

**UNIVERSITY OF GHANA**

**TRUST IN GOVERNMENT AND TAX COMPLIANCE: AN EMPIRICAL  
EVIDENCE FROM GHANA**

**BY**

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**THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN  
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MASTER OF PHILOSOPHY (MPHIL) DEGREE IN ECONOMICS**

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**DECLARATION**

I, **Mary Kafui Nyarkpoh**, do hereby declare that with the exception of the references cited, which have been appropriately acknowledged, this thesis titled **“TRUST IN GOVERNMENT AND TAX COMPLIANCE: AN EMPIRICAL EVIDENCE FROM GHANA”** is the product of my own research work in the Department of Economics, University of Ghana, Legon, from August 2016 to July 2018. This thesis is not published or submitted either in part or in whole anywhere for the award of a degree in any other university.

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## ABSTRACT

Governments all over the world, specifically, Sub-Saharan African countries aim to attain economic growth and sustainable development. Economic growth is often financed with tax revenue. However, governments are not able to mobilize adequate tax revenue as a result of tax non-compliance. Previous research on tax compliance found that both economic and non-economic factors influence tax payment propensity. In recent times, studies focus on non-economic factors because they offer a better explanation of tax non-compliance than the pure economic factors.

This study draws data from the Afrobarometer Round 6 survey to investigate the effect of trust in government on tax payment propensity in Ghana. To achieve this objective, the study first computes a trust in government index based on Rothstein (2005) and Rothstein and Teorell (2008) input-output criterion. Secondly, it examines the effect of trust in government on tax compliance using a binary probit model.

The findings of this study show that trust in government significantly and positively influences the probability of tax compliance. This suggests that taxpayers who trust in the government are more likely to pay taxes than taxpayers who do not trust in the government. As regards the locality disaggregated estimations of the effect of trust in government on tax compliance, it indicates that the significant positive effect of trust in government on tax payment propensity seems to be the case for only urban taxpayers, whereas, the rural taxpayer's tax payment propensity is not dependent on their trust in government. Furthermore, other covariates such as high level of education, being employed with the government, low level of corruption and having a sense of safety, significantly influence the probability of tax compliance.

Based on the findings of this study, it is recommended that the government must perform efficiently in providing adequate public goods and services, controlling the level of corruption and improve upon the safety of citizens. This will cause taxpayers to have trust in government and consequently pay their taxes.

## **DEDICATION**

I dedicate this thesis to the Almighty God for His guidance and grace throughout my period of study. Also, I dedicate this work in memory of my dad, Joseph Mensah Nyarkpoh.

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## LIST OF ABBREVIATIONS

AfDB	African Development Bank
BEEPS	Business Enterprise and Environment Performance Surveys
CEPS	Customs Excise and Preventive Service
DTRD	Domestic Tax Revenue Division
EAS	Enumeration Areas
ERP	Economic Recovery Programme
EVS	European Values Survey
GCMS	Ghana customs Management System
GC-Net	Ghana Community Network
GDP	Gross Domestic Product
GLSS	Ghana Living Standards Survey
GNP	Gross National Product
GRA	Ghana Revenue Authority
GSS	Ghana Statistical Service
IRS	Internal Revenue Service
MoF	Ministry of Finance

MTO	Medium Taxpayer Office
NHIL	National Health Insurance Levy
NRS	National Revenue Secretariat
OECD	Organisation for Economic Co-operation and Development
PAYE	Pay As You Earn
PNDC	Provisional National Defence Council
SD	Standard Deviation
SE	Standard Error
SDGs	Sustainable Development Goals
TIN	Taxpayer Identification Number
VIF	Variance Inflation Factor
VIT	Vehicle Income Tax
WVS	World Values Survey

## CHAPTER ONE

### INTRODUCTION

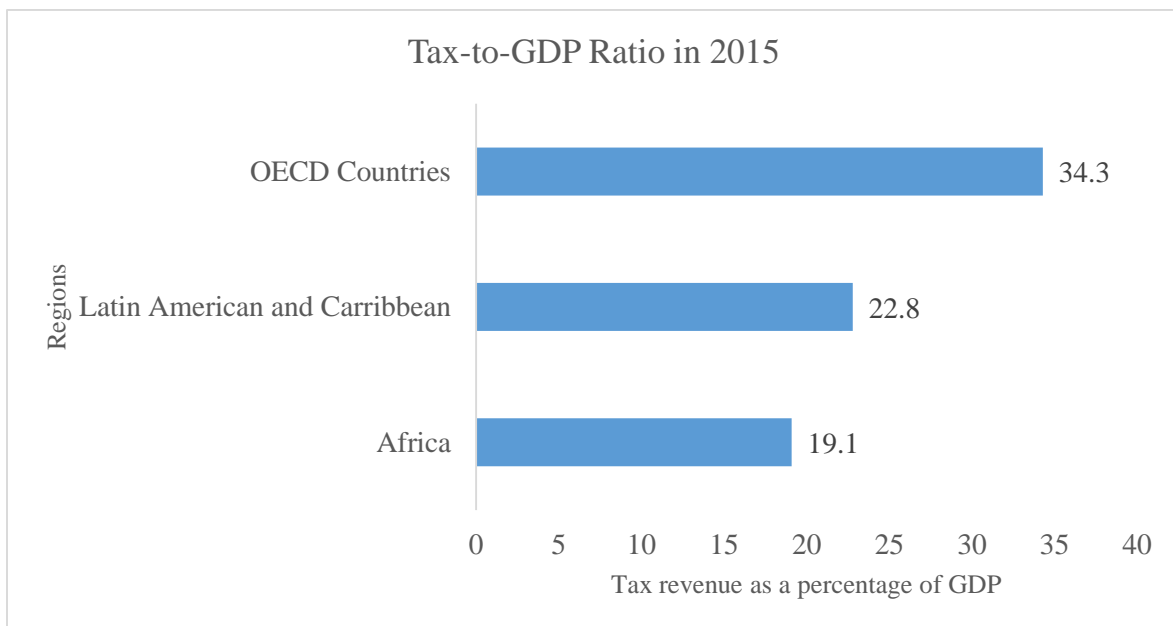
#### 1.1 Background of the Study

Achieving sustainable economic development is the goal of most governments across the world. Governments require sufficient funding either from international donors who attach unfavourable conditions to the funds or they need to generate the funds locally, to provide public goods and services. The former has been the norm for most developing countries, which immensely accounts for their “aid dependency trap”. With the option to generate revenue locally, most governments have placed much efforts into domestic revenue mobilization. Taxation is an important means by which governments generate revenue to finance the provision of public goods and services. Taxation enhances the distribution of income, economic growth and stability, good governance and infrastructural development. Taxation further ensures good governance because the government would have to account for the use of tax revenue.

In recent times, there has been an improvement in domestic revenues mobilized in most African countries. On account of that, the tax revenue to Gross Domestic Product (GDP) ratios have increased substantively; nonetheless, most African countries still record low tax-to-GDP ratio. From Figure 1.1 below, 16 African countries: Cape Verde, Cameroon, Côte d’Ivoire, the Democratic Republic of Congo, Ghana, Kenya, Mauritius, Morocco, Niger, Rwanda, Senegal, South Africa, Swaziland, Togo, Tunisia, and Uganda, were used to obtain the average tax-to-GDP ratio for Africa. This average was compared to that of Latin American and Caribbean

countries, as well as the OECD countries. In 2015, most African states recorded about 19.1 percent tax-to-GDP ratio. Although there has been an improvement in African countries tax-GDP ratio in 2015 than in 2000, it is lower as compared to the Latin American and the Caribbean countries with an average of 22.8 percent, as well as the OECD countries which recorded an average of 33.4 percent. Also, in spite of the 19.1 percent tax-to GDP ratio for Africa in 2015, it is still lower than the 25 percent threshold for Sub-Saharan African (AfDB, 2018).

**Figure 1.1: Tax-to-GDP ratio in 2015**



Source: Revenue Statistics in Africa (2017).

Therefore, domestic revenue generation is one the concern of most African countries whose governments are committed to attaining the Sustainable Development Goals (SDGs), specifically, Target 1 of goal 17:

*“Strengthen domestic revenue mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection.”*

(GSS, 2017 pg.24)

However, due to tax non-compliance, not all African countries are able to mobilize adequate revenue. African countries lose about US\$50 billion to illegitimate financial flows such as tax evasion and tax avoidance (UNECA, 2015). Lapses in the tax structure, for instance, the inability of the tax administration to strictly enforce penalties promote tax non-compliance. Consequently, tax non-compliance causes a huge loss of government revenue, and this negatively affects government performance.

Tax non-compliance encompasses the actions of taxpayers that are conflicting with the requirements of the tax legislation. For instance, the basic tax requirements in Ghana are registering with Ghana Revenue Authority (GRA), filing tax returns by the due date, as well as accurately and fully disclosing financial reports (GRA, 2018). Failure to meet any of these basic obligations results in non-compliance.

Tax compliance, thus, refers to the payment of taxes by taxpayers. Two broad views have been empirically established as factors that influence tax compliance. One of the views is that economic factors such as fine rate or penalties, tax rate, and the probability of audit of returns determine tax compliance. The other view suggests that tax compliance is determined by non-

economic factors such as attitude, behaviour, and morals (Bărbuță-Mișu, 2011). These economic factors, although necessary in determining non-compliance, do not fully explain the reasons for tax non-compliance (Ruiu & Lisi, 2011). Non-economic factors, specifically attitude, norms, perceptions and moral values enhance voluntary tax compliance rather than enforced compliance (Molero & Pujol, 2012).

Apart from these economic and non-economic factors, effective governance also influences people's decision to be tax-compliant. Issues related to the government affect citizens' attitude towards the state. Complying with tax laws involves risk since taxpayers hand over their hard-earned money to the government with no guarantee of reciprocity. However, they pay taxes with the hope that the government will provide public goods and services. Taxpayers perceive the government to be trustworthy if they are satisfied with the performance of the government in offering security, public goods and services, as well as reducing corruption in the country. Trust in government is defined in this study as the expectation that the government will act responsibly in using tax revenue. Trust in government is essential in determining the outcome of public policies. Citizens will willingly support government policies by contributing their quota when they have positive expectations of such policies. Higher levels of trust are often related to lower levels of corruption and crime (Chanley, 2002). That is to say, when citizens have trust in the government, they perceive that the level of corruption is low. Trust in government enables the government to remain accountable in providing public goods and services, and enhances economic efficiency in general. In addition, trust in government enhances compliance with rules and regulations, especially the tax legislation of a country. Studies on tax in Ghana, including Bekoe, Danquah, & Senahey (2016), and Osei & Quartey (2005) have assessed the tax reforms and their effects on revenues mobilized over the years.



In spite of these reforms, MoF (2012) reports that out of the estimated 6 million taxable population, it is only about 1.5 million people (representing 25% of the total taxable population) that pay direct tax. Studies such as Annan, Bekoe, & Nketiah-Amponsah (2013) and Ibrahim, Musah, & Abdul-Hanan (2015) discussed tax issues in Ghana. Annan et al. (2013) used the currency demand approach to estimate tax evasion levels from 1970 to 2010. Their findings indicate that factors such as inflation, per capita income, average tax rate, and age determine tax evasion. Their study, however, does not give attention to the non-economic factors which explain non-compliance. Alternatively, Ibrahim et al. (2015) studied the factors that affect tax moral beyond the economic factors. Their findings indicate that trust in government affects tax compliance. Although Ibrahim et al. (2015) included trust in government in their variables, the measure of trust in government in this study is different. The trust in government variable is constructed based on Rothstein (2005) and Rothstein and Teorell (2008) input-output criterion. This study does not only look at the effect of trust in government on the propensity to pay tax; it also examines the effect of trust in government on tax compliance across localities.

