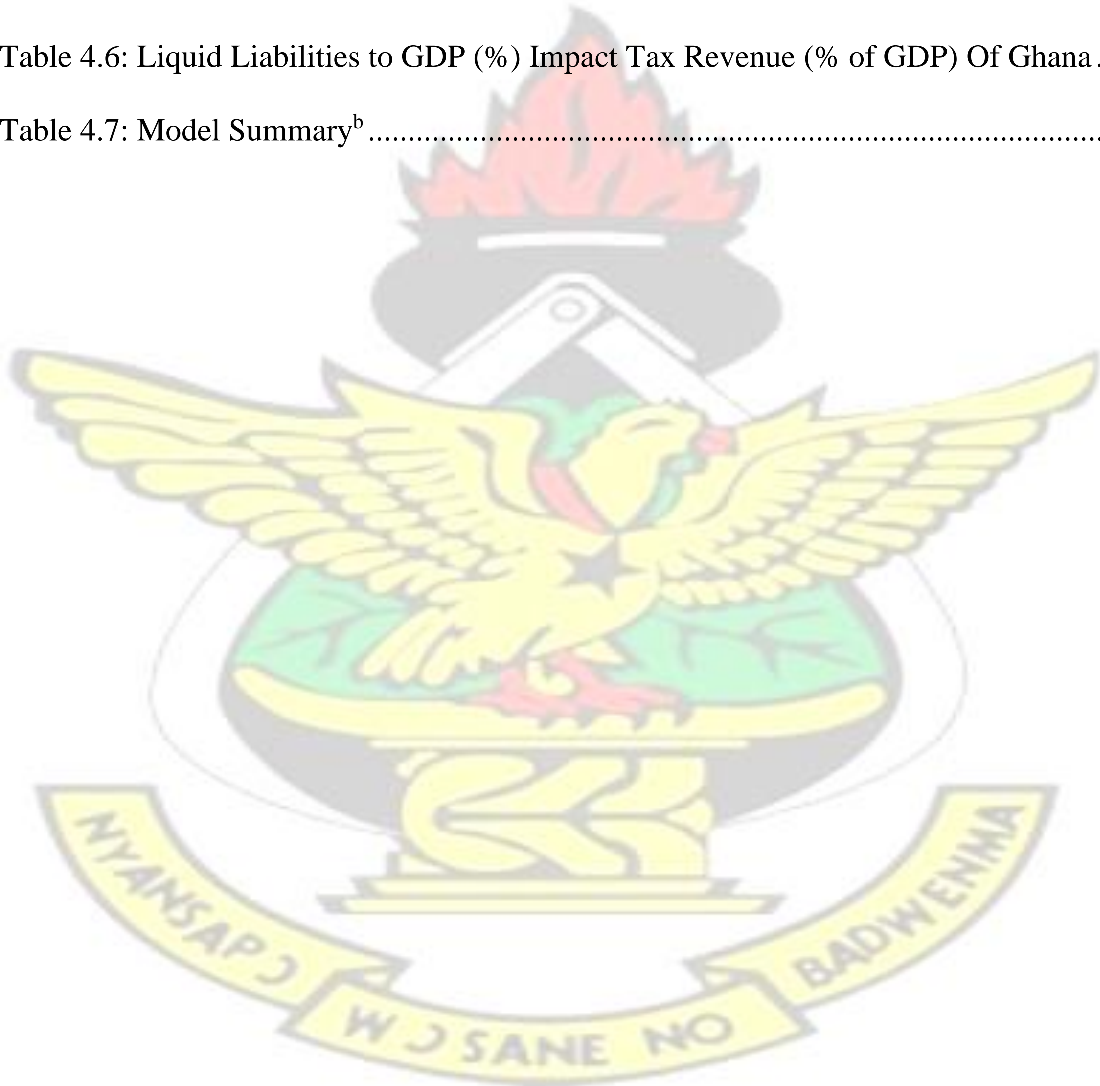

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The concept of financial inclusion has garnered significant attention as a crucial facilitator of economic expansion and advancement on a global scale. The concept of financial inclusion is a crucial component of financial development, serving as an access indicator that has gained significant relevance in recent times. According to the World Bank, the ownership of a transaction account can be viewed as an initial step towards attaining comprehensive financial inclusion, as it serves as a gateway to other financial services. The promotion of these financial products and services is followed by an expectation of their delivery with the highest level of quality. Demirgüç-Kunt et al. (2017) report a noteworthy surge in the count of adults who have obtained a bank account since 2011, with a cumulative figure of 1.2 billion individuals. It is noteworthy that a total of 515 million individuals acquired their accounts between the years 2014 and the present time. As per the data provided by the Global Findex Database, the count of adult individuals who lacked a financial account either through a financial institution or a mobile money provider was 1.7 billion in the year 2017. The disparity between the proportion of adults who have access to banking services and those who do not is a cause for concern, despite the progress that has been made over time. As a result, there has been a notable focus on increasing the proportion of individuals with availability to financial services by the end of the year 2020.

According to a report by the United Nations Capital Development Fund in 2006 (p.14), an inclusive financial system refers to the provision of financial services, including credit and savings, to all eligible individuals and businesses. According to

the World Bank, having access to affordable and convenient financial services and products that can be used by both individuals and enterprises is known as financial inclusion. These services may include transactions, payments, savings, credit, and insurance. It is imperative that the provision of these services is carried out in a manner that is both responsible and sustainable. The study of financial inclusion is a recent development and has been distinguished by diverse categorizations and interpretations. Essentially, the term pertains to the responsible and sustainable delivery of formal financial products and services to households, individuals, and businesses. It is crucial to analyze the benefits of financial inclusion as a means of tackling this matter. The Universal Financial Access 2020 Initiative has acknowledged the benefits of financial inclusion, encompassing the facilitation of support for daily sustenance, provision of aid to families and businesses in planning for both long-term goals and unexpected emergencies, access to supplementary financial services such as savings, credit, and insurance, promotion of business establishment and expansion, investment in education or health, mitigation of risks, and management of financial setbacks. It is anticipated that these advantages will improve the overall quality of life for both individuals and enterprises.

To ensure successful implementation of strategies aimed at promoting financial inclusion, it is imperative to identify and acknowledge the key stakeholders responsible for providing financial products and services in a responsible and sustainable manner. Financial institutions and markets play a crucial role in establishing the necessary framework and conditions for the successful provision and utilization of financial products and services. The focus of the current investigation pertains to the concept of financial inclusion, which is explored in detail through an analysis of the magnitude and capability of financial institutions and markets that

facilitate financial inclusion. The advancement of financial inclusion has been a noteworthy objective in Ghana, as demonstrated by the expansion of the Digital Financial Services sector, the widespread availability of mobile money services, the integration of fintech solutions in financial transactions, the development and execution of policies designed to encourage financial inclusion, the establishment of the National Digital Payment Platform, and the increasing levels of digitization across diverse industries.

Given its status as an emerging economy, Ghana's investment in financial inclusion is expected to yield direct and indirect profits and benefits. Income from Taxes is deemed as the foremost significant benefit that Ghana could potentially obtain. Taxation functions as a mechanism for generating revenue by mandatorily imposing charges on individuals or entities by a governmental body to fund its operational and investment costs. The significance of tax contributions from diverse sources such as income tax, corporate tax, mineral royalty rate, dividends subject to an 8% withholding tax, tax treaties, VAT, NHIL, GETFL communication service tax, import duty, and excise duty charges cannot be contested. According to a report by Pricewaterhouse Coopers Ghana Limited in 2019. As a result, taxes play a significant role in the nation's overall revenue, making them a key priority for a country's development (Afful, 2018).

The revenue derived from tax is geared towards Ghana’s economy to help improve its economic growth (Tax-to-GDP Ratio). The Tax-to-GDP Ratio pertains to the proportion of a country's tax revenue in relation to its Gross Domestic Product (GDP), which represents the total monetary value of goods and services produced within a nation's borders. Nevertheless, Ghana has been unable to generate sufficient tax revenue in recent decades.

1.2 Problem Statement

The degree of financial inclusion is contingent upon the capacity and efficacy of financial markets and institutions to facilitate it by acquainting individuals and businesses with the formal financial system through the delivery of sustainable and ethical financial products and services. The finance industry encompasses a diverse array of companies that specialize in managing money, including credit unions, banks, insurance companies, accountancy firms, consumer-finance companies, stock brokerages, investment funds, individual managers, telecommunications companies, fintech firms, and select government agencies. Within this industry, various financial products and services are offered to consumers, such as savings accounts, investment opportunities, loans, and insurance policies.

The finance industry encompasses financial institutions and markets, which can be broadly categorized as businesses that manage money. Financial inclusion is reliant on financial institutions and markets as they provide the necessary conditions for financial growth, transactions, and act as primary facilitators for individuals and businesses to enter the formal financial sector. The current financial crises that have been occurring worldwide have prompted many nations to prioritize economic stability by implementing rigorous regulations. The inclusion of growth advancement, especially in developing Sub-Saharan African (SSA) nations, serves as a counterbalance to the requirements of such policies, as noted by Aryeetey and Kanbur (2008), Gockel and Akoena (2002), and Mensah (1997). Ghana, like other countries, has implemented financial reforms to improve the accessibility of financial services for individuals, households, and firms. The ultimate goal of these reforms is to increase their participation in the formal sector, which can lead to long-term Income from Taxes (Aryeetey and Kanbur, 2008).

At present, Ghana finds itself at a juncture in its financial system that necessitates significant investment to enhance its operational efficacy. Nevertheless, the Ghanaian government is unlikely to make investments without anticipating returns or financial gains. The insufficiency of tax revenues to offset government expenditures is reflected in the fiscal deficit balances of government budgets, which highlights the imperative of generating profits and monetary benefits. Several scholars, including Ebi (2018), Nnyanzi, Bbale, & Sendi (2018), Sackey & Nkrumah (2012), Oz-Yalaman (2019), Maherali (2017), and Sharma (2015), have examined the relationship between financial inclusion and various economic indicators, such as economic growth, tax revenue, and financial sector development. However, it is imperative to investigate the impact of financial inclusion depth on Income from Taxes in Ghana.

The lack of access to formal financial services, such as loans, poses a significant challenge for individuals who are marginalized from the financial sector. This impedes their ability to establish businesses and generate income, which in turn limits the potential for tax revenue. Transferring money between family and friends is a prevalent practice in Ghana, whereby individuals send funds to their relatives residing within the country or to those living abroad to assist them in coping with unexpected financial setbacks and crises. In the absence of such transfers, it becomes arduous for individuals and even sole proprietorships to sustain themselves during periods of economic contraction. The adverse impacts of these phenomena pertain to the incapacity of said individuals to generate revenue or participate in monetary transactions that are traceable and subject to taxation by the authorities.

According to the findings of the Organization for Economic Co-operation and Development (OECD), there was a 0.4% rise in Ghana's Tax-to-GDP Ratio, from 17.2% in 2015 to 17.6% in 2016. Despite the optimistic projection for future years, it

is noteworthy that the contribution of taxes to Ghana's Gross Domestic Product (GDP) remains comparatively modest. The 2018 Bank of Ghana annual report reveals that the contribution of oil to tax revenue, expressed as a percentage of GDP, was 12.84%, while the percentage of GDP for total expenditure and net lending was 19.68%. The decline in the proportional contribution of taxes to Ghana's economic expansion has implications for the government's expenditure, business productivity and activity levels, and individual consumption patterns.

The aforementioned effects lead to the deduction that the tax system is not meeting its anticipated revenue generation, which is commonly referred to as the issue of tax gaps. In the absence of a transactional account, such as a mobile money account or savings and current account, a significant proportion of the Ghanaian population may be inclined towards participating in cashless transactions. In such instances, a significant portion of the monetary transactions occurring within the economy remain untraceable and untaxed. The matter of taxation is contingent not upon tax policies or administrative procedures, but rather upon the ability to track, discern, and levy tax components or transactions. Cashless transactions have been found to contribute to the issue of tax evasion. Thus, to even tackle tax evasion, the government of Ghana must address its root cause which is financial exclusion. Afful (2018) conducted an examination of Ghana's tax system and found that tax evasion was a significant factor contributing to the decline in Income from Taxes.

According to Wenzel (2002), tax evasion involves intentionally misrepresenting one's actual financial situation to the tax authorities with the aim of minimizing tax liability. According to Anaba's (2016) findings, Ghana experiences an annual loss of tax revenue amounting to $2.1 billion due to the tax evasion practices of taxpayers. The government's ability to effectively tax and collect appropriate taxes from

multinational corporations, local corporations, and the elite has been hindered by the aforementioned activities, as noted by Otieku (1992).

These are serious issues that pertain to the current management of taxes which need to be addressed urgently through an increase in the depth of financial inclusion to intensify access and usage that can in turn generate tax revenue. The existing literature on financial inclusion has predominantly concentrated on nationwide data and broader financial inclusion issues, as evidenced by reports, analyses, and data from international organizations such as the World Bank, IMF, and United Nations. However, Ghana, as a sub-Saharan African nation with unique financial characteristics, has yet to be the subject of research that specifically examines how enhanced financial inclusion can contribute to Income from Taxes within its borders. Hence, it is imperative to explore the extent to which financial inclusion can contribute to the generation of tax revenue in Ghana. The objective of this research is to address the existing knowledge gap regarding the relationship between the extent of financial inclusion and its impact on Income from Taxes in Ghana.