## **1.2 Problem Statement**

The problem of tax noncompliance has been a major concern for many developing countries as they aim at attaining the SDG (GSS, 2017 pg.24). Governments of these developing countries have shown this by stating in their budgets and other public financial policy statements that they will put measures in place to mobilize adequate tax revenue (MoF, 2017).

Earlier studies on tax compliance concentrated on the economic factors, for example, tax rate, inflation, audit rate and fines (Annan et al., 2013). The economic approach does not provide an all-encompassing empirical explanation regarding tax compliance decisions. The economic approach of combatting tax non-compliance poorly predicts tax compliance behaviour (Ruiu & Lisi, 2011). It fails to consider the influence of taxpayers' attitude towards compliance decisions. Thus, tax compliance involves much more than a rational choice of maximizing utility. Taxpayers' decision to comply with the tax laws or not must be analyzed in the context of human behaviour rather than the standard economic approach (Molero & Pujol, 2012). Hence, non-economic factors such as norms, trust in government, attitude, fairness, and perception can also explain tax compliance as taxpayers are committed to paying tax, and not because they dread the consequences of not complying with their tax obligations.

Most studies (see, for example, Alm & Torgler, 2004; Levi & Stoker, 2000) draw on the World Values Survey (WVS) data in their research on trust in government and the propensity to pay tax. Their findings show that trust in government significantly and positively affects tax payment propensity. However, such studies are contextually different from the current study which is set in a developing country, specifically, Ghana. Developing countries are different from advanced countries with regard to their geographical location, culture and tax administration. They may, therefore, exhibit distinct findings on trust in government and tax compliance.

Studies on trust in government have not been given attention in Ghana except for the work of Ibrahim et al., (2015). Even though Ibrahim et al. (2015) found trust in government to be positive and significant in determining tax morale in Ghana, they did not investigate whether the location of taxpayers influence their trust in government and consequently their compliance

behaviour. Studies on trust in government and tax compliance are limited in Ghana due to the lack of data. Also, in their study on tax administration in Ghana, Armah-Attoh & Awal (2013) assert that individuals residing in the urban areas evade taxes more than those living in rural areas. This is probably because people residing in the urban areas perceive the government to mismanage resources and not provide adequate public goods and services.

The economic factors could not completely explain tax noncompliance since the situation still prevails in Ghana. To improve upon the tax revenue generated in Ghana, it is necessary to examine how trust in government affects tax compliance. It is appropriate for non-economic factors influence on tax noncompliance be investigated more. While previous studies are useful in providing insights on trust in government and trust in government, they do not explain the effect of trust in government on tax compliance across localities. This is because by focusing on the effect of location on tax compliance, the studies do not clearly explain whether tax noncompliance among the urban dwellers is as a result of lack of trust in government. This study addresses these limitations by using the sixth round of the Afrobarometer survey to investigate the effect of trust in government on tax compliance and the effect of trust in government on tax compliance across localities.

### **1.3 Objectives of the Study**

This study seeks to attain the following objectives:

1. Investigate the effect of trust in government on tax compliance.
2. Examine the effect of trust in government on tax compliance by rural/urban dimension.

#### **1.4 Research Questions**

This study seeks to answer the following questions:

1. What effect does trust in government have on taxpayers' propensity to pay taxes?
2. Does the effect of trust in government on tax compliance vary by rural/urban dimension?

#### **1.5 Significance of the Study**

This study will highlight the role of non-economic factors in explaining tax compliance. Specifically, the study will indicate the effect of trust in government on tax compliance in a developing country, precisely, Ghana. It will further enlighten the reader on the tax system in Ghana and the performance of key indicators over the years.

Moreover, this study will contribute to tax compliance literature by extending the fiscal contract theory to include trust in government variable.

The findings will help policymakers to implement policies that are geared towards promoting taxpayers' trust in the government. This consequently will boost taxpayers' trust in government and cause them to pay taxes.

#### **1.6 Organization of the Study**

The thesis is divided into six chapters. Chapter one presents some relevant information that provides the foundation for this study, including the background to the study, statement of the problem, objectives, research questions, significance, and organization of the study. The

second chapter presents an overview of taxation in Ghana. A thorough discussion of related literature is presented in the third chapter. Chapter Four specifies the model used for the study, the source of data and measures of variables. Chapter Five presents the results and discusses the findings. Chapter Six summarizes the findings. It also states the conclusion and indicates the limitations of the study. It as well suggests some areas for further study.

## **CHAPTER TWO**

### **OVERVIEW OF TAXATION IN GHANA**

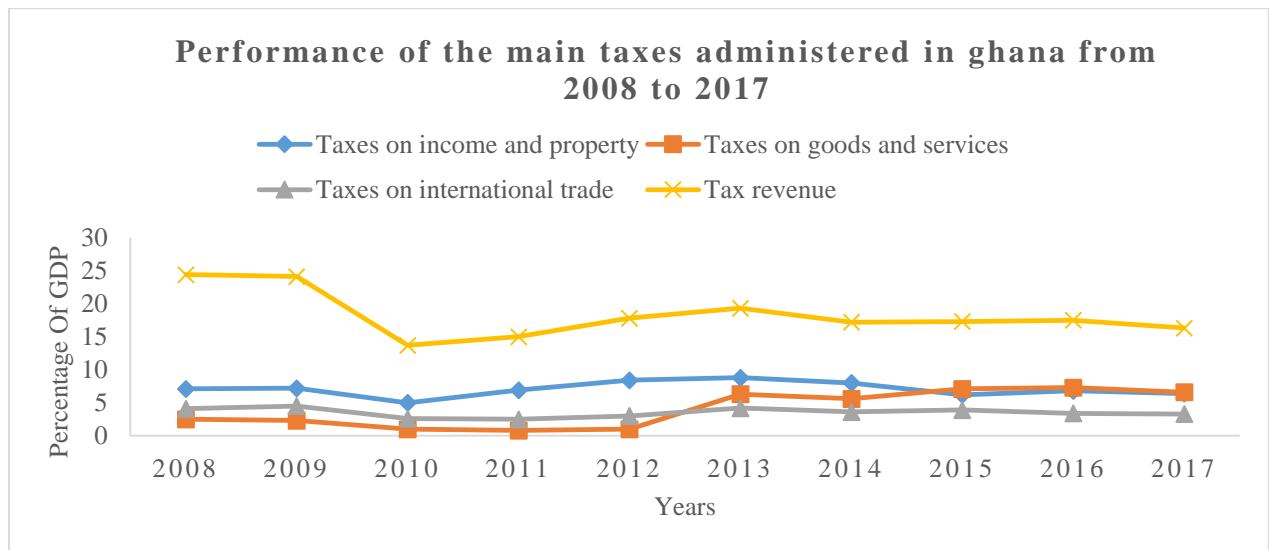
#### **2.1 Introduction**

This chapter is organized as follows: Section 2.2 presents a brief overview of the tax system in Ghana while Section 2.3 outlines the tax reforms in Ghana. Section 2.4 presents a summary of this chapter.

#### **2.2 The Tax System in Ghana**

The main types of taxes administered in Ghana are international trade tax, domestic goods and services tax, income and property tax and value-added tax (VAT). These can further be considered as direct, indirect and trade taxes. Before the introduction of VAT, international trade taxes was the main contributor of tax revenue in Ghana, domestic goods and services tax was the next contributor with income and property tax being the least contributor. Between 1980 and 1993, international trade taxes contributed about 38.8 percent of the total revenue whereas domestic goods and services tax contributed about 28.5 percent. Also, income and property tax contributed about 21.3 percent of total revenue in the same period. In 1999, when VAT became operational, income and property tax accounted for about 24.5 percent of total revenue, followed by VAT accounting for about 21.9 percent of total revenue. International trade tax contributed about 20.9 percent of total revenue in the same period with domestic goods and services tax accounting for 14.9 percent of total revenue. In recent times (2008 – 2017), tax revenue has not performed satisfactorily.

**Figure 1.1: Contribution of the main taxes administered in Ghana from 2008 to 2017**



Source: MoF Fiscal Data

Figure 2.1 shows the contribution of the main taxes administered in Ghana from 2008 to 2017. Between 2008 and 2017, tax revenue has not performed satisfactorily. Though tax revenue increased to 19.3 percent of GDP in 2013 from a sharp fall of 15 percent of GDP in 2011, tax revenue is still below the 2008 performance of 24.4 percent of GDP. There was a marginal increase from 2014 through to 2015 and 2016 and then a sharp decline of 16.3 percent of GDP in 2017. This marginal increase is attributed mainly to the contribution of taxes on income and property from 2008 to 2015. Taxes on goods and services were the least contributor to tax revenue from 2008 to 2013 which saw an increase of 6.3 percent of GDP. Since 2015, taxes on goods and services have contributed immensely to tax revenue. International trade tax was the second contributor to tax revenue from 2008 to 2012. In 2013, international trade taxes contributed about 4.2 percent of GDP and has since remained the least contributor to tax revenue. Table 2.1 below explains the domestic taxes administered in Ghana and further states their corresponding rates of tax.

**Table 2.1: Domestic Taxes Administered in Ghana**

Type of Tax	Comment	Rate of Tax (%)
i. Corporate Income Tax	Levy paid by companies on their yearly profits	25
ii. Personal Income Tax	Self-employed individuals must file income tax at graduated rates every quarter of the year.	0 for income less than 2,592.00 5 for GHc2,592.00 - GHc3,888.00 10 for GHc3,888.00 - GHc5,700.00 17.5 for GHc5,700.00-GHc38,880.0 25 for GHc38,880.00 and above
iii. Pay As You Earn (PAYE)	PAYE tax is withheld from salaries of workers by their employers in order to fulfill their income tax obligations	PAYE is calculated with the personal income tax rates.
Vehicle Income Tax (VIT)	Tax levied on operators of commercial vehicles. They buy the VIT stickers each quarter from the district GRA offices	The rate at which the stickers are sold depends on the type of operation and the vehicle's passenger capacity
Tax Stamp	A quarterly tax levied on small-scale self-employed individuals in the underground economy	Rate depends on the size and type of business as the business operators are grouped
Stamp Duty Stamp Duty Act 689, 2005	Tax levied on specific instruments or documents with legal effect	
Gift Tax	Tax paid on the total value of the taxable gift(s) such as buildings, land, shares, money, business among others which exceed GH¢50.00	5
Capital Gains Tax	There is an imposition of tax on land and buildings or assets whose sales value exceed GH50.00	15
Rent Tax	Tax expected from earners of rent income	8
Mineral Royalties	Tax is taken from firms/ individuals who extract natural resources.	5
Value Added Tax (VAT)	Tax levied on goods and services sold.	15
National Health Insurance Levy (NHIL)	Tax charged on all goods and services supplied in or imported into the country. NHIL is collected by registered businesses.	2.5 charge on VAT exclusive price of goods supplied or services rendered
Vat Flat Rate Scheme (VFRS)	A flat rate is levied on the value of taxable items sold	3

Source: GRA, 2018



### **2.3 Tax Reforms in Ghana**

After the macroeconomic instability in the 1970s and 1980s, the Economic Recovery Programme (ERP) was introduced in 1983. The economic reform was necessary for restructuring the tax system in Ghana. Tax reform is one of the key policy instruments used to promote economic growth in Ghana. Ghana's tax reform over the past twenty years can be grouped into three overlapping stages: restoring the tax base, strengthening production incentives, and enhancing tax efficiency and equity.