Therefore, this study will motivate more people and companies entering the formal financial system as a result of financial inclusion may result in a more formalized economy. Tax compliance may be improved by this enhanced traceability and visibility. The tax base may grow as more individuals and companies obtain access to financial services. This is so that there is a larger pool of organizations that are subject to taxation, as formal financial inclusion frequently coexists with formal economic activities. Initiatives aimed at increasing capacity may be necessary for stakeholders, such as governmental organizations and financial institutions, to adjust to the shifting environment. In order to manage the greater data and complexity that come with a more inclusive financial system, tax officers must receive the necessary training. The

possibility of higher tax collection is the main advantage. Financial inclusion policies are a useful tool for policymakers to increase the size of the tax base and enhance total revenue collection. Wider economic progress can be accelerated by financial inclusion. This is a tool that policymakers can use to promote sustainable economic growth, which will expand possibilities for both individuals and businesses and raise tax income.

1.3 Research Objectives

The main objective of this study is to examine the effect of financial inclusion on Income from Taxes in Ghana.

Specific Objectives.

1. To determine the level of Deposit money banks" assets to GDP (%), Liquid liabilities to GDP (%), Central bank assets to GDP (%), Private credit by deposit money banks and other financial institutions to GDP (%) and Tax revenue (% of GDP) of Ghana.
2. To examine the relationship between GDP (%), Liquid liabilities to GDP (%), Central bank assets to GDP (%), Private credit by deposit money banks and other financial institutions to GDP (%) on Tax revenue (% of GDP) of Ghana.
3. To examine the rate at which Liquid liabilities to GDP (%) impact Tax revenue (% of GDP) of Ghana.

1.4 Research Questions

1. What is the level of Deposit money banks" assets to GDP (%), Liquid liabilities to GDP (%), Central bank assets to GDP (%), Private credit by deposit money banks and other financial institutions to GDP (%) and Tax revenue (% of GDP) of Ghana?

2. What is the relationship between GDP (%), Liquid liabilities to GDP (%), Central bank assets to GDP (%), Private credit by deposit money banks and other financial institutions to GDP (%) on Tax revenue (% of GDP) of Ghana?
3. What is the rate at which Liquid liabilities to GDP (%) impact Tax revenue (% of GDP) of Ghana?

1.5 Significance of the study

This research could inform and guide policy formulation in Ghana. By examining the impact of financial inclusion on tax revenue, the government could devise policies that promote financial inclusion, potentially increasing tax revenue. It could also aid in determining the areas that need more attention to enhance financial inclusion.

Again, this study could act as a catalyst for programs aiming to enhance financial inclusion in Ghana. These might include measures to improve access to banking services, encourage the use of digital payments, or promote financial literacy.

Lastly**,** understanding the relationship between financial inclusion and tax revenue can help authorities in strengthening the tax base. If the research establishes a positive link, it could justify efforts to increase financial inclusion as a means of boosting tax revenues.

1.6 Scope of the Study

The study will take into account data and information pertinent to Ghana because that is its primary emphasis. It will analyze the environment for financial inclusion and tax collection inside Ghana's national boundaries.

1.7 Summary of the Methodology

The methodology of this study is grounded on a quantitative research approach, intending to evaluate the impact of financial inclusion on the generation of tax revenue in Ghana. This approach follows the theoretical framework defined by Kothari (2004), enabling an unbiased and systematic collection and analysis of numerical data.

The study implements a multiple regression model to explore the relationship between various financial inclusion indicators and tax revenue. The independent variables include the ratio of deposited funds in private banks to GDP, the ratio of Deposit Money Banks to GDP, liquid liabilities as a percentage of GDP, and central bank assets to GDP. The dependent variable is Income from Taxes. The regression model is designed to estimate the parameters, which will subsequently be used to interpret the influence of each financial inclusion indicator on tax income.

The data used in this study is sourced from secondary datasets from the Global Financial Development Database and World Development Indicators. This time-series data spans from 1992 to 2021, providing a decade worth of information for analysis. The data analysis is carried out using the STATA software.

1.8 Study Limitations

In the process of undertaking this study, several limitations and challenges became apparent. I would like to acknowledge these constraints as they provide context to my findings and offer direction for future research. o data availability and reliability, primarily relying on secondary data sources like the Global Financial Development Database and World Development Indicators, which may have impacted the depth of

analysis due to issues with data comprehensiveness and currency, as well as potential discrepancies in data reporting and collection methods. Also, the geographical focus on Ghana limits the applicability of the findings to other countries with different economic conditions and financial landscapes, although it was essential for understanding the unique Ghanaian context. Lastly, the use of multiple regression analysis assumed linear relationships between variables, potentially oversimplifying complex real-world relationships that could be non-linear or influenced by unobserved factors. These limitations provide important context for interpreting the study's findings and suggest directions for future research.

1.9 Organization of the Research Study

There are five chapters in this research project. The study's introduction, problem description, aims, research questions, significance, brief methodology, study scope, and limits were all covered in chapter one. The study's theoretical conceptual framework was presented in Chapter 2 after a survey of the pertinent literature. While Chapter Four was based on the analysis of the data collected, Chapter Three concentrated on how the entire research was conducted. In Chapter 5, the researcher offered some criticism, made suggestions to address the issues found, and came to some conclusions based on the study's findings.

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CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Undertaking a literature review is a crucial aspect of scholarly inquiry, as it provides a comprehensive overview of the existing body of knowledge in a specific area of research. This research is composed of two separate components: a theoretical analysis that focuses on the theories related to the extent of financial inclusion and tax revenue, and an empirical investigation that scrutinizes the field of study that has been observed and objectively verified by other scholars.

2.1 Conceptual Review

Financial inclusion has been a topic of considerable interest in academic literature, primarily because of its potential implications for economic development and poverty reduction. Financial inclusion, according to Sarma and Pais (2011), is a process that guarantees that all participants in an economy may easily access, use, and have access to the formal financial system. It is broadly understood that financial inclusion can improve the allocation of productive resources, reduce the risk of investment, facilitate the accumulation of capital, and promote economic growth (Beck, Demirgüç-Kunt, & Levine, 2007).

A significant aspect of financial inclusion is the expansion of financial services to the unbanked and underbanked population. According to Demirguc-Kunt et al. (2015), about 2 billion adults in the world remain unbanked, and an even larger number lack access to savings, credit, and insurance services. By fostering financial inclusion,

more individuals can participate in the economic activities of a nation, potentially contributing to the GDP and the tax revenue (Allen et al., 2016).

Tax revenue is a crucial element in the public finance management of a country. As Bird (2008) notes, it provides the government with the funds needed to invest in development, reduce poverty, deliver public services and carry out other important functions. Increasing the breadth and depth of financial inclusion has potential implications for tax revenue generation. As financial services reach more people, more financial transactions occur within the formal system, thus increasing the potential tax base (Slemrod, 2007). Specifically, in the context of Ghana, the drive towards financial inclusion has been evident in recent years. As Andoh et al. (2017) observed, financial inclusion in Ghana has the potential to improve savings mobilization, which can contribute to the generation of tax revenue. They also noted that financial inclusion can enhance the effectiveness of monetary policy and lead to financial stability.

A review of the literature suggests a positive relationship between financial inclusion and tax revenue. However, this relationship is complex and is likely influenced by a variety of factors, such as the level of economic development, the effectiveness of tax administration, and the specific policies implemented to promote financial inclusion. This research aims to shed more light on this relationship in the context of Ghana.

2.2 Overview of Ghana's Financial Sector

The financial sector in Ghana plays a crucial role in the economic development of the country by mobilizing savings and allocating resources to productive activities. As of 2023, the sector includes a broad range of institutions such as banks, microfinance

institutions, insurance companies, pension funds, savings and loans companies, and the capital market (Ackah & Asiamah, 2014). The banking industry remains the most significant player in Ghana's financial sector, with over thirty licensed banks. These include a mixture of state-owned, foreign-owned, and privately-owned Ghanaian banks (Gyamfi et al., 2015). The sector has seen substantial growth over the past decade, with an increased focus on digital banking and the implementation of mobile money services (Donovan, 2012).

The advent of mobile money services has revolutionized the financial landscape, contributing significantly to financial inclusion. According to the Bank of Ghana, the volume of mobile money transactions reached GHC 571 billion in 2022, reflecting the widespread acceptance of this form of payment, especially among the unbanked and underbanked populations (Bank of Ghana, 2023).Microfinance institutions and Savings and Loans companies have also proliferated in recent years, aimed at serving small and medium-sized enterprises (SMEs) and low-income households that are often underserved by traditional banks (Steel & Andah, 2003).The insurance industry, though less developed compared to the banking sector, is gradually gaining ground with an increase in the uptake of both life and non-life insurance products (Asante & Agyapong, 2011).

The pension industry, regulated by the National Pensions Regulatory Authority, has seen reforms aimed at ensuring adequate income security for the aging population (Osei-Boateng & Ampratwum, 2011). Finally, the capital market, though relatively small, provides an essential platform for long-term capital raising (Frimpong, 2010).

Despite these developments, the financial sector in Ghana still faces several challenges, such as high interest rates, limited access to credit, and poor financial

literacy (Quartey et al., 2017). It is within this context that this study examines the effect of financial inclusion on tax revenue in Ghana.

2.3 Theoretical Frameworks

2.3.1. Theory of Change:

According to the Theory of Change, people who can access, use, and afford a range of financial services will be better able to manage their financial resources, better able to withstand pressures and shocks, adapt to changing conditions, and lead better lives (Corps, 2016).

This idea outlines the objectives that should be accomplished via the practice of financial inclusion. The goal of realizing financial growth among those with lower levels of income has been a primary driver in the process of implementing financial inclusion as a vehicle for development. The provision of easy access to financial products would aid the Ghana Revenue Authority in easily collecting taxes, hence minimizing the likelihood of tax evasion. This income category is relatively minor but immensely important inside the nation.

Mader, (2018), in strategic planning, a philosophy of change is frequently applied to development programs. Organizations can create a theory of change, which describes the necessary actions and circumstances to bring about favorable changes in financial access and usage, when creating programs to promote financial inclusion. A theory of change aids in determining the crucial interventions required to meet the objectives of financial inclusion. This could entail raising awareness, building infrastructure, enacting new laws, or launching cutting-edge financial products designed to meet the requirements of marginalized communities. A framework for assessing the effectiveness of financial inclusion activities is provided by theory of change. It

supports the process of identifying indicators, tracking advancement, and determining if the program is heading toward the intended results. Initiatives for financial inclusion that are based on a well-considered theory of change have a higher chance of becoming long-lasting. This guarantees that the program's design takes into account the long-term elements that support sustainable financial inclusion and is informed by a comprehensive grasp of the context. Change theories are adaptable and can be used in a variety of situations Ozili, (2020). The distinct socio-economic and cultural circumstances of various locations may require financial inclusion measures to be modified; a theory of change offers a framework for doing so.

2.3.2 Hierarchy of Needs (Abraham Maslow)

A well-known and prominent psychological theory that describes the various levels of human wants and motivations is Maslow's hierarchy of needs. The idea, put forth by Abraham Maslow in 1943, contends that five layers of hierarchical classification can be used to classify human aspirations. This model is often depicted as a pyramid, with each level representing a different set of needs that individuals strive to fulfill.

The physiological needs, which include necessities for survival including food, water, shelter, and sleep, make up the first level of Maslow's hierarchy. Before people may advance to higher levels, these needs which are regarded as the most basic must be met. People progress to the next stage, which is the safety needs, once their physiological demands have been satisfied. The need for personal safety, stability, and defense against damage or danger falls under this category. It takes into account elements including a stable environment, financial stability, and physical safety. The need for a sense of community, friendship, and love and belonging is what constitutes

the third level of needs. This encompasses the requirement for adoration, kinship, familial ties, and civic engagement.

The need for self-esteem, confidence, and approval from others makes up the fourth level, or esteem needs. This involves both internal and external influences, such as respect and appreciation from others as well as feelings of self-worth and self-respect. The self-actualization needs, which stand for the highest level of personal development and fulfillment, are at the top of the hierarchy. Self-actualization entails making an effort to realize one's full potential, following personal objectives, and taking part in activities that give life meaning and purpose.

According to Maslow's theory, individuals must satisfy the needs at the lower levels before they can progress to the higher levels. In other words, if the basic physiological and safety needs are not met, individuals will be primarily focused on fulfilling those needs and may have limited capacity to pursue higher-level goals or desires.

This understanding is particularly relevant when considering individuals living on low incomes or facing challenging circumstances. If their basic physiological and safety needs are not adequately met, it becomes difficult for them to focus on other aspects of life, such as forming meaningful relationships, building self-esteem, or pursuing personal growth. Addressing these fundamental needs becomes a critical step in enabling individuals to progress toward higher levels of the hierarchy and fulfill their other requirements.