Phase one of the tax reform is termed restoring the tax base. This took effect from 1983 to 1984. During this phase, a high value was assigned to the local currency to obtain higher proceeds from taxes on cocoa. Also, donor inflows increased foreign exchange which boosted imports and consequently imports tax base. These situations resulted in a decline in the tax base. Restoring the tax base was aimed at reducing tax evasion, lower the tax burden and widen the tax net. In view of that, a multiple exchange rate system was introduced in 1983. The multiple exchange rate system imposed an extra charge on payments made on international transactions and offered additional benefit on exchange receipts. The exchange rate was increased in favour of the local currency to obtain much revenue from import duties and cocoa export. Producers of maize, oil palm, cocoa, and rice were offered a flexible pricing system whereas consumer prices were adjusted to reflect the cost of production and profit margin. Also, subsidies on public utilities were removed and fees were charged on public sector services.

Furthermore, the tax assessment for sales and purchase taxes as well as import duties were revised. Corporate income tax assessment system was revised from the preceding year's profit

to current year's actual income. The payment of taxes in advance before the commencement of each quarter was abolished and replaced with the payment of taxes at the end of each quarter. The marginal rates were lowered to reduce average effective rates and the lowest tax-free bracket was raised for personal income (Osei & Quartey, 2005).

Phase two of the tax reform; strengthening production incentives took effect from 1985 to 1986. During this period the investment code (PNDC Law 116, 1985) was introduced to provide incentives for both foreign and domestic investors in the tourism, manufacturing, agriculture and construction and building sectors. Enterprises beyond Accra and Tema were granted about 15 to 40 percent reduction in taxes. Much attention was focused on the revenue institutions to make them more productive in mobilizing adequate revenue. Hence three revenue agencies were established in 1985. These agencies are the National Revenue Secretariat (NRS), Internal Revenue Service (IRS) and the Customs Excise and Preventive Service (CEPS). The National Revenue Secretariat (NRS) had a supervisory role over CEPS and IRS. CEPS and IRS gained autonomy in 1986 and their operations were restructured and incentives policies for CEPS and IRS staff were introduced to enhance efficiency in revenue mobilization. Minerals law of 1986 was introduced to offer incentives to investors.

The third phase of the tax reform; enhancing tax efficiency and equity, lasted from 1986 to 2000. The corporate tax rate for manufacturing enterprises saw a reduction from 55 percent to 45 percent in 1987. In 1998, special taxes were levied on imported items. Corporate tax for manufacturing, real estate, and construction industries was reduced to 35 percent in 1991. Furthermore, there was an introduction of a 5 percent flat rate to substitute the advancing structure of capital gains tax. Corporate taxes for businesses registered with the Ghana Stock Exchange were further reduced in 2001 from 35 percent to 30 percent and 32.5 percent for

unregistered businesses. Though not part of the ERP, value-added tax (VAT) was introduced in March 1995 to enhance the efficiency of the tax system. A VAT flat rate of 17.5 percent replaced the erstwhile sales tax of 15 percent. There was a severe demonstration against VAT and it was withdrawn and in 1998, sales tax was re-introduced. After intensive public education on the VAT, it was re-introduced in 1999. The Income Tax (Act 592) was introduced in 2000. It offered tax relief to persons over 60 years, businessmen suffering a disability, and taxpayers with dependent children. In 2002, the Ghana Customs Management System (GCMS) and the Ghana Community Network (GC-Net) computer-based information systems were installed at the CEPs headquarters, Tema port and Kotoka International Airport. All revenue agencies implemented the Tax Identification Number (TIN) scheme in 2002. In 2008, the Communication Service Tax (Act, 754) and the Vehicle Insurance Tax were introduced. These tax reforms in Ghana have so far restored the tax base that is by increasing the number of incomes that can be taxed, offered better production incentives for investors and improved upon the general efficacy of the tax administration (Osei & Quartey, 2005).

In recent times other reforms include the institution of the Ghana Revenue Authority (GRA) in 2009 by Act 791. GRA is a partially autonomous body whose responsibility is to assess, collect and account for tax revenues. The main purpose is to ensure compliance with the relevant tax laws in order to collect revenue for the government in a fair and efficient manner as well as regulate the movement of goods across the borders of the country. Since its inception in 2009, the Ghana Revenue Authority integrated the Internal Revenue Service (IRS), Value Added Tax Service, Customs, Excise and Preventive Service (CEPS) and the Revenue Agencies Governing Board (RAGB). GRA collects direct, indirect taxes and import duties through its Domestic Tax Revenue Division (DTRD) and Customs Division respectively.

Domestic Tax Revenue Division (DTRD) is an integration of the erstwhile Internal Revenue Service and the Value Added Tax Service whereas the Customs Excise and Preventive Service (CEPS) is now the Customs Division. Apart from the assessment, collection and accounting for tax revenues mobilized, the Support Service Division provides other administrative services. The Domestic Tax Revenue Division (DTRD), Customs Division and Support Service Division are all headed by the Commissioner.

The Income Tax Act, 2015 (Act 896) replaced the Internal Revenue Act, 2000 (Act 592) as the primary legislation on income tax in Ghana. The act also covers taxation of operations in industries such as petroleum, minerals and mining, and financial services. Capital gains Tax and gifts tax are now abolished. The self-assessment system was introduced in Medium Taxpayer Office (MTO) to enable taxpayers to prepare their tax estimates. Presumptive Tax has been introduced as another form of assessment. The scope for assessing resident persons has been widened to include incomes derived from a foreign source (GRA, 2015).

Income Tax Act 902 amends some provisions in the principal Act 896. The following are some key highlights of the Income Tax Act 902. The amendment increased the bands of chargeable income which were being taxed until 2016. Moreover, manufacturing companies other than Free Zone businesses were charged 18.75 percent if they were located in the regional capital and 12.5 percent if they were located elsewhere. The monetary threshold for presumptive tax on an individual has been increased from the initial GHC120, 000 to GHC200, 000. Lastly, 15 percent of the fee charged on the service provided by an individual will be withheld if the rate of tax for the service is not covered by the tax law.

The government abolished some taxes and introduced new ones. For example, the government has scrapped off the 17.5 percent Value Added Tax (VAT) on domestic airlines tickets,

financial services, 5 percent tax on the sale of real estates, 1 percent import levy tax on raw materials and machinery, import duty on spare parts and excise (MoF, 2017).

## **2.4 Chapter Summary**

Following the discussions above, this chapter presented an overview of the tax system in Ghana. It further discussed the policy reforms of the tax system from 1983 to recent times. Also, the performance of the main components of tax revenue was assessed.

## **CHAPTER THREE**

### **LITERATURE REVIEW**

#### **3.1 Introduction**

This chapter is organized as follows: Section 3.2 presents a review of the theoretical literature.

Section 3.3 presents an empirical review of the effect of trust in government on tax compliance.

Section 3.4 presents a summary of this chapter.

#### **3.2 Review of Theoretical Literature**

This section presents a theoretical perspective of tax compliance behaviour beginning with the traditional economic model and other relevant theories which have evolved over time.

##### **Rational Choice Theory**

Von Neumann-Morgenstern's (1953) Expected Utility Model states that within an economic community individuals are rational and thus they aim at maximizing utility. The utility measures the strength of an individual's preferences which is influenced by risk attitudes (McCarthy, 2002). Previous studies such as Becker's (1968) economics of criminal activity and the works of Arrow (1970) and Mossin (1968) in the economics of uncertainty developed the rational choice model within economics. In addition, Allingham and Sandmo (1972) applied utility maximization to analyze the individual taxpayer's behaviour on whether and to what extent an individual can avoid taxes. The basic economic theory of tax evasion assumed

that the taxpayer's behaviour obeys the Von Neumann-Morgenstern axioms for behaviour under uncertainty. Using statistical modeling to determine the relationship between penalty rate, tax rate income and tax evasion, they established that the extent of tax evasion depends on the probability of being detected, the tax rate and penalty rate. Their findings predict that increasing the penalty rate and the probability of being detected will enhance tax compliance, however, the effect of increasing the tax rate is ambiguous. This depends on the magnitude of the substitution effect (underreport income) and the income effect (report income due to the decrease in risk averseness).

The rational choice model postulates that people are inspired to maximize their economic welfare, therefore, people evaluate risks and opportunities and evade tax when the expected probability of detection and fine is small compared to the benefits of non-compliance. Taxpayers retain their money when they evade taxes and are not detected by the tax authority (Palil, 2010). On the other hand, taxpayers suffer a greater loss if evasion is detected (Torgler, 2007). Taxpayers will comply when confronted with high penalties and harsh sanctions. The rational choice model is extensively discussed in previous studies (Mikesell & Birskyte, 2006; Slemrod, 2007). It assumes that tax evasion decision is made in isolation from other economic choices and at the time of filing income tax returns but other literature does not support these assumptions (Birskyte, 2014). The findings of the basic economic model state that increased penalty rates, as well as an increased risk of detection, discourage tax evasion. Despite the relevance to the basic traditional models to tax authorities, they do not accurately predict tax compliance behaviour (Ruiu & Lisi, 2011). The basic economic model does not include societal norms (Mehlkopp & Graeff, 2010). The basic economic model assumes that all taxpayers have equal risk preference and fully know about the probability of being audited

(McKerchar & Evans, 2009). These assumptions may not necessarily be true. Hence more recent studies on tax compliance consider socio-psychological factors such as social norms, tax morale, fairness, attitude and (Birskyte, 2014; Faizal, Palil, Maelah, & Ramli, 2017; Kirchler et. al. 2008; McKerchar & Evans, 2009; Torgler & Schneider, 2007). These socio-psychological variables determine behaviour and fairly predict voluntary tax compliance.

### **Prospect Theory**

A study by Elffers and Helsing (1997) explained decision under uncertainty using the prospect theory, developed by Kahneman and Tversky (1979). In making decisions under uncertainty, a rational person who expects a gain will opt for a risk-free choice and if loss is expected, the person will take a risk. In the context of taxation, a taxpayer who filed the tax return form calculates the filled form to ascertain whether he will obtain a refund or not. If he expects a refund, he will file the tax returns. In contrast, if he finds out from the calculations that he has to pay more, he will take a risky venture of adjusting the calculations to avoid the loss. Prospect theory is useful in fighting tax evasion. In order to promote tax compliance, the tax authority purposively introduces very high advance tax levies on the assumption that the taxpayer will take no risk if he is on the verge of gain. After the final assessment, the tax authority pays back the withheld advanced levy to the taxpayer. By this method, most tax payers will file in their tax return forms. Another way of ensuring compliance by the tax authority is to introduce an overall standard deduction such that the taxpayer will prefer to be lazy than tired. In that tax payers will not be compelled to file their tax return form. Studies by Robben et al (1990) confirms the prospect theory. Like the basic economic model, the prospect theory does not include sociological factors.