In conclusion, Maslow's hierarchy of needs provides a valuable framework for understanding human motivation and the importance of meeting fundamental needs before progressing to higher-level aspirations. By recognizing the significance of

basic physiological and safety needs, individuals, organizations, and policymakers can work towards creating conditions that enable individuals to advance towards self-actualization and the fulfillment of their highest aspirations.

Ali, Devi, Furqani, & Hamzah, (2020), by providing access to financial services, financial inclusion addresses several levels of human needs and is associated with Maslow's Hierarchy of Needs. Financial inclusion helps people on their path to satisfying these needs and obtaining a better quality of life, from providing for fundamental physiological necessities to encouraging self-actualization. It's crucial to remember that, even though it can have a big impact, financial inclusion is just one of many elements that affect people's growth and general well-being.

2.3.3 Finance-Growth Theories

The following are the demands for and defenses of finance-led inclusive development, social equality, and justice: It is argued that actions to promote financial inclusion may reduce inequality, boost levels of inclusion, and facilitate the effective distribution of social security payments to the most disadvantaged members of society. Since financial exclusion contributes to social exclusion, the government of Ghana's fundamental goal and guiding principle is to manage a country's economy "to secure the maximum welfare, freedom, and happiness of every citizen on the basis of social justice and equality of status and opportunity" (World Bank, 2015).

In their attempt to create the Human Development Index, Sarma and Pais (2011) discover that an economy's financial inclusion system strongly corresponds with the advancement of human development. In order to assess the growth potential of boosting financial inclusion, Hariharan and Marktanner (2012) use a straightforward Solow growth model. They discover that a 10% increase in financial inclusion may

help to raise the average worker's income by 1.34 percent. Empirical studies by Andrianaivo and Kpodar (2011), Kim et al. (2018), and Ali et al. (2019) determine that financial inclusion and economic growth are mutually causative.

2.3.4 Tax Revenue theories

2.3.5 Optimal Tax Theory (Theory of optimal taxation)

The theory of optimum taxation focuses on the study of designing and implementing tax systems that reduce market inefficiencies within specific constraints Auerbach, & Hines (2002). The goal is to create a tax system that minimizes distortion and inefficiency in economic activities. Spiritus, (2018), one key principle is the concept of tax neutrality, which aims to eliminate any biases or distortions caused by taxes. When faced with two projects that have equal tax risks and rewards, taxpayers should base their decision on the project with lower risk. This risk-based approach suggests that taxes should be designed to minimize the negative impact on investment decisions and incentivize economic activities that contribute to growth and development.

Fleurbaey, & Maniquet, (2018), the theory of optimum taxation proposes that taxes should be levied based on an individual's income and characteristics. This implies that individuals with higher incomes should contribute more to the tax system, reflecting their ability to pay. Additionally, final goods and services should be subject to taxation, but in a uniform manner to avoid further distortions.

The central objective of optimum taxation is to maximize social welfare within a set of constraints Itskhoki, & Moll, (2019). This involves finding an optimal balance between tax revenue generation and the fair distribution of income. By carefully

designing tax policies, policymakers aim to promote economic efficiency, reduce income inequality, and improve overall social welfare. To understand how taxes affect investment decisions, it is necessary to simulate investment choices in a tax-free world and then analyze the impact of taxes on those decisions. This allows policymakers to identify the effects of taxes on economic efficiency and make informed decisions regarding tax design. The concept of optimality in taxation is crucial as it helps identify the sources of inefficiency in tax administration and collection. By striving for an optimal tax system, policymakers can address these inefficiencies and improve the effectiveness of tax policies Zheng, et al. (2020). This can lead to better resource allocation, increased economic productivity, and a fairer distribution of the tax burden.

In conclusion, the theory of optimum taxation provides a framework for designing tax systems that minimize market inefficiencies and promote economic welfare. By considering factors such as tax neutrality, risk-based decision-making, income-based taxation, and maximizing social welfare, policymakers can create tax policies that support economic growth, reduce inequality, and enhance overall societal well-being. The concept of optimality guides the analysis of tax inefficiencies and serves as a guiding principle in designing effective tax systems.

2.3.6 Ability-To-Pay Taxation Theory

The ability-to-pay tax theory contends that taxes should be calculated based on a taxpayer's ability to pay Chauke, Sebola, & Mathebula, (2017). It advocates progressive taxation. The progressive taxation is based on the ability-to-pay tax premise. This approach discourages raising the tax burden on people and enterprises. According to this strategy, high-income enterprises and people should pay more tax

relative to their income level than investors and persons with low incomes Dodge, (2004). Every state must impose the ability-to-pay tax theory on its citizens because it has to raise money to run its government. Since it is essential to generating money in a nation where there are individuals of various economic levels, this notion is primarily required to be imposed on citizens.

This does promote consistency throughout the many social classes within a nation, making the citizens at ease and motivated to pay taxes in accordance with their degree of income. Because wealthy individuals may combine their resources and pay to the government, improving the efficiency of services like public utilities, roads, and schools, this idea generates significant money for the government. Without this hypothesis, the government would be obliged to establish a lower rate to accommodate everyone, creating a flat rate Puckett, (2017). This idea is significant because it determines the degree of capacity to pay taxes and increases the tax burden on high-income people, partnerships, businesses, trusts, and certain estates. However, some people argue that the strategy is unfair and unjust since it seeks to demoralize individuals who put forth significant effort.

2.3.7 Gordon-Li Theory

Based on the 1990s Chinese experience, Gordon and Wei Li created a theory of tax enforcement that highlighted the difficulties the government had when trying to collect taxes from small and medium-sized firms Gordon, & Li, (2007). During that time, the majority of tax revenue was generated by larger enterprises, while smaller businesses posed difficulties in tax collection. The model put forth by Gordon and Li aimed to explain the reasons behind the government's struggle to collect taxes from small and medium-sized businesses. One significant factor they identified was the

prevalence of cash transactions in these businesses, which increased the possibility of tax avoidance and reduced the tax base. As a result, the government faced challenges in effectively enforcing tax compliance among these businesses Akinboade, (2015).

According to Gordon and Li, businesses that had access to the financial industry were more likely to have their taxes properly handled. However, their theory also highlighted the fact that larger enterprises would value the use of the financial sector more due to the anticipated benefits it provided, potentially giving them an advantage in tax compliance.

Gordon, & Li, (2007), the Gordon-Li theory is of significant importance to this study as it helps in understanding the variables that influence the amount of tax revenue collected. By examining the factors that impact tax compliance and revenue generation, policymakers and tax authorities can devise strategies to improve tax enforcement and broaden the tax base, particularly among small and medium-sized businesses. This theory provides valuable insights into the dynamics of tax collection and aids in the development of effective tax policies and enforcement mechanisms.

2.3.8 Benefit Theory

According to the theories of taxation, the state has the authority to levy taxes on individuals based on the benefits they receive from public goods and services Stewart, (2015). In this perspective, the amount of money individuals pay to the government is proportionate to the advantages they derive from the state. The benefit principle of taxation posits that taxes used to finance the provision of public goods are determined by a political declaration of willingness to pay for the benefits obtained. This approach draws parallels to how prices function in distributing private commodities.

The underlying goal is to accurately assess the amount of revenue needed to fund public goods. As financial inclusion expands, more people have the capacity to pay taxes, and therefore, a larger population can benefit from the proceeds generated through taxation Allen, Demirgüç-Kunt, Klapper, & Martinez Peria, (2012).

Frank, (2000), critics of the benefit principle argue that it places an undue burden on individuals with lower income levels, as they are required to pay a higher proportion of their income in taxes. This challenges the notion that individuals should contribute based on their capacity to pay. However, proponents of the benefit principle contend that the principle is not intended to impose hardship on individuals with lower incomes, but rather to ensure that those who benefit more from public goods contribute in proportion to their gains. This article aims to provide an explanation for the benefit principle's assertion that individuals are not unduly burdened by paying higher taxes. By examining the concept of benefits derived from public goods and considering different income levels, it will shed light on the fairness and effectiveness of the benefit principle as a basis for taxation. Understanding the rationale behind the benefit principle contributes to ongoing discussions and debates surrounding tax policy and its impact on individuals and society as a whole.

2.3.9 The Cost-of-Service Theory

The Cost-of-Service Theory is a concept in taxation that suggests the government should levy taxes on individuals in proportion to the price of the services it provides Ojong, Anthony, & Arikpo, (2016). According to this theory, the cost of government services should be shared among all individuals, and each person should pay taxes that are proportional to the benefits they receive. Kuula, Haapasalo, & Tolonen, (2018), the underlying principle of the Cost-of-Service Theory is rooted in the idea

that individuals should bear the costs of the services they directly or indirectly utilize. It posits that those who benefit more from government services should contribute a larger share of the cost through taxation. In other words, individuals should pay taxes in proportion to the value they derive from the services provided by the government.

Da Cruz, Berg, & Marques, (2013), this theory is often employed in the context of public utilities or infrastructure projects. For example, individuals who use public transportation systems or municipal services such as water and electricity are expected to pay taxes or fees that cover the cost of providing these services. The idea is to allocate the financial burden of government services based on the extent to which individuals avail themselves of those services.

By applying the Cost-of-Service Theory, governments aim to ensure fairness and equity in the distribution of tax burdens. Those who benefit more from public services are required to contribute a larger proportion of their income or resources to support the costs incurred by the government.

However, implementing the Cost-of-Service Theory can pose challenges in practice. It requires accurate assessment and quantification of the benefits received by individuals, which may not always be straightforward. Additionally, determining the exact cost of each service and assigning a corresponding tax burden can be complex and subject to debate. Nonetheless, the Cost-of-Service Theory provides a framework for designing tax systems that aim to align the financial contributions of individuals with the benefits they receive from government services. By ensuring a more equitable distribution of tax burdens, this theory promotes the idea of shared responsibility and accountability in financing public goods and services.

2.4 Empirical Review

Numerous empirical studies have investigated the link between financial inclusion and income from taxes, giving light on the particular characteristics that impact the collection of tax revenue in Ghana. These studies have been conducted by various academic researchers. This section presents an overview of a selection of research and the conclusions obtained from those investigations.

Study 1: Adu-Gyamfi, A., & Marbuah, G. (2018)

Adu-Gyamfi and Marbuah explored the impact that financial inclusion has on the amount of tax income collected in Ghana as part of their research. They used the dynamic fixed effects model to the panel data that covered the years 2000 to 2014 and covered the period from 2000 to 2014. In the study, it was discovered that there is a statistically significant and positive association between financial inclusion and tax revenue. A measure of financial inclusion was the private sector credit to GDP ratio. The results show that increased credit availability is advantageous for both tax compliance and revenue generation.

Study 2: Boakye, I., Osei-Assibey, E., & Nketiah-Amponsah, E. (2017)

Boakye et al. investigated the effect that mobile money has on the amount of tax income collected in Ghana. They used the fixed effects model, and they got their data from the Bank of Ghana and the Ghana Revenue Authority. According to the findings of the research, there is a considerable and favorable connection between the use of mobile money and tax collection. The authors stated that mobile money, as a kind of financially inclusive technology, helped the monitoring and collection of taxes, which in turn led to an increase in overall income.

Study 3: Amankwah-Amoah, J., Narteh, B., & Debrah, Y. A. (2019)

Utilizing data from the World Bank's Global Financial Inclusion database and the International Monetary Fund's Government Finance Statistics database, Amankwah-Amoah et al. investigated how financial inclusion influences the amount of tax income that is collected in Ghana. The researchers found that a favorable association existed between financial inclusion and tax revenue mobilization. Financial inclusion was evaluated based on account ownership and use. The importance of the function of financial inclusion in increasing tax compliance and the formalization of economic activity was highlighted in the research.

Study 4: Mensah, B. K., Mubarik, Y., & Gyekye, M. A. (2020)

A research on the impact of mobile money on Ghana's overall tax income was carried out by Mensah and colleagues. The autoregressive distributed lag (ARDL) model was used in the research, and the quarterly data collected from 2012 to 2018 was used. According to the data, there is a beneficial and statistically significant connection between the use of mobile money and the amount of tax collection. The authors stated that mobile money made digital transactions easier and enhanced tax monitoring, both of which led to an increase in overall revenue production.

Study 5: Ofori-Abebrese, G., Andoh, F. K., & Agyei-Mensah, B. K. (2017)

A research was carried out by Ofori-Abebrese and colleagues to explore the impact that financial inclusion has on the amount of tax income collected in Ghana. They used the fixed effects regression model to panel data that covered the years 2000 to 2014 and covered the whole period. According to the findings of the research, there is a correlation that can be considered both positive and substantial between the ratio of bank branches to the total population and total tax income. The authors arrived at the

conclusion that an increase in people's access to formal banking services has a beneficial affect on tax compliance as well as revenue collection.

Study 6: Gockel, F., & Kranzusch, P. (2020)

Using data from a panel of countries from all around the world, including Ghana, Gockel and Kranzusch investigated the connection between financial inclusion and tax income. They used dynamic panel estimates and conducted research on data collected from 120 different nations throughout the span of time from 2004 to 2014. Findings from the study show a connection between tax income and financial inclusion, with financial inclusion measured as the percentage of the population with access to financial services. According to the results, financial inclusion likely helped contribute to the formalization of economic activity and improved tax compliance, which ultimately led to an increase in revenue production.

Study 7: Fiador, V. O., Fiador, F. O., & Owusu, V. M. (2019)

Fiador et al. conducted research to determine how financial inclusion affects the amount of money collected in taxes in Ghana. They used the instrumental variable regression approach, using the data that was obtained from the Global Findex database that was maintained by the World Bank. According to the findings of the research, there is a meaningful connection between financial inclusion and tax revenue, with financial inclusion being assessed by account ownership and use. The authors stated that enhanced financial inclusion boosted revenue collection, decreased the amount of people who avoided paying taxes, and promoted transparency.

Study 8: Mensah, A., Adom, P. K., & Tutu, K. A. (2020)

Mensah et al. investigated the correlation between financial inclusion and tax income in Ghana using yearly data from 1991 to 2016. The study included the years 1991

through 2016. In order to get an accurate picture of the long-term connection, they used a technique known as the dynamic ordinary least squares approach (DOLS). The correlation between financial inclusion and tax revenue, as assessed by the ratio of domestic credit to the private sector to GDP, was determined to be both positive and significant by the researchers who conducted the study. According to the findings, a favorable relationship existed between financial inclusion and tax compliance as well as revenue creation.

2.5 Conceptual Framework

The main concepts that make up the conceptual framework for this study on "The Effect of Financial Inclusion on Income from Taxes in Ghana" are income from taxes, financial inclusion, and the various measures of financial inclusion, such as the ratio of deposited funds in private banks to the Gross Domestic Product (GDP). Deposit money banks as a proportion of GDP, liquid liabilities as a percentage of GDP, and central bank assets as a percentage of GDP.

Financial inclusion pertains to the extent to which individuals and enterprises can avail themselves of cost-effective and beneficial financial products and services that cater to their requirements. It is imperative that these services are delivered in a manner that is both responsible and sustainable. The facilitation of access to financial services is a crucial factor in mitigating poverty and promoting economic well-being.

Income from Taxes pertains to the financial gains acquired by governments through the process of taxation. Taxation is the principal revenue stream for a government, which is utilized to finance public services, discharge governmental liabilities, and

furnish commodities to the populace. The study focuses on the central variable of interest, which is the generation of tax revenue in Ghana.

The ratio of domestic private credit provided by deposit money banks to gross domestic product, which includes all credit to various sectors on a gross basis, is known as the private credit by deposit money banks to GDP ratio. The aforementioned ratio serves as an indicator of the extent of financial deepening within an economy and reflects the level of credit allocation to the private sector by banking institutions.

The ratio of Deposit Money Banks to Gross Domestic Product (GDP) in % signifies the proportion of the total assets held by deposit money banks in relation to the Gross Domestic Product. This represents an additional metric for assessing the comparative magnitude of the financial industry within a given nation.

The percentage of liquid liabilities to GDP is a metric used to quantify the magnitude of the financial industry. Liquid liabilities, which are also referred to as M3, are included in this calculation. The term encompasses various forms of highly liquid assets, including currency in circulation, demand and time deposits held within the banking sector, and other comparable financial instruments.

The Central Bank Assets to GDP ratio denotes the proportion of the gross domestic product that is accounted for by the aggregate value of assets held by the central bank. This statement offers valuable perspectives on the function of the central bank within the broader economic context.

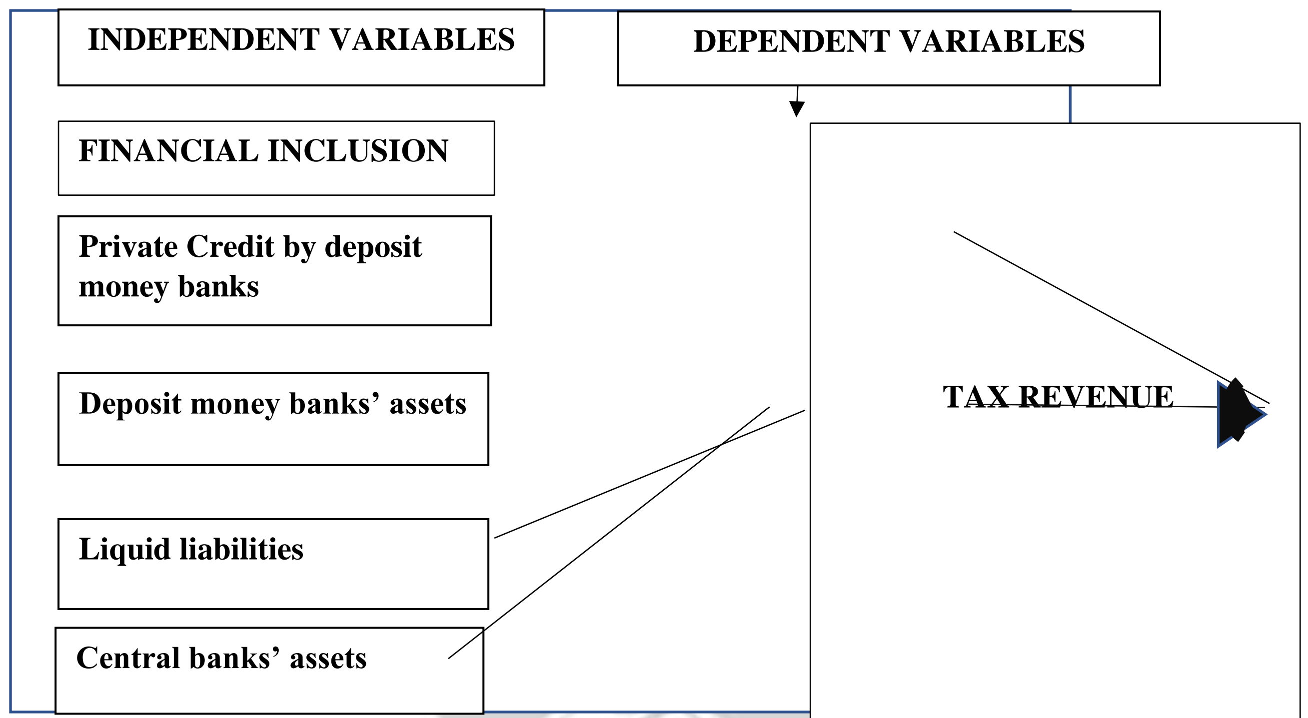


Figure 2.1 Conceptual Framework

The conceptual framework posits that these four indicators of financial inclusion have an impact on Income from Taxes in Ghana. This could be due to increased economic activity from increased financial inclusion, better tracking of taxable transactions, or other factors. The study aims to empirically test these relationships.

The conceptual framework would therefore involve analyzing each of the four aspects of financial inclusion individually and their collective impact on Income from Taxes. This analysis could be accomplished through statistical methods such as regression analysis to determine the strength and significance of these relationships.

2.6 Summary of Chapter

Chapter Two delves into the role of financial inclusion in economic development and poverty reduction, emphasizing its potential to increase GDP and tax revenue by reaching the unbanked population. It also highlights the importance of tax revenue in public finance management and how broadening financial inclusion can enhance tax revenue generation. The chapter then focuses on Ghana, discussing its drive towards financial inclusion and its potential to improve savings mobilization, thereby contributing to tax revenue generation. Despite the positive relationship between financial inclusion and tax revenue, the chapter acknowledges the complexity of this relationship, influenced by factors such as economic development level, tax administration effectiveness, and specific financial inclusion promotion policies.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The research approach used to look at how financial inclusion affects tax revenue collection in Ghana is presented in Chapter 3 of this report. The chapter is divided into a number of sections, each of which describes a different step in the research process.

The study's numerous phases, including the research design, data collecting, and data analysis, are described in the chapter's opening paragraph. The research design is then covered in detail, including how a regression model was used to assess several financial factors using a quantitative research approach.

The data collection section describes the sources of the secondary data used in the study, primarily from the Global Financial Development Database and World Development Indicators. The data analysis section details the use of a regression model and the STATA software for determining the influence of each independent variable on the dependent variable.

The chapter also presents the research model, a multiple regression model, to understand the correlation between a singular dependent variable (Income from Taxes) and numerous independent variables (financial inclusion indicators). The model's equation is provided, along with a detailed explanation of each component.

3.2 Research Design

According to Kothari (2004), research design refers to a theoretical framework that outlines a strategy for the acquisition, quantification, and interpretation of data. The

present research endeavors to utilize a quantitative research methodology to evaluate the impact of financial inclusion on the generation of tax revenue in Ghana.

According to Creswell (2013), a quantitative study is a meticulous, unbiased, and methodical approach to collecting numerical data. This involves implementing measures to control for extraneous variables and utilizing statistical analysis to eliminate any potential sources of bias.

This study tries to ascertain how tax revenue is affected by the extent of financial inclusion. The study will use a regression model to analyze a number of variables, including domestic credit to the private sector as a percentage of GDP, private credit provided by deposit money banks and other financial institutions as a percentage of GDP, financial system deposits as a percentage of GDP, central bank assets as a percentage of GDP, liquid liabilities as a percentage of GDP, the ratio of deposit money banks to the gross domestic product (GDP) in percentage, and the ratio of deposited funds in private banks to the gross domestic product (GDP. The analysis of these variables will facilitate the establishment of a relationship between them, and the study will draw conclusions based on the findings. The study will primarily rely on secondary data as its main source of information. The selection of methods is contingent upon the theoretical framework underpinning the research and the nature of the data obtained, which is quantitative in nature, in order to substantiate the inferences drawn from an examination of the variables. The present research study utilizes time series data, which involves the utilization of datasets that are arranged in a sequential manner according to specific time periods or intervals, spanning from 1992 to 2021.

3.3 Data Collection

The data was collected from a secondary source as numerical data for the analysis of the elements in the research. These datasets were collected from the Global Financial Development Database and World Development Indicators.

3.4 Data Analysis

The study used a regression model to determine the relative importance of each independent variable in influencing the dependent variable. The regression output was determined by using SPSS.

3.5 Research Model

The methodology employed in this study involves a use of a multiple regression model for the purpose of analysis. The use of multiple regression as a statistical methodology simplifies the understanding of the correlation between a singular dependent variable and numerous independent variables. The present study emphasizes on Income from Taxes as the dependent variable, while the four financial inclusion indicators, namely the ratio of deposited funds in private banks to the Gross Domestic Product (GDP), the ratio of Deposit Money Banks to Gross Domestic Product (GDP) in %, liquid liabilities as a percentage of GDP, and central bank assets to GDP (%), are considered as independent variables.

The multiple regression model can be represented as:

$$Tax_Revenue = \alpha + \beta 1(Private_Credit) + \beta 2(\text{Bank_Assets}) + \beta 3^*(\text{Liquid_Liabilities}) + \beta 4^*(\text{Central_Bank_Assets}) + \varepsilon^{**}$$

Where:

- Tax_Revenue: This is the dependent variable, representing the Income from Taxes in Ghana.
- α: This is the intercept of the regression line, which represents the expected mean value of Tax_Revenue when all independent variables are 0.
- $\beta1$, $\beta2$, $\beta3$, $\beta4$: These are the coefficients for the equation's independent variables. Assuming all other variables remain constant, they indicate the change in the dependent variable resulting from a one-unit change in the associated independent variable.
- Private_Credit, Bank_Assets, Liquid_Liabilities, Central_Bank_Assets: These are the independent variables representing the four financial inclusion indicators.
- ε: This represents the error term, capturing the variation in the dependent variable not explained by the independent variables.

The analysis will involve estimating the parameters of this model (α, $\beta1$, $\beta2$, $\beta3$, $\beta4$) using a suitable econometric software. These estimated parameters will then be used to interpret the effect of each financial inclusion indicator on Income from Taxes.

The coefficient of each independent variable provides information about the direction (positive or negative) and intensity of the link between that specific independent variable and the dependent variable when interpreting the results. While a negative coefficient denotes an inverse link, a positive coefficient indicates that when the independent variable increases, the dependent variable also increases.

The statistical significance of each coefficient will also be evaluated using p-values or confidence intervals to determine whether the relationships observed in the data are due to chance or represent meaningful relationships.

Finally, several assumptions of multiple regression (e.g., linearity, independence, homoscedasticity, normality of errors) should be checked and any violations addressed to ensure valid and reliable results.

3.6 Model Diagnostics and Assumptions Verification

In this study, the researcher used a multiple regression model to analyze the data. To ensure the validity and reliability of the model, the researcher conducted a series of diagnostic tests to verify that the assumptions of the model were met. These assumptions are fundamental to the integrity of the model and the accuracy of its predictions.