### **Theory of Planned behaviour**

Furthermore, tax compliance can be modeled as a behavioural phenomenon whereby compliances behaviour is determined by the taxpayer's intention. Taxpaying is a human social behaviour which is better predicted with a high degree of accuracy by some key concepts in social and behavioural sciences than the economic assumption of uncertainty. Molero & Pujol (2012) submitted that taxpayers' decision to comply with the tax laws or not comply must be analyzed in the context of human behaviour rather than the standard economic approach. In order to understand whether trust in tax revenue authority impacts tax compliance decisions, the research was performed within the framework of the Theory of Planned Behavior. Ajzen's (1991) Theory of Planned Behavior is used as a hypothetical framework to extend earlier study of examining taxpayers' compliance behavior specified by Theory of Reasoned Action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) Theory of Reasoned Action was used to determine factors influential in a tax-compliance setting but the model included only attitude and subjective norms. The Theory of Planned Behavior introduced an exogenous variable; perceived behavioral control these three factors predict human behavior in a specific context. The theory postulates that behavior is a function of salient beliefs relevant to the behavior. The fundamental feature of the theory is the individual's intention to perform a given behavior. Intention is independently determined by attitude (the extent to which a person has a favorable or unfavorable evaluation of the behavior in question), subjective norm (the perceived social pressure which influences a person to perform or not to perform the behavior) and perceived behavioral control (a person's perception of ease or difficulty of performing the behavior). The relative importance of these constructs in predicting behavioral intentions vary across situations. The ability to perform a given behavior is dependent mainly on intention and

perceived control over the behavior. The reasons being that; holding intention constant, the effort expended to execute a given behavior increases with perceived behavioral control. Also, intentions and perception of control are assessed in relation to the behavior of interest (tax compliance behavior). Then perceived behavioral control can directly predict behavior if it rightly reflects actual control. Achmat (2013) criticized the Theory of Planned Behaviour as having an inconsistency between intention and behaviour, however, Azjen (2005) was of the view that intention would be consistent with behavior when the environment make available appropriate motivation and opportunity.

According to the Theory of Planned Behaviour (Ajzen, 1991), attitude, social norm and perceived behavioral control are antecedents to intention and intention translates into behaviour. Benk et al (2011), Bobek and Hatfield (2003), Efebera et al (2004) and Langham et al (2012) tested the theory in a tax setting to determine whether the behavioural constructs: attitude, subjective norms and perceived control positively influence cheating intentions. Tax compliance is also determined by an individual's referent group or society such that if people who are cherished by the taxpayer evade tax, then the tendency to comply will be weak. However, when society upholds high morals and frowns on tax evasion, the individual taxpayer will comply all else equal. Although the Theory of Planned Behaviour can be used as the theoretical framework the fiscal contract theory is much preferred. To achieve the objectives of this study, it is more appropriate to adopt the Fiscal Contract theory. This is because according to Timmons (2005, p.535) fiscal contract theory is "an exchange-based theory of the state, whereby governments sell services for revenue." Fiscal exchange between citizens and the state necessitates that the government provides public goods and services to citizens financed by taxes mobilized.

Different theories have been used to explain the concept of trust in government in tax compliance research. For example, using ordinary least squares regression, Birskyte (2014) extended the standard model of tax evasion to include a trust variable. He sampled the least compliant group of taxpayers: non-farm sole proprietors in the United States of America for his study. His findings indicate that trust in government affects tax compliance. Also, Damayanti, Sutrisno, Subekti, & Baridwan (2015) used the theory of planned behaviour. They included trust and uncertainty as a moderating variable. Using individual taxpayers in Central Java Province in their study, they found that the behavioural constructs: attitude on tax compliance, subjective norms, and perceived behavioural control influence the taxpayers' intentions to comply. Furthermore, their findings show that trust in the government reinforce the intentions to comply, whereas the uncertainty orientation does not influence intentions to comply.

This study employs the fiscal contract theory as the theory that explains trust in government and tax compliance. The fiscal contract theory hypothesizes that government exchanges public goods and services for tax revenues. Basically, the idea of taxation implicates a negotiated exchange between taxpayers and the government (Moore, 2004).

The fiscal contract theory is “an exchange-based theory of the state, whereby governments sell services for revenue” Timmons (2005:535). The fiscal contract between citizens and the state necessitates that the government provides public goods and services financed by tax revenue to citizens. This theory concludes that taxpayers are more willing to pay taxes when they obtain public goods and services financed by the tax revenue. However, the exchange negotiation between the taxpayer and the government relies on other dimensions other than just public

goods and services (Wintrobe & Gërkhani, 2004). Also, there is the possibility of free-riding as taxpayers may enjoy public goods and services without paying taxes.

The quality and performance of the government build up an individual's trust in government. Government institutions that execute those actions are many, thus, inferring from Rothstein (2005) and Rothstein & Teorell (2008) input-output criterion, government institutions can be categorized into the input side and the output side. The government relates to citizens on these two dimensions.

The input side of government, for example, parliament, the ruling party, and the opposition party, advance policies that will provide public goods and services to citizens. It is considered partisan as it may favour a group of people who elected them into office. Although the input side's partisan actions may elicit trust from their group of interest, their supporters are more likely not to comply with state regulations, particularly the payment of tax. This is because these interest groups will threaten to vote them out of public office. Besides, taxpayers who find such partisan-driven policies unfavourable will not have an incentive to pay taxes. Consequently, the input side of the government cannot explain taxpayers' trust in government and tax compliance.

In contrast, the output side of government (for example, tax department, police, local council, court, public health service and the civil service) executes the policies implemented by the input side and practically delivers public goods and services to citizens. The output side is often regarded as impartial in exercising its duties. Also, citizens directly interact with the output side of the government for public goods and services. Thus, how citizens are treated in the course of delivering public goods and service is essential in determining their trust in government. If citizens feel that government (the output side) has been fair with them even

though sometimes the outcomes are unfavourable, they have a cause to comply with all regulations, including tax. However, trust in government will be undermined if the output side of government actions are unfair and corrupt. The effectiveness of the output side's actions informs taxpayers' decision to trust in the government. The output side of government is preferably more trusted than the input side because of the principle of impartiality which characterizes its duties. This emphasizes Rothstein's (2001) argument that tax compliance is a social contract between the government and citizens based on trust.

The theory of fiscal contract is successful in predicting tax compliance, however, little is known about how effective the fiscal contract is when tax compliance is influenced by trust in government. Therefore, this study extends the fiscal contract theory to create a conceptual model to examine the effect of trust in government on tax compliance. When taxpayers evaluate the performance of government and the effectiveness of state institutions as satisfactory, they tend to trust in the government and consequently comply with tax payments.

### **3.3 Review of Empirical Literature**

The effect of both economic and non-economic factors have received much attention in the tax compliance literature. Studies like James, Murphy, & Reinhart (2005) and Torgler (2002) considered the effect of non-economic as well as economic factors on tax compliance. However, recent literature focuses on the non-economic factors such as attitude, social norms and trust in government in explaining tax compliance. Also, socio-demographic variables are included to control for individual effects and to avoid spurious results (Brautigam, Fjeldstad, & Moore, 2008; Hofmann, Voracek & Kirchler, 2017).

To begin with, trust is a broad concept with several dimensions. There is no generally recognized definition, thus, trust is context-specific. In explaining the concept of trust, Uslander (2007) considered the link between the two types of trust: generalized trust (in other people) and trust in government (vertical trust), and how each influences tax evasion. Uslander (2007) explained vertical trust as the relationship between the government and citizens and horizontal trust as the relationship among fellow citizens. In his survey to test Romanians' morality on tax evasion, Uslander (2007) used two sets of survey to stress the effect of trust in government other than trust in fellow citizens (horizontal trust) on tax compliance. He used the ordered probit regression for his estimation and found that trust has a significant impact on predicting Romanians' obligation to pay tax. However, using the World Values Survey in a multiple regression analysis, he came to the conclusion that generalized trust is not significant. Similarly, Chan, Supriyadi, & Torgler (2017) used World Values Survey and European Values Survey (EVS) data on 108 countries to examine the trust and tax morale relationship. Their finding is not different from that of previous studies that trust in government (vertical trust) affects tax morale but trust in other people (generalized trust) does not affect tax morale.

The issue of trust in government is of essence for the development of every economy. Trust in government enables government institutions to function effectively. Trust in government influences an individual's behaviour in supporting public policy reforms such as the payment of income tax. That is to say, trust in government enhances compliance with laws, taxes and civic engagements. Individuals who do not trust the government will free-ride on public policy reforms. In contrast, individuals who trust in the government will sacrifice in expectation for some future benefits. For instance, Alm & Martinez-Vasquez (2007) point out that the lack of trust in government is responsible for the low levels of tax compliance in Latin America.

Furthermore, empirical studies such as Kjær (2004) and Timmons (2005) came to a different conclusion on tax compliance, although they adopted the same theory; fiscal contract theory. While the findings of the former suggest that taxpayers do not pay taxes in exchange for public goods and services from the government, the findings of the latter show that taxpayers pay taxes in exchange for public goods and services provided by the government. Similarly, other studies, including Slemrod (2002), Cummings, Martinez-Vaquez, Mckee, & Torgler (2006), and Timmons & Garfia (2015), used the fiscal contract theory in the context of trust in government and tax compliance. However, the findings of such studies yielded the same conclusion.

Moreover, an effective means of assessing the level of trust in government is to evaluate the performance of the government. This is in line with Espinal, Hartly, & Kelly's (2006) observation that trust in institution is dependent on government performance. Some studies (Bouckaert, Van de Walle, & Kampen, 2002; Kelly, 2003; Mishler & Rose, 2001) conceptualize government performance as a macro-level measure such as unemployment, inflation, Gross National Product (GNP) whereas other studies treat it as a micro-level indicator such as the provision of public goods and services, low levels of corruption, good security, and economic well-being. Therefore, taxpayers will comply with tax obligations if they evaluate government performance as satisfactory and trustworthy. In line with this, Uslaner (2008) stressed the importance of government performance in determining trust in government in developed countries. This is because in the West, services are readily available to citizens and so it does not serve as a basis for determining trust in government.

The level of corruption in government institutions and in a country as a whole undermines trust in government and consequently tax compliance. Higher levels of trust in government indicates

low levels of corruption and good security (Chanley, 2002). Yesegat & Fjeldstad (2016) studied the determinants of tax compliance among business people in Ethiopia, their findings indicate that perception of corruption significantly affects tax compliance. Similarly, Ali, Fjelstad, & Sjursen's (2013) comparative study of Tanzania, Kenya, South Africa and Uganda reveals that mismanagement of resources on the part of government is one of the reasons for which people do not pay tax. Also, their result states that the corrupt acts of tax officials in South Africa reduce the chances of paying taxes. Moving the focus from Africa to transition countries (like Albania, Armenia, Estonia, Macedonia, Uzbekistan among others), Uslaner (2010) studied the factors that influence business people's tax compliance attitude. He used the Business Enterprise and Environment Performance Surveys (BEEPS) in transition countries. His findings suggest that the level of corruption and quality of services affect tax compliance.

Also, trust in government depends on citizen's perception about the government, their expectations of the government and how the government treats them. As a result, trust in government is measured by surveys which ask citizens their views on the performance of government institutions. Using a five-item scale of measure of trust in government for their study, Jimenez & Iyer (2016) investigated the effects of social factors such as perceived fairness of the tax system, social norms and trust in government on individuals' tax compliance intentions. They required that respondents read a number of statements and indicate the extent to which they trust their government. Their study revealed two main findings: it showed that personal norm significantly influences trust in government, and that perceived fairness of the tax system completely moderates the relationship between trust in government and tax



compliance intentions. Consequently, they concluded that trust in government has a significant impact on both perceived fairness of the tax system and tax compliance decisions.

Previous studies on trust in government used international data such as the World Values Survey (WVS) and the European Values Survey (EVS). For example, Alm & Torgler (2006) used the World Values Survey to examine the difference in tax morale between the United States of America and Spain. They reported that tax morale was affected by trust in government. In the same vein, a similar study by Torgler & Schneider (2007) used data from the World Values Survey for Belgium, Spain, and Switzerland. Their findings revealed that trust in government influences tax morale. Such studies made it possible for comparison involving several countries. However, their definition of the term government varies. For instance, the term government could mean the parliament, public services, political parties or the president. Another limitation of the international data is that, due to cultural differences among countries, it cannot be used for comparison across countries.