The assumptions that were tested include:

1. Linearity: The dependent variable and the independent variables were tested for linearity by the researcher. Visual inspection of scatter plots comparing the dependent variable to each independent variable was used to make this determination.
2. Independence: The researcher tested for independence of residuals using the Durbin-Watson test. This test examines the residuals from a statistical regression analysis for autocorrelation. There is no autocorrelation when the Durbin-Watson statistic's value is near 2, which varies from 0 to 4.
3. Homoscedasticity: Homoscedasticity, which denotes that the variance of the errors is constant across all levels of the independent variables, was tested by the researcher. Visual inspection of a plot of the residuals vs the expected values was used to accomplish this.

4. Normality: The researcher checked for normality of the residuals by creating a histogram of the residuals and a Q-Q plot. The residuals should follow a normal distribution, which is indicated by a bell-shaped histogram and a Q-Q plot where the points closely follow the line.
5. Absence of Multicollinearity: Multicollinearity, which happens when two or more independent variables have a strong correlation with one another, was investigated. For each independent variable, the Variance Inflation Factor (VIF) was calculated. When the VIF number is larger than 1, it means there is some association, whereas a value of 1 implies there is none. A VIF value of 5 or 10 and above indicates high multicollinearity.

In cases where any of these assumptions were violated, the researcher took appropriate steps to address the issue. This could include transforming variables, removing outliers, or using a different statistical model. By conducting these diagnostic tests, the researcher ensured the robustness and reliability of the multiple regression model used in this study.

3.7 Variables Description and Measurement

In this study, the researcher used a multiple regression model to analyze the relationship between tax revenue and various financial inclusion indicators. The variables used in the model are described below:

3.7.1 Dependent Variable:

Tax Revenue as % of GDP: This is the dependent variable in the model. It represents the total tax revenue collected by the government as a percentage of the country's

Gross Domestic Product (GDP). It is a measure of the government's tax collection efficiency and the tax burden on the economy.

3.7.2 Independent Variables

The ratio of deposited funds in private banks to the Gross Domestic Product (GDP): The amount of GDP deposited in private banks is shown by this indicator. It serves as a stand-in for the extent of financial inclusion in the established banking industry.

The ratio of Deposit Money Banks to Gross Domestic Product (GDP) in %: The banking sector's size and impact on the economy as a whole are gauged by this indicator. A higher ratio indicates a larger banking industry, which could lead to financial inclusion and increased access to financial services.

Liquid liabilities as a percentage of GDP: This variable measures the total liquidity of the financial system, including the availability of demand deposits and currency. It indicates the efficiency of the payment system and the level of financial intermediation in the economy.

Central bank assets to GDP (%): This variable represents the size and influence of the central bank relative to the overall economy. Central bank assets, which include foreign reserves and government securities, significantly influence financial stability and the implementation of monetary policy

3.7.3 Justifications for Using These Variables Collectively

According to Chatziantoniou, Duffy, and Filis (2013), the study can offer a comprehensive knowledge of the interdependence of several elements of the economy

by including factors pertaining to banking, monetary policy, credit markets, and fiscal policy. It is possible to evaluate how well fiscal and monetary policies affect economic results by looking at these variables. It can shed light on how financial policies affect stability and economic growth. These factors working together allow for a thorough risk evaluation. For instance, excessive private credit levels in the absence of suitable economic growth could be risky; however, these risks could be reduced by being aware of the function of central bank assets and total financial liquidity. The thorough study's results can provide guidance on how to improve economic stability, financial inclusion, and income production for government agencies, central banks, and financial institutions.

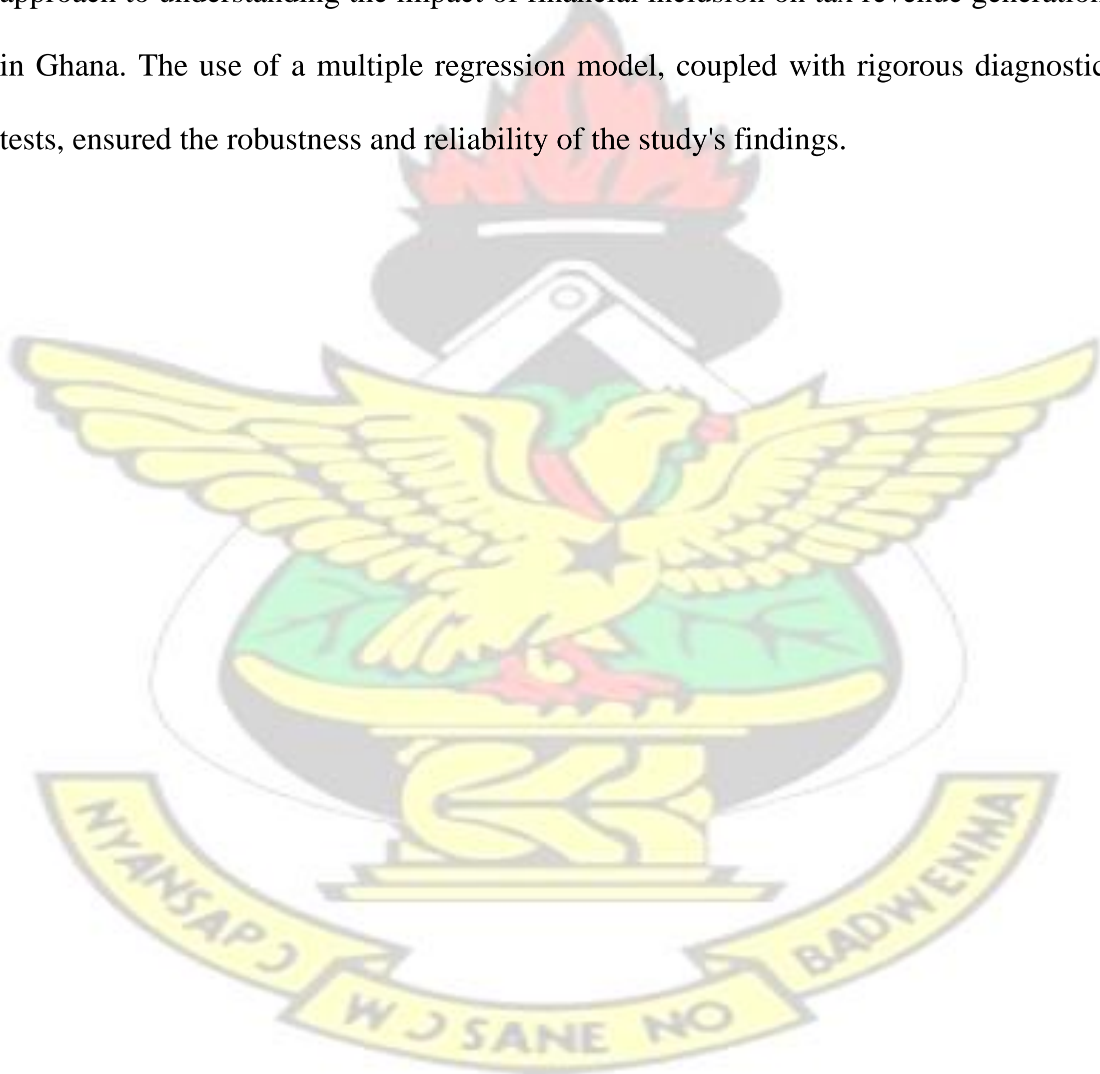
3.8 Summary of Chapter

The research approach used to look at how financial inclusion affects Ghana's ability to generate tax income was described in this chapter. The study used a multiple regression model and a quantitative research design to examine the correlation between tax revenue and several financial inclusion measures. The research design provided a robust framework for data acquisition, quantification, and interpretation. The quantitative approach allowed for an unbiased collection of numerical data, with measures implemented to control for extraneous variables.

The study focused on several financial inclusion indicators, including the ratio of deposited funds in private banks to GDP, the ratio of Deposit Money Banks to GDP, liquid liabilities as a percentage of GDP, and central bank assets to GDP. These variables were analyzed using a regression model to establish their relationship with tax revenue. The data, collected from the Global Financial Development Database and World Development Indicators, spanned a decade from 1992 to 2021. The analysis

was conducted using SPSS, assessed each independent variable's weight in relation to the others when it came to affecting tax income. The researcher carried out a series of diagnostic tests to verify the assumptions of the regression model, ensuring the validity and reliability of the findings. These tests checked for linearity, independence, homoscedasticity, normality of errors, and absence of multicollinearity.

In conclusion, the research methodology provided a comprehensive and systematic approach to understanding the impact of financial inclusion on tax revenue generation in Ghana. The use of a multiple regression model, coupled with rigorous diagnostic tests, ensured the robustness and reliability of the study's findings.



CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents, analyzes, presents, and discusses the research findings based on the information gathered for the study in accordance with the study's objectives. In order to examine the study's objectives, a descriptive analysis was carried out utilizing statistical tools like mean and standard deviation and an inferential statistic like Pearson's correlation coefficient. SPSS was used to quantitatively evaluate all data, and tables were used to present the data.

4.2 Descriptive Statistics on Study Variables

To evaluate the first objective of the study, a descriptive statistics was computed to determine the level of theses variables (Deposit money banks" assets to GDP (%), Liquid liabilities to GDP (%), Central bank assets to GDP (%), Private credit by deposit money banks and other financial institutions to GDP (%) and Tax revenue (% of GDP) of Ghana). A summary of the analysis of the data gathered on the capital adequacy ratio and asset quality ratio is presented in this section of the chapter. Arithmetic mean, standard deviation, skewness, and kurtosis were employed to examine the data in order to meet this study's goal. The thirty-two years of study data (1990-2021) were utilized to obtain the mean values. The mean values were generated from the data collected for the study.

Table 4.1: Descriptive Statistics for the Study Variables

	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Deposit money banks" assets to GDP (%)	5.13	29.58	21.1360	8.58396	-1.042	.414	-.562	.809
Liquid liabilities to GDP (%)	14.14	33.36	26.5991	5.12846	-.701	.414	-.179	.809
Central bank assets to GDP (%)	6.09	89.67	19.2132	21.46103	2.347	.414	4.494	.809
Private credit by deposit money banks and other financial institutions to GDP (%)	3.66	17.62	11.7895	4.35257	-.526	.414	-.939	.809
Tax revenue (% of GDP)	10.67	21.75	13.8803	3.18959	1.331	.472	.992	.918

Source: Author’s Construct, 2023

From the descriptive analysis in Table 4.1 a mean value of 21.1360 was generated for the study variable “Deposit money banks" assets to GDP (%)” which implies that high mean value was generated for this study variable which indicated that deposit money banks’ assets to GDP (%) is high. Likewise a mean value of 26.5991 was generated for the variable “Liquid liabilities to GDP (%)” which indicating high mean value based on the minimum and maximum values ass indicated in Table 4.1, liquid liabilities to Gross Domestic Product was high which mean there was highly liquid assets such as including currency in circulation, demand and time deposits held within the banking sector, and other comparable financial instrument. Also, the variable “Central bank assets to GDP (%)” had a mean value of 19.2132 which denotes that the proportion of the gross domestic product that is accounted by the aggregate value of assets held by the central bank were low.

A mean value of 11.7895 was generated for “Private credit by deposit money banks and other financial institutions to GDP (%)”, the mean value was high based on the findings indicated in Table 4.1. The aforementioned ratio represents the amount of credit given to the private sector by banking institutions and gauges how deeply an economy is indebted. Based on the high mean value generated for the variable indicated that high rate of credit allocation are given to private sectors by banking institutions. The variable Tax revenue (% of GDP) had a mean value of 13.8803, based on the minimum and maximum values stated in the table it indicates that tax revenue ration was high.

According to Frank (2000), those who oppose the benefit principle contend that it unfairly burdens those with lower incomes by requiring them to pay a larger share of their income in taxes. This calls into question the idea that people should give according to their financial ability. Supporters of the benefit principle, however, assert

that the goal of the principle is to guarantee that those who receive more from public goods contribute proportionately to their advantages rather than to place hardship on those with lesser incomes. The purpose of this article is to explain the benefit principle, which holds that people are not disproportionately burdened by paying greater taxes. Kuula, Haapasalo, and Tolonen (2018), the fundamental tenet of the cost-of-service theory is that users should be responsible for paying for the services they either directly or indirectly use. It makes the argument that people who get more from government services ought to pay a higher proportion of the expenses through taxes. Stated differently, people ought to pay taxes commensurate with the benefits they receive from government services.

4.3 Regression Analysis

The researcher used multiple regression analysis to explore the relationship between the independent factors and the dependent variable, which is the proportion of GDP represented by tax revenue, in order to facilitate the statistical study. To determine the statistical significance of the independent variables' impact on Income from Taxes, a hypothesis test was conducted with a confidence level of 95% (or a significance level of 5%). The residuals, which indicate the differences between the observed and predicted values of the dependent variable, must not be correlated with one another and must be devoid of any systematic patterns or trends in order to satisfy the independence principle in regression analysis. This suggests that a single observation's residual value is distinct from all other observations' residual values. The regression analysis was done to examine the research objectives of the study.

To accomplish these goals, Pearson's correlation coefficient was used in inferential statistics to establish the relationship and effect of the independent variables on the dependent variable (on Income from Taxes), specifically the ratio of Deposit Money

Banks, Liquid Liabilities as a Percentage, and Central Bank Assets. Result of the analysis was presented in Table 4.2 below.

Table 4.2 Correlations

		Tax Revenue (% of GDP)
Pearson Correlation	Tax Revenue (% of GDP)	1.000
	Deposit money banks" assets to GDP (%)	.259
	Liquid liabilities to GDP (%)	.305
	Central bank assets to GDP (%)	.285
	Private credit by deposit money banks and other financial institutions to GDP (%)	.085
Sig. (1-tailed)	Tax Revenue (% of GDP)	.
	Deposit money banks" assets to GDP (%)	.111
	Liquid liabilities to GDP (%)	.074
	Central bank assets to GDP (%)	.089
	Private credit by deposit money banks and other financial institutions to GDP (%)	.346

Source: Field Survey 2023

The results generated a correlation of **0.259**, this implies that Deposit money banks" assets to GDP (%) had positive effect on Tax Revenue (% of GDP). Thus, Deposit money banks" assets to GDP (%) affects the level of Tax Revenue at 25.9%, as Deposit money banks" assets to GDP (%) is improved then it is likely that Tax Revenue of the country might increases as well and vice versa.

Base on the findings a correlation of **0.305**, for Liquid liabilities to GDP (%) which implies that Liquid liabilities to GDP (%) had positive effect on Tax Revenue (% of GDP). Thus, Liquid liabilities to GDP (%) affects the level of Tax Revenue at 30.5%, as Liquid liabilities to GDP (%) is well managed then it is likely that Tax Revenue of the country might increases and vice versa. For determining an entity's immediate financial obligations and liquidity situation, liquid liabilities are crucial. In view of this banks have to make sure they have enough current assets (such cash, accounts receivable, and inventory) to cover their short-term financial obligations, businesses

need to manage these liabilities properly. Failure to do so may result in money issues, such as cash flow issues and possible insolvency. Therefore, it is essential for financial stability and the overall financial health of a company to maintain a good balance between liquid obligations and liquid assets.

Also, a correlation of **0.285** was generated for Central bank assets to GDP (%) which indicates that Central bank assets to GDP (%) had positive effect on Tax Revenue (% of GDP). Hence, Central bank assets to GDP (%) affects the level of Tax Revenue at 28.5%, as Central bank assets to GDP (%) is well managed then it is likely that Tax Revenue of the country might increases and vice versa. It's crucial to remember that based on a country's unique circumstances, these indicators might be interpreted in different ways. Large central bank assets may be the outcome of a number of variables, such as trade surpluses, but large tax receipts may point to a high tax burden on individuals and enterprises. As a result, it's crucial to take these indicators into account in relation to the overall economic status and policies of a country.

Lastly, Private credit by deposit money banks and other financial institutions to GDP (%) had a correlation value of **0.085** which indicates that Private credit by deposit money banks and other financial institutions to GDP (%) had weak positive effect on Tax Revenue (% of GDP). Hence, Private credit by deposit money banks and other financial institutions to GDP (%) affects the level of Tax Revenue at 8.5%, as Private credit by deposit money banks and other financial institutions to GDP (%) is well managed then it is likely that Tax Revenue of the country might increases and vice versa. Tax revenue and private credit provided by deposit money banks and other financial institutions sometimes have complex and multifaceted relationships. Although there is no direct cause-and-effect relationship between these two variables, there are a variety of factors that can assist to explain why a rise in private credit may

have a positive impact on tax income, such as economic growth, increased consumer spending, and tax compliance.

Using annual data from 1991 to 2016, Mensah et al. (2020) looked into the relationship between financial inclusion and tax revenue in Ghana. The investigation covered the decades 1991 to 2016. They applied a method known as the dynamic ordinary least squares approach (DOLS) to provide a precise picture of the long-term link. The domestic credit to the private sector to GDP ratio was used by the researchers to examine the relationship between tax revenue and financial inclusion, and they discovered a favorable and significant correlation between the two. The findings revealed a favorable relationship between financial inclusion, tax compliance, and revenue production.

The Gordon-Li theory, as proposed by Gordon and Li (2007), is crucial to this investigation since it clarifies the factors influencing the quantity of tax income gathered. Through the analysis of variables influencing tax adherence and income creation, policymakers and tax authorities can formulate plans to enhance tax compliance and expand the tax pool, especially for small and medium-sized enterprises. This theory helps create efficient tax laws and enforcement strategies by offering insightful information about the dynamics of tax collection.

4.3.1 How Well the Model Fits

According to the results, the adjusted R squared value was 0.095, which indicates that there was variation in the Tax Revenue of 9.5% at a 95% confidence level. Adjusted R squared is a coefficient of determination that shows the variation in the dependent variable due to changes in the independent variable. This demonstrates that changes in the dependent variables (Deposit Money Banks' Assets to GDP (%), Liquid Liabilities

to GDP (%), Central Bank Assets to GDP (%), and Private Credit by Deposit Money Banks and Other Financial Institutions to GDP (%)) may account for 9.5% of changes in Tax Revenue. There was a substantial positive association between the study variables, as evidenced by 0.502, which represents 50.2% of the correlation coefficient (R), which measures the relationship and effect between the study variables.

Table 4.3: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.502[a]	.252	.095	3.03430	.252	1.604	4	19	.214	.840

a. Predictors: (Constant), Deposit money banks" assets to GDP (%), Liquid liabilities to GDP (%), Central bank assets to GDP (%), Private credit by deposit money banks and other financial institutions to GDP (%)
b. Dependent Variable: Tax Revenue

Source: Field Survey 2023

4.4 Analysis of Variance (ANOVA)

According to the ANOVA table's findings, the model was statistically significant in predicting how Tax Revenue is affected by the assets of deposit money banks relative to GDP (%), the liabilities of liquid assets relative to GDP (%), the assets of central banks relative to GDP (%), and the private credit provided by deposit money banks and other financial institutions relative to GDP (%). Because of the significance level of 0.05 (p0.00), it is clear that the variables account for changes in tax revenue.

Fleurbaey, & Maniquet, (2018), the theory of optimum taxation proposes that taxes should be levied based on an individual's income and characteristics. This implies that

individuals with higher incomes should contribute more to the tax system, reflecting their ability to pay

Table 4.4 ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	59.058	4	14.765	1.604	.214[b]
	Residual	174.932	19	9.207		
	Total	233.990	23			

a. Dependent Variable: Tax Revenue

b. Predictors: (Constant), (Constant), Deposit money banks'' assets to GDP (%), Liquid liabilities to GDP (%), Central bank assets to GDP (%), Private credit by deposit money banks and other financial institutions to GDP (%)

Source: Field Survey 2023

4.5 Coefficients

According to the equation, the effect of deposit money banks' and other financial institutions' assets on GDP (%), liquid liabilities on GDP (%), central bank assets on GDP (%), and private credit on GDP (%) on tax revenue is 8.826 when all study variables are held constant at 0. The study's findings imply that the dependent variable undergoes considerable changes as a result of the independent variables. Summary of the findings was presented in Table 4.5

Table 4.5: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	8.826	4.114		2.146	.045	.216	17.435					
	Deposit money banks" assets to GDP (%)	.237	.248	.575	.955	.352	-.282	.755	.259	.214	.189	.108	9.229
	Liquid liabilities to GDP (%)	.172	.288	.294	.597	.558	-.431	.775	.305	.136	.118	.162	6.163
	Central bank assets to GDP (%)	.063	.060	.230	1.037	.313	-.064	.189	.285	.231	.206	.803	1.245
	Private credit by deposit money banks and other financial institutions to GDP (%)	-.453	.355	-.603	-1.273	.218	-1.196	.291	.085	-.280	-.253	.175	5.699

a. Dependent Variable: Tax Revenue

Source: Field Survey 2023

In their research, Adu-Gyamfi and Marbuah, (2018) looked at the effect that financial inclusion has on the quantity of tax revenue gathered in Ghana. In order to analyze the panel data that encompassed the years 2000 to 2014, they employed a dynamic fixed effects model. In the study, it was discovered that there is a statistically significant and positive association between financial inclusion and tax revenue. A measure of financial inclusion was the private sector credit to GDP ratio. The results show that increased credit availability is advantageous for both tax compliance and revenue generation.

Amankwah-Amoah et al., (2019) looked into how financial inclusion affects how much tax revenue is brought in in Ghana. The researchers discovered a positive correlation between tax revenue mobilization and financial inclusion. Account ownership and use were used to assess financial inclusion. The study emphasized the significance of financial inclusion's role in boosting tax compliance and formalizing economic activity.

4.6 Impact of Liquid Liabilities to GDP (%) on Tax Revenue (% of GDP) Of Ghana

The researcher used multiple regression analysis to explore the relationship between the independent factors and the dependent variable, which is the proportion of GDP represented by tax revenue, in order to facilitate the statistical study. To determine the statistical significance of the independent variables' impact on Income from Taxes, a hypothesis test was conducted with a confidence level of 95% (or a significance level of 5%).

In order to achieve these objectives, the Liquid Liabilities to GDP (%), was utilized as the independent variable and dependent variable was (Tax Revenue (% of GDP) using

inferential statistics and Pearson's correlation coefficient to draw the relationship and it impact on tax revenue of Ghana. The analysis's findings are shown in Table 4.6 below.

Table 4.6: Liquid Liabilities to GDP (%) Impact Tax Revenue (% of GDP) Of Ghana

		Liquid liabilities to GDP (%)	Tax revenue (% of GDP)
Liquid liabilities to GDP (%)	Pearson Correlation	1	.305
	Sig. (2-tailed)		.148
	N	32	24
Tax revenue (% of GDP)	Pearson Correlation	.305	1
	Sig. (2-tailed)	.148	
	N	24	24

Source: Field Survey 2023

The results generated a correlation of **0.305**, this implies that Liquid liabilities to GDP (%) had positive effect on Tax Revenue (% of GDP). Thus, Deposit money banks'' assets to GDP (%) affects the level of Tax Revenue at 30.5%, as Liquid liabilities to GDP (%) is improved then it is likely that Tax Revenue of Ghana might increases as well and vice versa

Hoffman, (2023), increased economic activity can be attributed to a rise in liquid liabilities, which frequently indicates a more liquid financial system. Consequently, increased economic activity may have a beneficial effect on tax revenue since it increases income and profits, which in turn raises tax revenues. Liquid liabilities and tax revenue have a frequently cyclical connection. Liquid liabilities and tax revenue may rise in times of economic expansion and fall in times of economic contraction.

Increased availability of credit may be indicated by higher levels of liquid liabilities. This may encourage new ventures and investment, resulting in increased corporate profits and possibly tax income. While easier access to financing can stimulate the economy, it's crucial to keep an eye on investment quality and make sure that growth

is sustainable. Inadequate or excessive credit utilization may result in unstable finances Kontuš, & Mihanović, (2019).

4.6.1 How Well the Model Fits

According to the results, the adjusted R squared value was 0.051, which indicates that there was variation in the Tax Revenue of 5.1% at a 95% confidence level. Adjusted R squared is a coefficient of determination that shows the variation in the dependent variable due to changes in the independent variable. This demonstrates that changes in the dependent variables (Tax Revenue % GDP) may account for 5.1% of changes in Liquid liabilities to GDP (%). There was a substantial positive association between the study variables, as evidenced by 0.305, which represents 30.5% of the correlation coefficient (R), which measures the relationship and effect between the study variables.

Table 4.7: Model Summary[b]

					Change Statistics					
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**R Square Change**	**F Change**	**df1**	**df2**	**Sig. F Change**	**Durbin-Watson**
1	.305[a]	.093	.051	3.10638	.093	2.249	1	22	.148	.533
a. Predictors: (Constant), Liquid liabilities to GDP (%)										
b. Dependent Variable: Tax revenue (% of GDP)										

Source: Field Survey 2023

Alesina, & Ardagna, (2010), the fiscal policies of the government, which include taxation, can adapt to shifts in the economy. In times of economic expansion, which are linked to greater levels of liquid assets, governments could modify their tax strategies to appropriate a portion of the heightened economic production. The structure of the tax system determines how liquid liabilities affect tax collection. Taxes of different kinds, such as value-added tax, corporation tax, and income tax,

may react differently to shifts in economic activity. Global economic conditions have the potential to impact Ghana's economy, and foreign shocks have the potential to impact both tax income and liquid liabilities. Understanding potential threats requires keeping an eye on global factors.

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CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter includes conclusions and recommendations as well as a summary of the study's results on the impact of financial inclusion on tax revenue production in Ghana. There are four (4) main sections to the chapter. An overview of the study's results is given in Section 5.1. Conclusion on significant findings are provided in Section 5.2, policy implications and recommendations are provided in Section 5.3, and study limitations and recommendations for further research are provided in Section 5.4.

5.1 Summary of Findings

Data was collected from a secondary source as numerical data for the analysis of the elements in the research. These datasets were collected from the Global Financial Development Database and World Development Indicators.

In order to determine their impact on Ghana's ability to generate tax income, the study looked at four important financial variables. They included the percentage of GDP that was made up of deposits in private banks, deposit money banks, liquid liabilities as a percentage of GDP, and assets held by central banks. The descriptive analysis generated high mean value was generated for this study variable which indicated that deposit money banks' assets to GDP (%).