Empirical studies (see, Alm & Torgler, 2006; Torgler & Schneider, 2007) on trust in government and tax compliance focused on developed countries. Their findings cannot be conclusive because of the apparent difference in culture, government, tax administration and tax systems. For example, Torgler (2003) investigated factors that affect tax morale of people in European countries. He found that individuals who trust government officials and the legal system have high tax morale. A similar study by Torgler (2003) in Switzerland indicates that individuals with high trust in the legal system exhibit high tax morale. However, few studies have focused on the developing world such as Torgler's (2005) investigation of tax morale in Latin American countries. His findings show that individuals that trust in the government report higher tax morale.

In addition, individual characteristics for example age, sex, location, education, socio-economic status, type of employer, religion, and region influence an individual's trust in government and propensity to pay tax. Some studies examine the effect of socio-demographic factors on trust (Espinal et al., 2006) and on tax compliance (Brautigam et al., 2008). They report that an individual's characteristics significantly influence their behaviour. For example, Cummings, Martinez-Vaquez, Mckee, & Torgler (2004) studied how culture affects tax compliance using both survey and laboratory experiments. They were of the view that older persons were more likely to pay tax. Similarly, Ali et al., (2013) studied the factors that influence tax compliance attitude of citizens in Tanzania, South Africa, Kenya, and Uganda. Their findings indicated that older people were tax compliant in all these countries except Uganda. Also, Hofmann et al. (2017) opined that older people were more likely to pay tax than young people. Unlike Cummings et al. (2004), Uslaner (2007) used a survey for his study on tax compliance in Romanian. His findings suggested that age does not affect tax compliance. A study by Helhel & Ahmed (2014) in Yemen showed that sex had an influence on tax compliance. Their study on the influence of sex on tax compliance showed that females were more tax compliant than males. This could be attributed to the fact that females as compared to males have the tendency to comply with regulations. Like the study of Helhel & Ahmed (2014), the study of Hofmann et al. (2017) indicated that female taxpayers complied with tax laws than male taxpayers. Likewise, the study of Alm & Torgler (2006) sought to find out the influence of sex differences on tax compliance in two different cultural settings, namely the United States of America and Europe. The study which drew its data from the World Values Survey showed certain similarities; in both the United States and Europe. Females were found to be more tax compliant than their male counterparts. The findings of Torgler (2006; 2007)

are akin to those of Alm & Torgler (2006). Apart from showing that females were more tax compliant than males, Torgler's (2007) further suggested that self-employed individuals have low tax morale. This can be attributed to the fact that the self-employed operate in the informal economy and have not registered their economic activities with the appropriate state institutions, thus, the tendency for not paying tax is high Danquah & Osei-Assibbey (2018).

Using Afrobarometer data with a sample of 21,000 individuals across 17 African states, Brinkerhoff, Wetterberg, & Wibbels (2018) investigated citizens' perceptions about their government and service delivery across the rural-urban divide. Also, the relationship between citizens and their government is assessed based on their perception of service delivery by the government. They asserted that access to services is biased towards urban dwellers. This may be attributed to the fact that most of the public institutions which provide services are located in the urban areas. Interestingly, their findings also suggest that these rural dwellers, who do not have access to public services, have more trust in their government than their counterparts in the urban areas. This is not surprising, because the accessibility of public services does not mean trust in government. Often, survey questions indicate this difference by asking respondents their opinion of government in providing public services such as healthcare delivery, road infrastructure on one hand, and on the other hand, respondents are to state their trust in government institutions like the parliament, court and civil service. Citizens' trust in government consequently translates into fiscal compliance.

Considering how tax compliance varies across location, Ali et al. (2013) used a binary logit regression to find some similarities as well as differences in factors that affect tax payment attitude of citizens in Tanzania, South Africa, Kenya, and Uganda. Their findings suggested that apart from Uganda, the other three countries show that respondents with tax compliant

attitude live in urban areas. This could be attributed to the fact that individuals who reside in the urban areas relative to those who live in rural areas were more likely to access the services of government institutions. As a result, they have reasons to pay taxes because they benefit from such services.

Analyzing the findings of the influence of socio-demographic factors (education, age, income, sex, and region) on tax compliance, Hofmann et al. (2017) carried out a meta-analysis study of the effect of socio-demographic factors on tax payment propensity across 111 countries. They were of the view that there is a relationship between such demographic factors and tax compliance; income has a negative relationship with tax compliance. That is lower income earners tend to be more compliant to tax payments than higher income earners. In contrast, Ali et al. (2013) argued that tax compliant individuals were quite wealthier than individuals who do not pay tax. This can possibly be attributed to the fact that the cost of non-compliance such as imprisonment, fines, and penalty deter wealthy individuals from not paying taxes.

The effect of religion on tax compliance has not received much attention as other socio-demographic factors have received. Among the few works is Torgler's (2003) study in Canada, which shows that religiosity positively affects tax morale. In a similar study, Torgler (2006) increased the number of countries to thirty and used data from the World Value Survey to find out the effect of religion on tax compliance. His findings were similar to his earlier findings on only Canada which showed that religiosity has a positive effect on tax morale. In the same vein, Mohdali & Pope's (2012) sequential exploratory mixed-method study on 300 individual taxpayers in Malaysia also showed that religiosity and attitude towards government positively affect tax compliance.

In addition, religious teachings and practices like “tithing”, “paying taxes to Caesar” and “zakat” motivate people to fulfill their moral and legal obligations towards the state. Uslaner (2007), for instance, emphasized that affiliation to religion affects tax compliance. Studies by Torgler & Schneider (2007) on religiosity and tax morale showed that religiosity does not affect tax compliance for Spain, but it affects tax compliance for Belgium and Switzerland. In a similar vein, the study of Torgler, Demir, Macintyre, & Schaffer (2008) on Turkey and the United States indicates that religiosity affects tax compliance. This result could be influenced by the fact that the citizens of Turkey were very religious. Nonetheless, a study in the Czech Republic; a country with a large number of irreligious and atheistic citizens established similar findings that religion influences tax compliance but trust in government does not determine tax compliance (Strielkowski & Čábelková, 2015).

Studies (see, for example, Ali, Fjeldstad, & Sjursen, 2014; Daude, Gutierrez, & Melguizo, 2013; Hofmann et al. (2017) on the effect of education on tax compliance have revealed different findings. The study of Daude et al. (2013) showed that the level of education of an individual correlates positively with tax compliance. This implies that persons with a high level of education are more likely to pay tax. In contrast, Ali et al. (2014) and Hofmann et al. (2017) argued that persons with high level of education were less likely to be tax compliant. This may be attributed to the fact that individuals who were highly educated found opportunities in the tax laws and thus do not pay taxes. More so, Newton & Zmerli (2011) were of the view that socio-demographic factors such as education significantly influence trust in government, but Espinal et al. (2006) were of the opposite view. However, Chan et al. (2017) argued that the level of education does not influence tax compliance.

In Ghana, previous empirical studies on tax compliance have taken various forms. For example, Ibrahim et al. (2015) used the sixth wave of the World Values Survey to explore the drivers of tax morale. They reported that an individual's economic class and demographic characteristics do not determine tax morale but having confidence in parliament, trust in government and good financial status, determine tax morale. Also, Annan et al. (2013) studied factors that influence tax evasion from the period 1970 to 2010. Their findings showed that inflation, per capita income, age, and average tax rate positively determine tax evasion, whereas sex was inversely related to tax evasion. Last but not least, Abdul-Razak & Adafula (2013) evaluated the attitude of taxpayers on tax compliance in Tamale. The result of their study suggested that taxpayers' attitudes towards the tax system were independent of government accountability.

### **3.4 Chapter Summary**

The chapter reviewed the literature on the effect of trust in government on tax compliance, highlighting the influence of trust in government on tax compliance. Most of the literature reviewed revealed that trust in government is significantly and positively related to the probability of being tax compliance. It has been shown that socio-demographic factors such as age, level of education, sex, locality, employment status, religion, income status, and region influence trust in government. There are mixed evidence in the empirical literature concerning the effect of socio-demographic factors. Following on the literature reviewed, studies on trust in government and tax compliance in Ghana is not considered exhaustive. For instance, Ibrahim et al. (2015), showed that trust in government drives tax morale. However, they did

not consider how the effect of trust in government on tax compliance vary across localities. This study will, therefore, investigate the effect of trust in government on tax compliance. In addition, the study will examine the effect of trust in government on tax compliance across localities.

## **CHAPTER FOUR**

### **METHODOLOGY AND DESCRIPTION OF DATA**

#### **4.1 Introduction**

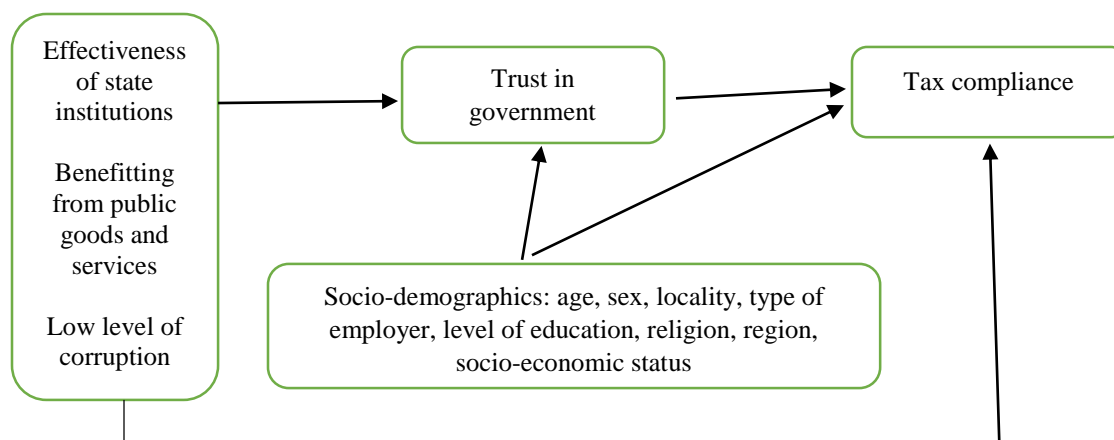
This chapter outlines the methodology employed in understanding the effect of trust in government on tax compliance. The chapter is organized as follows: Section 4.2 presents the conceptual framework. Section 4.3 specifies the model used for this study. Section 4.4 explains the rationale for using the probit regression model. Section 4.5 describes how the variables used in the estimation are computed. Section 4.6 discusses the data used for this study, and Section 4.7 presents the summary of this chapter.

#### **4.2 Conceptual Framework**

The discussion of the literature in Section 3.2 and Section 3.3 showed that trust in government significantly and positively influences the probability of tax compliance. Building on Timmons' (2005) fiscal contract theory and the findings of the trust in government and tax compliance literature, we argue that taxpayers do not only exchange their money for public goods and services but also pay taxes because they trust in government. Therefore, this study extends the fiscal contract theory by including the trust in government variable. Thus, the conceptual framework for this study is presented below.



**Figure 4.1: Conceptual Framework of the Effect of Trust in Government on Tax Compliance**



Author's construct

From Figure 4.1, trust in government influence an individual's probability of paying taxes. This implies that taxpayers trust in the government when the government acts responsibly in using tax revenues. Also, when taxpayers are treated fairly by the government, they tend to trust in the government and consequently pay tax. Moreover, factors such as the indicators of government performance which are: the effectiveness of state institutions in discharging their duties, benefitting from public goods and services and low level of corruption influence the probability to pay tax. Last but not least, socio-demographic factors like age, sex, locality, and the type of employer, level of education, religion, region and socioeconomic status influence the probability to pay tax.