The results of that study showed that there was a positive relationship between the assets of deposit money banks and GDP (%), liquid liabilities and GDP (%), assets of the central bank and GDP (%), and private credit provided by deposit money banks and other financial institutions and GDP (%) in Ghana. The results also showed that

there was statistical significance in predicting how Tax Revenue is influenced by Assets of Deposit Money Banks to GDP (%), Liabilities of Deposit Money Banks to GDP (%), Assets of Central Banks to GDP (%), and Private Credit by Deposit Money Banks and Other Financial Institutions to GDP (%). The results indicated that there was a strong positive association between the study variables, as indicated by the correlation coefficient, which illustrates the relationship and effect between them.

5.2 Conclusion

This report provides a thorough analysis of the impact of several financial variables on the collection of taxes in Ghana. The results offer crucial insights, showing that financial inclusion is positively connected with the creation of tax income, as shown by the ratios of deposited funds in private banks and Deposit Money Banks to GDP. Tax revenue rises as the banking industry develops, enabling increased economic activity and income generation. This underlines the crucial role that financial institutions, especially private and deposit money banks, play in enlarging the tax base and ultimately increasing the amount of money collected by the country. The analysis also shows a strong correlation between tax income and liquid liabilities as a proportion of GDP. This study implies that tax revenue generation is positively influenced by the financial soundness of the economy, as represented by the liquidity level. This suggests that substantial contributions to the tax base are made by financial activity and transactions, which rise with increased liquidity.

The study also discovered an unusual negative link between tax revenue and the ratio of Central Bank assets to GDP. Tax income declines when the ratio of central bank assets to GDP rises. This could be the result of a number of things, such as the execution of an expansionary monetary policy that might increase inflation, or it

could be a sign of an economic crisis that would lower real incomes for the people and, consequently, lower tax receipts. These results highlight the significance of careful management of financial and monetary policy to ensure long-term tax revenue collection. It adds that, while encouraging financial inclusion and the growth of the banking industry is important, the ratio of central bank assets to GDP must be carefully regulated to prevent any potential harm to tax income.

In conclusion, the findings of this study may be very important to Ghanaian policymakers. For instance, the results imply that programs supporting the growth of the banking industry, economic liquidity, and financial inclusion could increase tax revenue. It also emphasizes the importance of carefully managing central bank assets to avoid any potential harm to tax revenue. Understanding these factors is crucial as Ghana works to boost domestic revenue to fund its development goals. Therefore, this study contributes to the larger conversation about the relationship between the growth of the financial industry and the collection of taxes, with a focus on the Ghanaian setting.

5.3 Recommendations

With the identified findings of the study and the relationship between study variables, the following recommendations were made for consideration

The findings support a number of suggestions and have significant policy implications due to the thorough and rigorous analysis that was done for the study. The results demonstrate how much of an impact the banking industry has on Ghana's tax collection. Particularly, the ratio of central bank assets to GDP demonstrated a negative link with tax income, whereas the ratio of deposited funds in private banks,

deposit money banks, and liquid liabilities as a percentage of GDP indicate a positive correlation with tax revenue.

The GDP assets of deposit money banks exhibited a positive correlation with Income from Taxes, indicating that a more robust banking industry might potentially bolster increased tax collection. Policies that improve deposit money banks' ability to lend money and maintain their financial stability may be advantageous. This could involve taking steps to strengthen bank governance, lower the percentage of non-performing loans, and promote competition in the banking industry. It is imperative for policymakers to take into account tactics that have the potential to enhance the population's adoption of financial services. This could entail easing banking regulations to increase accessibility to banking for the unbanked people, encouraging the development of financial technology (fintech) solutions to reach rural locations, and promoting financial literacy.

The expansion of small and medium-sized businesses (SMEs) and the development of the private sector can both boost economic growth and, consequently, tax income. Legislators should think about implementing policies that facilitate the growth of the private sector, like granting credit, giving tax breaks, and encouraging entrepreneurship. The study found a positive relationship between liquid liabilities to GDP and Income from Taxes. This suggests that measures to improve the liquidity management of banks and other financial institutions could potentially enhance tax revenue. Policymakers might consider regulations that ensure adequate liquidity while also encouraging the growth of the financial sector.

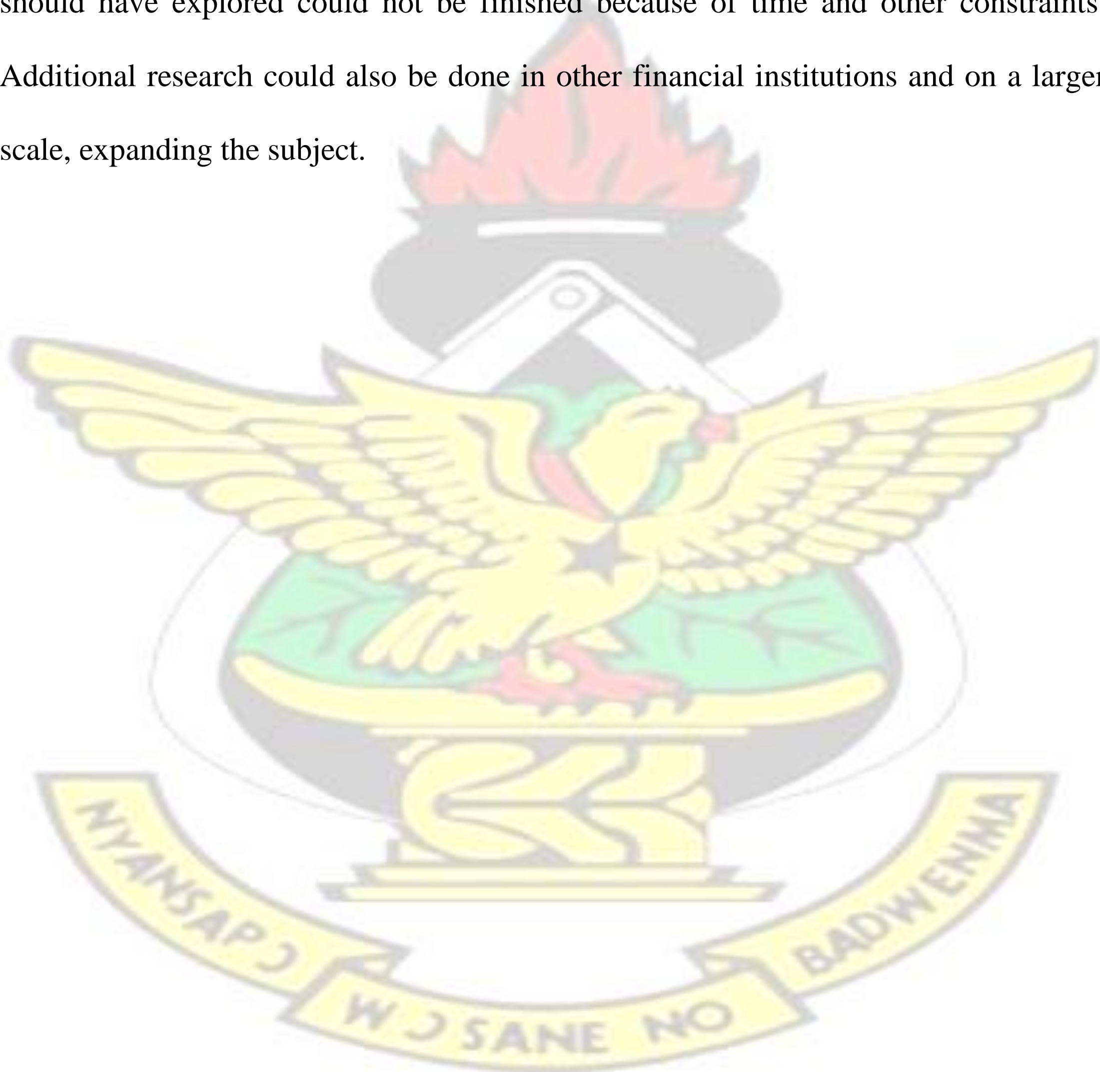
It is possible for the government to promote the creation and uptake of digital financial services. The unbanked population can benefit from increased access to

financial services through the growth of mobile and online banking, which can increase the tax base.

5.5 Suggestion for Future Study

As far as future study is concerned, it is recommended that subsequent studies should be on the same topic but a qualitative method and primary data should be adopted.

As the study went along, the researcher found that some crucial fields that the study should have explored could not be finished because of time and other constraints. Additional research could also be done in other financial institutions and on a larger scale, expanding the subject.



REFERENCES

Afful, M. E. (2018). Tax evasion and the Ghanaian economy: Evidence from Ghana Revenue Authority, Cape Coast Metropolis. Accra: Sam Jona Library.

Akinboade, O. A. (2015). Correlates of tax compliance of small and medium size businesses in Cameroon. *Managing global transitions*, *13*(4), 389-413.

Akram, N. (2016). Do Financial Sector Activities Affect Tax Revenue in Pakistan? *The Lahore Journal of Economics*, 153 - 169.

Alesina, A., & Ardagna, S. (2010). Large changes in fiscal policy: taxes versus spending. *Tax policy and the economy*, *24*(1), 35-68.

Ali, M. M., Devi, A., Furqani, H., & Hamzah, H. (2020). Islamic financial inclusion determinants in Indonesia: an ANP approach. *International Journal of Islamic and Middle Eastern Finance and Management*, *13*(4), 727-747.

Allen, F., Demirgüç-Kunt, A., Klapper, L. F., & Martinez Peria, M. S. (2012). The foundations of financial inclusion: Understanding ownership and use of formal accounts. *World Bank Policy Research Working Paper*, (6290).

Allen, F., Demirguc-Kunt, A., Klapper, L., & Peria, M. S. M. (2016). The Foundations of Financial Inclusion: Understanding Ownership and Use of Formal Accounts. Journal of Financial Intermediation, 27, 1-30.

Allen, N. B., Richard, J. H., & Giorgio, P. S. (1995). The role of capital in financial institutions. *Journal of banking and finance*, 393-430.

Aly, H. Y. (1990). Technical, Scale and allocative Efficiencies in Us banking: an empirical investigation. *ideas*, 211-218.

Anaba, B. (2016, September 1). *myjoyonline.com.* Retrieved September 1, 2016, from JoyOnline.com: http://www.myjoyonline.com

Andoh, F. K., Asante, S., & Agbloyor, E. K. (2017). Financial Inclusion and Economic Growth in Ghana: Does the Measure of Financial Inclusion Matter? International Journal of Financial Research, 8(3), 27-40.

Arrow, K. (1985). *The Economics of Agency.* Cambridge: Harvard University Press.

Aryeetey, E., & Kanbur, R. (2008). The economy of Ghana. *Analytical perspectives on stability, growth & poverty.*, 1-59.

Asuming,, P. O., Osei-Agye, L. G., & Mohammed, J. I. (2018). Financial Inclusion in SubSaharan Africa. *Recent Trends and Determinants*, 3-7.

Auerbach, A. J., & Hines Jr, J. R. (2002). Taxation and economic efficiency. In *Handbook of public economics* (Vol. 3, pp. 1347-1421). Elsevier.

Babajide, A. A., Adegboye, F. B., & Omankhanlen, A. E. (2015). Financial Inclusion and Economic Growth in Nigeria. *International Journal of Economics and Financial Issues*, 629 - 637.

Baker, D. (2017). Financial Transactions Taxes. *Potential Revenue and Economic Implications, Challenge, 60:2, 1*, 41-170.

Bank of Ghana (BOG). (2019). *Update on Banking Sector Reforms.*

Barth, J., Capro, G., & Levine, R. (2001). “Banking Systems Around the Globe: Do Regulations and Ownership Affect Performance and Stability in Prudential Supervision?” in Mishkin, (ed). *Journal of accounting and finance*, pp.3 1-88.

Beck, T., Demirgüç-Kunt, A., & Levine, R. (2007). Finance, inequality and the poor. Journal of Economic Growth, 12(1), 27-49.

Bekoe, W., Danquah, M., & Senahey, S. K. (2016). Tax reforms and revenue mobilization in Ghana. *Journal of Economic Studies, 43(4)*, 522-534.

Bird, R. M. (2008). Tax challenges facing developing countries. Institute for International Business Working Paper, 12.

Bozdo, P. A. (2016, January). Effect of Bank Capital Requirements on Bank Risk-taking and Financial Stability. *Mediterranean Journal of Social Sciences*, 8.

Chappellow, J. (2019). *Economic Effiency.* investopedia.

Chatziantoniou, I., Duffy, D., & Filis, G. (2013). Stock market response to monetary and fiscal policy shocks: Multi-country evidence. *Economic modelling*, *30*, 754-769.

Chauke, K. R., Sebola, M. P., & Mathebula, N. E. (2017). Reflection on the ability to pay theory of taxation in the context of South African Municipalities. International Conference on Public Administration and Development Alternatives (IPADA).

Čihák, M., Demirgüç-Kunt, A., Feyen, E., & Levine, R. (2012). Benchmarking Financial Systems around the World. *Policy Research Working Paper 6175*, 1 - 56.

Corps, M. (2016, october 14). *mercycorps.org*. Retrieved october 14, 2016, from www.mercycorps.org: http:// www.mercycorps.org.../financial Inclusion

Creswell, J. (2003). *Research design: Qualitative, quantitative and mixed methods approaches (2nd ed.).* Thousand Oaks, CA: SAGE Publications.

da Cruz, N. F., Berg, S., & Marques, R. C. (2013). Managing public utilities: lessons from florida. *Lex Localis-Journal of Local Self-Government*, *11*(2).

Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. (2017). *The Global Findex Database: Measuring Financial Inclusion and the Fintech Revolution.* Washington, DC:

Demirguc-Kunt, A., Klapper, L., Singer, D., & Van Oudheusden, P. (2015). The Global Findex Database 2014: Measuring Financial Inclusion around the World. World Bank Policy Research Working Paper, (7255).

Diamond, W., & Rajan, R. G. (2000). A Theory of Bank Capital. *Journal of finance*.

Divya, J. (2014). A study on financial inclusion and financila literacy. *International Journal of Business and Administration Research Review, Vol.2*, 126-134.

Dodge, J. M. (2004). Theories of tax justice: ruminations on the benefit, partnership, and ability-to-pay principles. *Tax L. Rev.*, *58*, 399.

Ebi, B. O. (2018). Financial Sector Development and Tax Revenue in Nigeria. *International Journal of Economics, Commerce and Management*, 93 - 109.

Fleurbaey, M., & Maniquet, F. (2018). Optimal income taxation theory and principles of fairness. *Journal of Economic Literature*, *56*(3), 1029-1079.

Folorunsho, M., & Olasupo, B. (2017). Does financial system influence tax revenue? The case of Nigeria. *African Journal of Economic Review, Volume V, Issue III,* 15-33.

Frank, R. H. (2000). Why is cost-benefit analysis so controversial? *The Journal of Legal Studies*, *29*(S2), 913-930.

Gockel, A., & Akoena , S. (2002). Financial Intermediation for the Poor. *Credit Demand by*

Gordon, R., & Li, W. (2007). Puzzling Tax Structures in Devloping Countries: A Comparison of Two Alternative Explanations. In *Fiscal Policy and Management in East Asia* (pp. 9-35). University of Chicago Press.

Gordon, R., & Li, W. (2007). Puzzling Tax Structures in Devloping Countries: A Comparison of Two Alternative Explanations. In *Fiscal Policy and Management in East Asia* (pp. 9-35). University of Chicago Press.

Granger, C. W. (1969). Investigating Causal Relations by Econometric Models and CrossSpectral Methods. *Journal of Financial Risk Management,* (37), 424-438.

Hassan, I. I., & Kabir, M. (2002). Technical,scale and allocative efficiencies of Turkish banking industry. *journal of banking and finance*, 719-766.

Hoffman, B. N. (2023). The Impact of Money Market Activities on the Economic Growth of Ghana. *Journal of Engineering Applied Science and Humanities*, *8*(2), 39-46.

Ini S. Udom, E. O. (2018, January). Effect of Capital Adequacy Requirements on the profitability of commercial banks in Nigeria. *International Research Journal of Finance and Economics*.

Issouf Soumaré, F. T. ((2016)). Analysis of the determinants of financial inclusion in Central and West Africa. *Transnational Corporations Review, 8: 4, DOI: 10.1080/191 86444.20 16.1265763*, 231-249.

Itskhoki, O., & Moll, B. (2019). Optimal development policies with financial frictions. *Econometrica*, *87*(1), 139-173.

Jacob Oduor, K. N. (2017). articleCapital requirement, bank competition and stability in Africa.

Kagan, J. (2019). capital buffer. *personal finance, banking*.

Kaufman, O. (2001). Lender of Last Resort: A Contemporary Perspective. *Journal of Financial Services*.

Kontuš, E., & Mihanović, D. (2019). Management of liquidity and liquid assets in small and medium-sized enterprises. *Economic research-Ekonomska istraživanja*, *32*(1), 3247-3265.

Kothari, C. R. (2004). Research Methodology. *Methods and Techniques (2nd Ed.)*, 1-398.

Kuula, S., Haapasalo, H., & Tolonen, A. (2018). Cost-efficient co-creation of knowledge intensive business services. *Service Business*, *12*, 779-808.

Mader, P. (2018). Contesting financial inclusion. *Development and change*, *49*(2), 461-483.

Maherali, A. (2017.). *Financial Inclusion, Digital Payments and Their Impact on Income and Tax Revenue Around the World.* Cambridge, MA, United States: Harvard Extension School.

Martimort, D. J. (1999). Separation of Regulators against Collusive Behavior. *Rand Journal of Economics*, 232-262.

Maslow, A. (1943). Psycological Review. *A theory of human motivation*, 370-96.

Michael j. Cooper, W. E. (2003). evidance of predictability in the cross-section of bank stock return. *journal of banking and finance*, 817-850.

Micro Small and Medium Scale Enterprises in Ghana: A Further Assignment for Financial Sector Policy? 1-59.

Morse, S. (2009). Cash Business and Tax Evasion. In S. Morse, *Cash Business and Tax Evasion* (p. 3). California: UC Hastings College of the Law.

Moutinho, L., Davies, F., Deng, S., Peris, S. M., & Alcaniz, E. (1997). The future role of bank branches and their managers. *Comparing managerial perceptions in Canada and Spain*, 1-7.

Mwai, E. N. (2017). The relationship between capital requirement and financial performance of commercial banks in Kenya. *journal of accounting and finance*.

Narteh, B. (2013). Service quality in automated teller machines: an empirical investigation", Managing Service Quality. *An International Journal, Vol. 23 Iss: 1*, 62 - 89.

Niu, X. (2008). Theoritical and Pratical review of capital Structure. *International Journal of business and management*.

Nnyanzi, J. B., Bbale, J. M., & Sendi, R. (2018). Financial Development and Tax Revenue: How Catalytics are Political Development and Corruption. *International Journal of Economics and Finance,* 92 - 104.

Ojong, C. M., Anthony, O., & Arikpo, O. F. (2016). The impact of tax revenue on economic growth: Evidence from Nigeria. *IOSR Journal of economics and finance*, *7*(1), 32-38.

Olaniyi, E. (2018). Connecting the poor. *The internet, mobile phones and financial inclusion in Africa*, 568-581.

Osborne, M., Fuetes, A. -M., & Milne, A. (2017). capital profitability in banking: Evidence from USbanks.

Otieku, S. (1992). A look at factors affecting effiecient income tax adminstration in Ghana. *The Journal Management Studies*, 8.

Owusu - Gyimah, A. (2015). Tax Revenue Generation and the Economic Development of Ghana. *European Journal of Business and Management,* 78 - 89.

Owusu, G. M., Bekoe, R. A., Anokye, F. k., & Anyetei, L. (2019). What factors influence the intentions of individuals to engage in tax evasion? Evidence from Ghana. *International Journal of Publicc Administration*, 1-13.

Oyedokun, A. (2013). Trend Analysis of the Effect of Capital Base Requirement on Profit Generating Capacity and Operational Efficiency of Selected Commercial Banks in Nigeria. *Journal of Finance and Accounting*.

Oz- Yalaman, G. (2019). Financial Inclusion and tax revenue. *Central Bank Review,* 107-113.

Ozili, P. K. (2020). Theories of financial inclusion. In *Uncertainty and challenges in contemporary economic behaviour* (pp. 89-115). Emerald Publishing Limited.

Ozyurt, S. (2019). *Ghana is now the fastest-growing mobile money market in Africa.* Nariobi, Kenya: Agence française de développement (AFD).

Pollin, R., Heintz, J., & Herndon, T. (2018). The revenue potential of a financial transaction tax for US financial markets. *International Review of Applied Economics, 32:6,* 772-806.

Pricewaterhouse Coopers Ghana Limited. (2019). *Navigating taxation,2019 Ghana Tax Facts and Figures.* Accra: PWC Ghana.

Prichard, W. (2016). Reassessing Tax and Development Research. *A New Dataset, New Findings, and Lessons for Research. World Development, 80,* 48-60.

Puckett, J. M. (2017). Improving Tax Rules by Means-Testing: Bridging Wealth Inequality and Ability to Pay. *Okla. L. Rev.*, *70*, 405.

Roy, P. V. (2003). *The Impact of the 1988 Basel Accord on Banks' CapitalRatios and Credit Risk-taking*. Retrieved from https://www.zentral-bank.eu/pub/pdf/ scpwps/ecbwp 517.pdf

Sackey, F. G., & Nkrumah, E. M. (2012). Financial Sector Deepening and Economic Growth in Ghana. *Journal of Economics and Sustainable Development,* 122 - 140.

Sarma, M., & Pais, J. (2011). Financial Inclusion and Development. Journal of International Development, 23(5), 613-628.

Saunders, M., Lewis, P., & Thornhill, A. (2017). *Research Methods for Business Students.* Harlow, England: Prentice Hall.

Sharma, D. (2015). Nexus between financial inclusion and economic growth. *Journal of Financial Economic Policy, Vol. 8 No. 1*, 13-36.

Slemrod, J. (2007). Cheating ourselves: The economics of tax evasion. Journal of Economic Perspectives, 21(1), 25-48.

Soumare, I., Tchana, F. T., & Kengne, T. K. (2016). Analysis of the deterrminants of financial inclusion in Central and West Africa. *Transnational Corporation Review 8:4*, 231-249.

Spiritus, K. (2018). The Optimal Taxation of Capital Income: Insights from Economic Theory. *Presentation at the Belgian Institute for Public Finance 'lunch debates*, *29*.

Stephen M Miller, A. G. (1996). the technical efficiency of large bank productions. *Journal of banking and finance*, 495-509.

Stewart, M. (2015). The tax state, benefit and legitimacy.

Stigler, G. j. (1972). *the process of economic regulation.*

Stijin Claessens, A. D.-k. (2001). how does foreing entry affect domestic banking market. *Journal of Banking and Finance*, 891-911.

Stovrag, A. (January 2017). Capital requirements and bank profitability. *journal of accouting and finance*.

United Nations Capital Development Fund. (2006). *Building inclusive financial sector for development.* United Nation: United Nation Publication.

Wenzel, M. (2002). The impact of Outcome orientation and justice concerns on tax compliance. *The role of taxpayers' identity. Jounal of Applied Psychology*, 629-645.

Wiafe, A. N. (2019). The efect of minimum capital requirement on the performance of commercial banks in Ghana.

Wikipedia, C. (2019, September 22). Financila Inclusion in wikipedia. *The free Encyclopedia*, pp. 17-18.

World Bank: World Bank Publications, The World Bank Group.

World bank. (2015). *The Little Data Book On Financial Inclusion.* Washington, Dc: The Worldbank.

Yindenaba, J. A., Amidu, M., & Iss, H. (2018). Mobile Telephony, Financial Inclusion and Inclusive. *ournal of African Business,* 14-54.

Zerbe, R. O. (2019). *economic efficiency in law and economics.* Washington: SSRN.

Zheng, S., Trott, A., Srinivasa, S., Naik, N., Gruesbeck, M., Parkes, D. C., & Socher, R. (2020). The ai economist: Improving equality and productivity with ai-driven tax policies. *arXiv preprint arXiv:2004.13332*.

APPENDIX 1

Tax Revenue as % of GDP	Private credit by deposit money banks to GDP (%)	Deposit money banks' assets to GDP (%)	Liquid liabilities to GDP (%)	Central bank assets to GDP (%)
0.164	0.181	0.353	0.247	0.084
0.181	0.225	0.385	0.287	0.088
0.189	0.263	0.431	0.326	0.094
0.174	0.283	0.466	0.351	0.107
0.179	0.306	0.496	0.38	0.115
0.165	0.332	0.536	0.411	0.124
0.152	0.36	0.569	0.443	0.135
0.15	0.359	0.582	0.463	0.14
0.147	0.372	0.603	0.485	0.145
0.148	0.381	0.624	0.501	0.148
0.151	0.39	0.642	0.515	0.153

APPENDIX 2

Variable	Data Source	Data Collection Method	Link
“Tax Revenue	Ghana Revenue Authority or World Bank's World Development Indicators	Downloaded data from the online database	https://databank.worldbank.org/source/world-development-indicators
Private Credit by Deposit Money Banks to GDP (%)	Bank of Ghana or World Bank's World Development Indicators	Downloaded data from the online database	https://databank.worldbank.org/source/world-development-indicators
Deposit Money Banks' Assets to GDP (%)	Bank of Ghana or World Bank's World Development Indicators	Downloaded data from the online database	https://databank.worldbank.org/source/world-development-indicators
Liquid Liabilities to GDP (%)	Bank of Ghana or World Bank's World Development Indicators	Downloaded data from the online database	https://databank.worldbank.org/source/world-development-indicators
Central Bank Assets to GDP (%)	Bank of Ghana or World Bank's World Development Indicators	Downloaded data from the online database	https://databank.worldbank.org/source/world-development-indicators”