In addition, inferring from Figure 4.1, it is possible for the socio-demographic factors and the indicators of government performance to interact with trust in government. That is to say that the effect of trust in government on tax compliance is influenced by the effects of either the

socio-demographic factors or the factors which account for the government's performance. However, that is not the focus of this study.

### 4.3 Model Specification

Taking into account the dichotomous form of the dependent variable, tax compliance, this study employs the probit model. The probit regression used to examine how the explanatory variables affect the probability of an individual being tax compliant is:

$$\Pr(Y_i=1|X_i) = \Pr(Y_i=1|\text{Trust}_i, \text{Government Performance}_i, \text{Socio-demographic}_i) \quad (1)$$

The estimated probit model of the factors influencing an individual's probability of being tax compliant is expressed as:

$$\Pr(Y_i=1|X_i) = \Phi (\alpha + \beta\text{TrustGov}_i + \delta\text{Government Performance}_i + \gamma\text{Socio-demographic}_i) \quad (2)$$

Where;

$Y_i$  is the dummy for tax compliance

$X_i$  is a vector of explanatory variables which include the socio-demographic factors as well as dummies for trust in government, the level of corruption, safety, and services obtained from paying taxes.

$\text{TrustGov}_i$  is the main variable of concern, and  $\text{Government Performance}_i$  represents dummies for the level of corruption, safety and services obtained from paying taxes.  $\text{Socio-demographic}_i$  is a vector of socio-demographic factors. The socio-demographic factors include sex, age,

locality, type of employer, level of education, religion, socio-economic status, and region of respondents.

$\alpha$  is the intercept term

$\beta$ ,  $\delta$ , and  $\gamma$  are the vector parameter of explanatory variables

$\Phi$  is the cumulative standard normal distribution function

#### **4.4 Justification for Using the Probit Regression Model**

On the basis of the binary measure of the dependent variable, the probit regression estimation technique is adopted for the empirical estimation. The probit model is relevant in such an analysis as it helps to evaluate the effect of the explanatory variables on the propensity of an individual to pay tax. The probit model is estimated by means of Maximum Likelihood Estimation methods. Due to the non-linear form of the probit regression, the size of the coefficient cannot be interpreted directly but the sign of coefficient can be interpreted. This allows the marginal effect to be calculated in order to find the quantitative effect that a variable has on the dependent variable. Marginal effect indicates the probability of or a change in the proportion of taxpayers' propensity to pay tax, when the independent variable increases by one unit, holding all other variables constant. The marginal effect interpretation analyzes both the direction and the substantial effect of the covariates on tax compliance.

#### **4.5 Description of Data**

This study makes use of secondary data: the Afrobarometer data for Ghana. The sixth round of Afrobarometer survey was conducted between 2014 and 2015 by Center for Democratic Development, Ghana (CDD-Ghana; a national coordinator for Afrobarometer). Afrobarometer is an African-led, non-partisan research network that conducts public attitude surveys on democracy, governance, taxation, economic reform, and related issues in more than 30 countries in Africa. Six rounds of surveys have been conducted in Ghana in the years 1999, 2002, 2005, 2008, 2012 and 2015. Afrobarometer conducts face-to-face interviews in the language of the respondent's choice with nationally representative samples of between 1,200 and 2,400 respondents.

The 2,400 interviewees were located in 291 towns in 177 districts spread across 300 Enumeration Areas (EAs) in the 10 regions of Ghana. The sample consists of a nationally representative cross-section of citizens of voting age. The sixth round of the Afrobarometer survey was conducted from 24<sup>th</sup> May to 10<sup>th</sup> June 2014 with the total nationally representative sample size being 2400 individuals. The sixth round of the Afrobarometer collected detailed information from individuals in sampled households, including their demographic characteristics, the quality of democracy and governance in Ghana. Clustered, stratified, and multi-stage probability criteria were used because it reduces sampling error whilst ensuring a fair representation of the views of the national voting age population. Also, it allows an adequate number of respondents to be selected from different subgroups.

Having a contact rate of 95.90% and 82.10% rate of cooperation, only 7.90% refused to participate. The results have a marginal error rate of about +/-2% at a 95% confidence interval hence reliable for this study. For the purpose of this study, out of the 2400 respondents to the

Afrobarometer Round 6 survey, 1343 respondents have been sampled, representing approximately 56 percent of the total population. The reason is to get rid of missing variables, unanswered questions as well as “don’t know” responses.

#### **4.6 Measurement of Variables and their Expected Signs**

In an attempt to capture the effect of trust in government on tax compliance, a number of control variables are included. Taking into consideration the objective of the study and the literature reviewed, the following: age, sex, locality, level of education, type of employer, religion, socio-economic status, region and dummies for government performance are included as control variables in the trust in government and tax compliance estimation.

##### **4.6.1 The Dependent Variable and Main Independent Variable**

The dependent variable is Tax Compliance. For us to find out the likelihood of an individual to pay tax, the Afrobarometer survey used an indirect approach to ask respondents about their views of other people’s actions. The sensitive nature of the information on tax compliance might result in respondents overstating their actual compliance behaviour. To reduce this problem, the Afrobarometer dataset covers a wide range of questions on various topics in that the probability of respondents being suspicious and reporting wrongly is reduced. Moreover, the survey uses an indirect approach of obtaining information on respondents’ tax compliance behaviour. Reinikka and Svensson (2006) argue that using indirect questions in such survey does not implicate the wrong behaviour of the respondents. This is because the indirect

approach is less sensitive compared to the direct question of asking whether or not a person evaded taxes. Therefore, it is more likely to observe a higher degree of honesty in the answers to this question. The question asked respondents whether it is wrong or not wrong:

*“Not paying the taxes they owe on their income “*

(Q75B Afrobarometer Round 6, 2014/2015).

The following responses were given by the respondents: *“not wrong at all”*, *“wrong but understandable”*, or *“wrong and punishable”*. The responses were grouped into two where *“wrong but understandable”* and *“not wrong at all”* were grouped into one category. This is because an individual choosing the option *“wrong but understandable”* is more likely to compromise and not pay although he knows it is not appropriate to do that. So it can be grouped with those are more likely not to pay because they see nothing wrong with not paying taxes they owe on their income. The second category is *“wrong and punishable”*. Those who see not paying taxes they owe on their income as wrong and punishable are more likely to pay taxes at least for these two reasons: their moral obligation to the state will persuade them to be more likely to pay because they see not paying taxes as wrong. The other reason is that the consequence of being punished may deter them from not paying their taxes all things being equal. Thus, the dependent variable is a binary variable which takes on the value of “1” if an individual is more likely to pay tax and “0” otherwise. This study replicates a similar measure for tax compliance adopted by Ali et al. (2013; 2014).

Trust in government is the main independent variable. The trust in government variable is computed from a direct question<sup>1</sup> on some state institutions that ask respondents:

*“How much do you trust each of the following, or haven’t you heard enough about them to say”*

(Question 52A – 52M, Afrobarometer Round 6, 2014/2015).

The responses given were: “*Not at all*”, “*Just a little*”, “*Somewhat*”, “*A lot*”, “*Don't know/haven't heard enough*”. Trust in government will be measured by using four different measures of trust each corresponding with a specific area of government: the police, court, tax department and the local council, on a 5 point scale which will be recoded into two responses. Individuals have no trust in the government at all if they respond “*Not at all*”. On the other hand, at least, they trust in the government if they respond “*Somewhat*” and “*A lot*”. “*Don't know*” and “*Haven't heard enough*” responses were dropped from the dataset since they cannot be put into any of the two categories. The trust in government<sup>2</sup> is coded “1” if an individual trust in government and “0” if an individual does not trust in government. This measure is similar to Leonardo (2011)’s measure of trust in government. It is expected that the effect of trust in government on tax compliance will be positive. Furthermore, factor analysis provides support to the measure of trust in government as all the components are loaded on to

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<sup>1</sup> Several survey ask for trust in government directly for example the Belgian General Election Study 1995: Could you tell me, for each of these institution. Whether you trust them a lot or a little (Question 130\_1 – Question 130\_13)

European Value Survey 1999, Question 58:”Please look at the card and tell me, for each of the item listed, how much confidence you have in them, it is a great deal, quite a lot, not very much or none at all?”

<sup>2</sup> Trust in government is also referred to as TrustGov in this work.

a single factor; factor 1 with the scale reliability being 0.8541. Refer to the table below for output on factor analysis.

**Table 4.1: Factor Analysis of Trust in Government (Rotated factor loadings (pattern matrix) and unique variances sorted)**

Variable	Factor1	Factor2	Factor3	Factor4	Uniqueness
Q52A	0.7475	0.2446	0.2389	0.0191	0.324
Q52C	0.6793	0.4604	0.2222	-0.0112	0.277
Q52F	0.6704	0.3793	0.3061	-0.072	0.3077
Q52B	0.6425	0.3855	0.264	0.0847	0.3617
Q52H	0.4652	0.3545	0.454	0.0127	0.4517
Q52D	0.5096	0.5783	0.2943	0.0067	0.3192
Q52E	0.5105	0.5707	0.2623	0.0064	0.3448
Q52J	0.4439	0.3825	0.4561	0.0115	0.4485
Q52G	0.3221	0.3829	0.412	-0.0106	0.5798

Note: Q52D, Q52E, Q52H and Q52J load onto Factor1 with a Cronbach alpha of 0.8541

#### 4.6.2 Other Explanatory and Control Variables

To begin with, the assessment of government performance is based on the effectiveness of state institutions in providing public service, improving the well-being of the economy, enhancing security, and reducing the levels of corruption (Kelly, 2003). This study employs a similar approach used by Espinal et al. (2006) in measuring the performance of government. The three government performance variables are indicated by Safety, level of Corruption and Public Service respectively. Each of the government performance variables is expected to



positively influence the probability to pay tax. The following survey questions were used to capture government performance:

ai) *“Over the past year, how often, if ever, have you or anyone in your family: Felt safe walking in your neighbourhood?”*

aii) *“Over the past year, how often, if ever, have you or anyone in your family: Feared crime in your own home?”*

(Questions 10A and 10B, respectively Afrobarometer Round 6, 2014/2015).

The responses to the two questions were: “Missing”, “Never”, “Just once or twice”, “Several times”, “Many times”, “Always” and “Don’t know”. Safety will be measured by using two question items each corresponding to a specific aspect of safety on a 6 point scale which will be recoded into two responses. That is, individuals who responded: “Never” were put in one group and those who responded, “Just once or twice”, “Several times”, “Many times” and “Always” were put in another group. Thus the variable Safety is a dummy variable which takes on the value “1” when an individual felt safe and “0” otherwise.

b) *“In your opinion, over the past year, has the level of corruption in this country increased, decreased, or stayed at the same level?”*

(Questions 54, Afrobarometer Round 6, 2014/2015).

The following responses: “Missing”, “Increased a lot”, “Increased somewhat”, “stayed the same”, “Decreased somewhat”, “Decreased a lot” and “Don’t know”, were given. Individuals who responded “Increased a lot”, “Increased somewhat” and “stayed the same”, were

categorized into one group and those who responded “Decreased somewhat” and “Decreased a lot”, were placed in another group. Thus, the Level of Corruption takes on the value “0” if the level of corruption is high and “1” otherwise.

*ci) “In the past 12 months have you tried to get water, sanitation or electric services from the government? If yes: how easy or difficult was it to obtain the services you needed”*

*cii) “In the past 12 months have you requested assistance from the police? If yes: how easy or difficult was it to obtain the assistance you needed?”*

*ciii) “In the past 12 months have you had contact with the courts? If yes: how easy or difficult was it to obtain the assistance you needed from the courts?”*

(Questions 55G, 55I, and 55K, respectively. Afrobarometer Round 6, 2014/2015).

The following responses were given for: “Very easy” and “Easy”, “Difficult”, “Very Difficult”, “No contact” and “Don’t know”. Public Services will be measured by using three different measures of public service each corresponding to a specific type of public service, on a 5 point scale which will be recoded into two responses. Individuals who responded “Very easy” and “Easy”, were categorized into one group whereas, those who responded “Difficult” and “Very Difficult” were placed in another group. Therefore, the variable Public Services takes on the value “1” if the individual benefit from public services and “0” otherwise.

As regards the socio-demographic variables, Sex is a dummy variable with a male respondent coded as “1” and a female respondent coded as “0”. It is expected that females will be more likely to pay tax than males.

Also, Age is in years and it is a dummy variable. It is expected that older people will be more tax compliant as compared to the younger people. Older people are on average able to make good assessment of situation given their various range of experiences over time. Thus, older people will be able to assess the performance of the governments and this will inform whether they trust or do not trust in the government and finally what to do about paying taxes.

Locality is a dummy variable and it is coded “1” for an urban dweller and “0” for a respondent living in the rural area. It is expected that taxpayers living in urban areas are more likely to pay tax.

Furthermore, Education is a dummy variable comprising a low level of education coded as “0” and “1” for a high level of education. The expected sign for the effect of a high level of education on the probability to pay tax is positive.

Moreover, Employer is a categorical variable indicating whether an individual is self-employed, employed by a private firm or the government. The codes for the employer categories are “0”, “1” and “2”. The expected sign for the effect of being employed by the government on the probability to pay tax is positive whereas the expected sign for the effect of being self-employed or employed by a private firm on the probability to pay tax is negative.

Besides, an individual’s affiliation with a particular religion is termed “Religion”. Religion is a categorical variable comprising African Traditional, Islam and Christian religions with their respective codes being “0”, “1” and “2”. The expected sign for each of the three religion is positive.

In addition, the socio-economic status of an individual is represented by their wealth index in quintiles. Due to the unavailability of data on income of individuals, assets such as mobile

phone, television, radio, vehicle, internet, access to water, location of latrine, access to electricity, type of shelter and type of roof were used in a Principal Component Analysis to measure the wealth index, where the poorest individuals are compared with the wealthiest. The expected signs for the “poorest” and “poor” individuals’ probability to pay tax are positive. Similarly, the expected signs for individuals’ who are averagely “wealthy”, “wealthy” and the “wealthiest” are all positive.

Regions are included to take care of regional influences and individual heterogeneity. It includes all ten administrative regions in Ghana. These were further categorized into the northern belt, middle belt and southern belt with their respective codes being “1”, “2” and “3”. The northern belt comprises Upper East, Upper West, and Northern region. Volta, Brong Ahafo, Eastern and Ashanti region make up the middle belt, and Western, Greater Accra and Central region constitute the southern belt. The expected sign of the effect of each of the three belts on the probability to pay tax is positive.

#### **4.7 Chapter Summary**

The chapter presented the methodology for this study. Drawing from the literature reviewed the Fiscal contract theory was extended to account for trust in government. Also, the problem of endogeneity was taken into consideration by estimating a bivariate probit model but no endogeneity was detected. Therefore, the probit model was used for the estimations. For the analysis to be valid, diagnostic tests were performed to ensure that the model satisfies the assumptions of the binary response model. The variables used for the estimation as well as the source of data were described.

## **CHAPTER FIVE**

### **EMPIRICAL ESTIMATION AND DISCUSSION OF RESULTS**

#### **5.1 Introduction**

This chapter presents the empirical results of trust in government and tax compliance estimation. The chapter is divided into the following sections: Section 5.2 presents a descriptive analysis of the variables. Section 5.3 discusses some empirical estimation concerns and further analyse the results of the full model estimation. Robust standard errors were estimated to account for the possibility of undetected heterogeneity. Section 5.4 presents a summary of the chapter.

#### **5.2 Descriptive Analysis**

Table 5.1 presents the descriptive statistics of all the variables employed for the study. From the Afrobarometer round 6 data, the average age of respondents is 49 years with the minimum and maximum age being 18 years and 98 years respectively. The variation in age across the respondents is large (approximately 94.89%). Majority of the respondents (approximately 40.43%) were between the ages of 31 years and 45 years. Only a few (approximately 9.38%) were 60 years and above.

**Table 5.1: Descriptive Statistics of Variables**

<b>Continuous Variable</b>	<b>Frequency (N=1,343)</b>	<b>Percentage (%)</b>	<b>S.D</b>	<b>Min</b>	<b>Max</b>	<b>Mean</b>
<b>Age</b>		94.89		18	98	49.10
18-30 years	394	29.34				
31-45 years	543	40.43				
46-60 years	267	19.88				
60+years	126	9.38				
<b>Dummy &amp;Categorical Variables</b>	<b>Frequency (N=1,343)</b>	<b>Percentage (%)</b>		<b>More likely to be Tax Compliant</b>		
				<b>Frequency (n=1,011)</b>	<b>Percentage (%)</b>	
<b>TrustGov</b>						
TrustGov	1,055	78.56		808	79.92	
Don't TrustGov	288	21.44		203	20.08	
<b>Sex</b>						
Male	717	53.39		537	53.12	
Female	626	46.61		474	46.88	
<b>Locality</b>						
Urban	762	56.74		581	57.47	
Rural	581	43.26		430	42.53	
<b>Level of Education</b>						
High Level of Educ	829	61.73		647	64.00	
Low Level of Educ	514	38.27		364	36.00	
<b>Type of Employer</b>						
Self Employed	982	73.12		732	72.40	
Private	230	17.13		170	16.82	
Government	131	9.75		109	10.78	
<b>Religion</b>						
Traditional	32	2.38		24	2.37	
Islamic	235	17.50		174	17.21	
Christianity	1,076	80.12		813	80.42	
<b>Socio-economic Status</b>						
Poorest	247	18.39		180	17.80	
Poor	210	15.64		161	15.92	
Averagely Wealthy	325	24.20		257	25.42	
Wealthy	244	18.17		176	17.41	
Wealthiest	317	23.60		237	23.44	
<b>Region Category</b>						
Northern Belt	177	13.18		130	12.86	
Middle Belt	639	47.58		494	48.86	
Southern Belt	527	39.24		387	38.28	
<b>Government Performance</b>						
High Level of Corr.	1,237	92.11		922	91.20	
Low level of Corr.	106	7.89		89	8.20	
Safe	1258	93.67		954	94.36	
Not Safe	85	6.33		57	5.64	
Public Services	137	10.20		107	89.42	
No Public Services	1206	89.80		904	10.58	

Source: Author's computation based on Afrobarometer Round 6 (2014/2015)

About 78.56% (approximately 79%) of the respondents trust in the government whereas 21.44% (approximately 21%) do not trust in the government. This means that more than half of the respondents trust in the government. Among those who pay tax, 79.92% (approximately 80%) trust in the government whilst 20.08% (approximately 20%) do not trust in the government.

Also, about 53.39% (approximately 53%) of the respondents were male with 46.61% (approximately 47%) being females. Among those who pay tax, about 53.12% (approximately 53%) were males and 46.88% (approximately 47%) females. This is indicative of the fact that more than half of the respondents were males.

With regard to locality, about 56.74% (approximately 57%) of the respondents live in urban areas whereas 43.26% (approximately 43%) live in rural areas. Among those who pay tax, 57.47% (approximately 57%) live in urban area whilst 42.53% (approximately 43%) live in rural areas. This suggests that more than half of the respondents live in urban areas.

The respondents have all attained some level of education with about 61.73% (approximately 62%) of them attaining a high level of education and 38.27% (approximately 38%) attaining a low level of education. Among those who pay tax, 64% have attained a high level of education and 36% of the respondents, on the other hand, have attained a low level of education. This implies that more than half of the respondents have attained a high level of education.

Additionally, about 73.12% (approximately 73%) of the respondents were self-employed. 17.13% (approximately 17%) worked with private firms and 9.75% (approximately 10%) work with the government. Among those who pay tax, 72.40% (approximately 72%) were self-employed. About 16.82% (approximately 17%) were employed by private firms and 10.78%

(approximately 11%) were employed by the government. That is to say that, more than half of the respondents were self-employed.

As regards religion, about 2.38% (approximately 2%) of the respondents were traditionalist. 17.50% (approximately 18%) of the respondents were Islamic and 80.12% (approximately 80%) of the respondents were Christians. Among those who pay tax, about 2.37% (approximately 2%) were traditionalists. The proportion of respondents who were Islamic and Christians were 17.21% (approximately 17%) and 80.42% (approximately 80%) respectively. This implies that majority of the respondents were Christians.

Moreover, about 18.38% (approximately 18%) of the respondents were the poorest, with the proportion of poor respondents being 15.64% (approximately 16%). About 24.20% (approximately 24%) of the respondents were moderately wealthy. The proportion of wealthy and the wealthiest respondents were 18.17% (approximately 18%) and 23.60% (approximately 24%) respectively. Among those who pay tax, about 17.80% (approximately 18%) were the poorest and the poor respondents were 15.92% (approximately 16%). About 25.42% (approximately 25%) of the respondents who pay tax were moderately rich and 17.41% (approximately 17%) were wealthy. The wealthiest respondents who pay tax were about 23.44% (approximately 23%). This means that on average the respondents were not poor.

About 13.18% (approximately 13%) of the respondents were in the northern belt. 47.58% (approximately 48%) of the respondents were in the middle belt and the proportion of respondents in the southern belt was 39.24% (approximately 39%). Among those who pay tax, the distribution of respondents across the three belts were 12.8% (approximately 13%), 48.86% (approximately 49%) and 38.28% (approximately 38%) for northern, middle and southern belt respectively. This indicates that a greater share of the respondents were from the middle belt.



About 92.11% (approximately 92%) of the respondents were of the view that the level of corruption to be high whereas 7.89% (approximately 8%) were of the view that the level of corruption was low. Among those who pay tax, 91.20% (approximately 91%) were of the view that the level of corruption was high while 8.20% (approximately 8%) were of the view that the level of corruption was low. This implies that almost all the respondents held the view that the level of corruption in the country.

The respondents who felt safe were about 93.67% (approximately 94%) while 6.33% (approximately 6%) did not feel safe. Among those who pay tax, 94.36% of the respondents felt safe whilst 5.64% (approximately 6%) did not feel safe. This indicates that more than half of the respondents felt safe in the country.

Last but not least, the respondents who obtained public services were about 10.20% (approximately 10%) while 89.80% (approximately 90%) did not benefit from public services. Among those who pay tax, 10.58% (approximately 11%) of the respondents benefitted from public services whilst 89.42% (approximately 89%) did not benefit from public services. This shows that more than half of the respondents benefitted less from public services.

### **5.3 Regression Estimates**

The regression analysis was carried out to investigate the influence of taxpayers' trust in government on their probability to pay tax in Ghana. To achieve the objectives of this study, a bivariate probit model<sup>3</sup> (to account for the potential endogeneity) and a simple binary probit

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<sup>3</sup> Refer to Appendix (Table 5.2.1) for the bivariate probit estimates.

regression were estimated, but the marginal effects coefficients of the binary probit model were used in the analysis to assess the magnitude and direction of each covariate. Different models were specified to determine whether the main variable of interest (trust in government) was sensitive to model specification. First, the effect of only trust in government on tax compliance was estimated in Models 1. Next, the remaining covariates in addition to trust in government were estimated in Model 2 for the full sample. This is followed by a discussion of the results of the locality disaggregated model (Models 3 and 4) which explains the effect of trust in government on tax compliance across locality. With respect to the robustness of the findings, variables are unresponsive to the different models specified, implying that their prior effects in terms of significance and direction remained unchanged.

### **5.3.1 Empirical Estimation Concerns**

The inclusion of government performance variables, specifically, “Service” in the trust in government and tax compliance model raises the concern for endogeneity in the specification. The problem of endogeneity is caused by omitted variable, measurement error, and simultaneity. It is expected that there exists endogeneity between tax compliance, trust, and the probability of benefitting from public services. This is because service and trust can jointly determine tax compliance. The probability of benefitting from public services influences an individual’s trust in government. Also, trust in government reflects the performance of government in terms of providing services (Espinal et al., 2006). Since the suspected endogenous variable, “Service” is a dummy variable, a bivariate probit is estimated. The bivariate probit simultaneously estimates: (i) the factors that affect tax compliance and (ii) the factors affecting an individual’s probability of benefitting from public services. Failure to

account for endogeneity implies that the results are biased and unreliable. Table 5.2 presents the endogeneity test results for both the full model and the locality disaggregated model.

**Table 5.2: Results of the endogeneity test between service and tax compliance based on the bivariate probit model**

	Full Sample		Locality Disaggregated Model			
			Urban		Rural	
Correlation between disturbance terms	Coefficient	Robust SE	Coefficient	Robust SE	Coefficient	Robust SE
Rho ( $\rho$ )	0.448	0.583	0.786	0.369	-0.169	0.725
No. of observations	1343		762		581	

Notes: Rho ( $\rho$ ) tests whether the error terms of the structural equations are correlated. The presence of endogeneity is detected if  $\rho$  is significantly different from zero. Significant level at 1%, 5%, and 10% are indicated by \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , and \*  $p < 0$  respectively.

Source: Author’s compilation based on Afrobarometer Round 6 (2014).

From Table 5.2, the error terms of the two structural equations are not correlated for both the full model and the locality disaggregated model. This indicates that there is no endogeneity, thus service is not endogenous in the model of tax compliance. Service and trust do not depend on each other. That is to say, trust in government is determined by other factors other than the services provided by the government. This shows that without taking into consideration the problem of endogeneity, the probit model estimates are unbiased and reliable. Therefore, this study investigates the effect of trust in government on tax compliance within the framework of the binary probit estimation. Also, taking into consideration unobserved heterogeneity, the robust standard errors are estimated.

In the same vein, the following diagnostic tests: specification test, goodness-of-fit test, and multicollinearity test, will be performed for the full and locality disaggregated models to ensure that the model fits and can be used for statistical inference<sup>4</sup>. To ensure that the model is correctly specified, the specification test was performed and from the output in Table 5.3, the model is correctly specified. This is because  $\hat{\mu}$  is statistically significant and  $\hat{\mu}^2$  is not.

**Table 5.3: Specification Test for Full Model and Locality Disaggregated Model**

Variable	Full Model		Locality Disaggregated Model			
	Coefficient	p >  z	Coefficient (Urban)	p >  z	Coefficient(Rural)	p >  z
Tax_Compliance						
$\hat{\mu}$	1.558 (0.899)	0.083	1.336 (0.749)	0.074	2.713 (1.715)	0.114
$\hat{\mu}^2$	-0.41 (0.645)	0.525	-0.243 (0.501)	0.64	-1.3 (1.284)	0.311
$\hat{\mu}$ _constant	-0.174 (0.306)	0.569	-0.106 (0.247)	0.699	-0.506 (0.532)	0.432
Number of Observ.	1343	-	762	-	581	-
Prob > Chi2	0.0000	-	0.0000	-	0.0006	-
Pseudo R2	0.0185	-	0.0301	-	0.0224	-

Also, in Appendix ii, the Hosmer and Lemeshow’s goodness-of-fit test indicates that the estimated model fits the data since the Hosmer and Lemeshow test is not statistically significant. Furthermore, the multicollinearity test is used to verify whether the regressors are highly correlated. Using the rule of thumb: a tolerance of 0.1 or less or a Variance Inflation Factor (VIF) of 10 or more indicates that there exist multicollinearity. From the output in Appendix iii, there is no multicollinearity since the tolerance and VIF values are closer to 1.

<sup>4</sup> Refer to Appendices i and ii.

**Table 5.4: Marginal effect results**

	Full Sample		Locality disaggregated	
			Urban	Rural
<b>Dependent Variable: Tax_Compliance</b>				
Variables	Model 1	Model 2	Model 3	Model 4
<b>TrustGov</b> (base = no TrustGov)	0.047** (0.023)	0.064** (0.028)	0.074** (0.034)	0.035 (0.047)
<b>Age</b>	-	0.000 (0.000)	0.000 (0.000)	-4.62e-06 (0.000)
<b>Sex</b> (base = Female)	-	-0.021 (0.024)	-0.018 (0.032)	-0.027 (0.037)
<b>Locality</b> (base = Rural)	-	0.026 (0.026)	-	-
<b>Level of Education</b> (base = Low Level)	-	0.078** (0.027)	0.042 (0.037)	0.121*** (0.040)
<b>Type of Employer</b> (base = Self-employed)				
Private firm	-	-0.022 (0.034)	-0.024 (0.040)	-0.014 (0.062)
Government	-	0.069* (0.039)	0.086** (0.044)	-0.010 (0.080)
<b>Religion</b> (base = Traditional)				
Islam	-	0.007 (0.080)	0.147 (0.177)	-0.054 (0.086)
Christian	-	0.005 (0.078)	0.182 (0.172)	-0.072 (0.082)
<b>Socio-economic status</b> (base = Poorest)				
Poor	-	0.019 (0.040)	0.018 (0.067)	-0.006 (0.052)
Average	-	0.029 (0.038)	-0.009 (0.062)	0.032 (0.052)
Wealthy	-	-0.064 (0.045)	-0.078 (0.066)	-0.097 (0.075)
Wealthiest	-	-0.032 (0.043)	-0.078 (0.063)	0.057 (0.065)
<b>Region Category</b> (base = Northern Belt)				
Middle Belt	-	0.028 (0.043)	-0.040 (0.064)	0.061 (0.058)
Southern Belt	-	-0.008 (0.045)	-0.062 (0.064)	0.014 (0.063)
<b>Government Performance</b>				
Level of Corruption (Base = High Corr.)	-	0.104** (0.048)	0.141** (0.068)	0.073 (0.069)
Safety (base = Not Safe)	-	0.096** (0.045)	0.111** (0.056)	0.061 (0.075)
Public Services (base = No Public Service)	-	0.025 (0.040)	0.054 (0.054)	-0.019 (0.060)
Number of observations	1343	1343	762	581

Note: \*\*\* p<0.01, \*\* p<0.05, \*p<0.1; Robust standard errors are in parenthesis Source: Author's computation

based on Afrobarometer (2014/2015)

### **5.3.2: Discussion of Results of the Full Model**

Considering the empirical results from the probit model in Table 5.4, it is observed from Model 1 that trust in government positively and significantly explains the probability of paying tax by 4.7 percent. Similarly, Model 2 presents the full sample estimations, and it reveals that trust in government is a significant and positive predictor of the probability of paying tax. Having trust in the government increases the probability of paying tax by 6.4 percent relative to not having trust in the government. This is suggestive that, apart from the public goods and services individuals obtain from paying taxes, people's trust in government influences their willingness to pay tax. The findings are consistent with previous empirical results on the impact of trust in government and tax compliance (see, Birskyte, 2014 and Ibrahim et al., 2015).

With regard to the age of an individual, the result shows that age does not have a significant effect on the probability to pay tax. This is suggestive that tax noncompliance is common among both the old and young taxpayers in Ghana. This is contrary to the findings of Frey & Torgler (2007) that older individuals are more tax compliant. However, this result is consistent with the findings of Uslaner (2007) that age has no effect on tax compliance. In the same vein, the sex of an individual is negatively related to tax compliance; however, it is not significant in influencing a taxpayer's probability to pay tax. These results contradict the empirical findings of Alm & Torgler (2006) and Torgler (2006) that females are more tax compliant than males. Furthermore, the locality of an individual is positively related to tax compliance, but it is not significant in influencing a taxpayer's probability to pay tax. This is in contrast with the findings of previous studies, that individuals living in the urban areas are tax compliant (see Ali et al., 2013). This shows that in Ghana the probability of paying taxes is not influenced by where an individual lives. Both rural and urban individuals do not see how well the government

is performing in using the tax revenue, thus, they have no incentive to pay taxes. These factors are not significant at the conventional levels. The possible reason could be that in Ghana, individual's age, sex or location is not crucial in determining the probability of being tax compliant.

The effect of an individual's level of education on tax compliance is positive and significant. This indicates that the probability to pay tax increases by 7.8 percent for individuals with a high level of education relative to having a low level of education. This could be attributed to the fact that, compared to the less educated, the highly educated are able to assess the performance of government and how tax revenues are used. This is in contrast with the findings of Chan et al. (2017) who showed that education has no effect on tax compliance.

In addition, individuals employed by private firms negatively influence the probability to pay tax, and it is not significant. On the other hand, as the results show, individuals employed by the government positively and significantly influence tax compliance. In relation to being self-employed, being employed by the government increases the probability of tax compliance by 6.9 percent. This lends credence to the fact that government workers have their taxes withheld at source as compared to the self-employed who have higher chances of not paying taxes. The findings are in line with the result of Torgler (2007) who revealed that individuals who were self-employed were less likely to pay tax.

With regard to government performance, the level of corruption is positively and significantly related to tax compliance. The probability to pay tax increases by 10.4 percent when the level of corruption is low as compared to when the level of corruption is high. This is attributable to the fact that individuals who find the government incorruptible are certain that the government

uses tax revenues effectively. This finding is consistent with the result of Uslaner (2010) that taxpayers are more likely to pay taxes when government institutions are not corrupt.

Last but not least, the safety of an individual positively and significantly influences tax compliance. This indicates that individuals who feel safe are 9.6 percent more likely to pay tax as compared to those who do not feel safe. This reflects the fact that a sense of security and safeness assures citizens of the effectiveness of the government. This finding is in line with that of Uslaner (2010) who stated that individuals' propensity to pay tax will be if they spend most of their revenue in maintaining security.

### **5.3.3 Discussion of the Results of the Locality Disaggregated Model**

Although the locality of an individual does not matter in influencing tax compliance in the full sample model, it does not refute the fact that there are differences across locality. From the data in comparing those who are more likely to pay taxes, it is evident that more than half of those in the urban areas are more likely to pay taxes whereas, about 43% of those in the rural areas pay taxes. Moreover, the Sixth Round of Ghana Living Standards Survey (GLSS 6) reports the prevalence of informal economic activities in both the rural areas (23.3 percent) and the urban areas (61.5 percent). This implies that individuals working in the informal sector across localities are more likely not to pay taxes because they do not register their economic activities with the appropriate state institutions such as GRA. Therefore, to examine what factors that account for differences in tax compliance between the rural and urban areas, this study estimates the locality disaggregated effect of trust in government and tax compliance. Models 3 and 4 present the marginal effect estimations of the locality disaggregated models of



the effect of trust in government on tax compliance. Model 3 shows the estimations of individuals in the urban area, whereas Model 4 depicts the rural estimations.

The locality disaggregated models reveal that trust in government, being employed by the government, low level of corruption and the safety of an individual have a significant and positive influence on the probability of paying taxes for individuals in the urban areas. Compared to those who do not trust in the government, individuals who trust in the government are 7.4 percent more likely to pay tax. This is attributed to the fact that individuals living in the urban areas have greater access to the government institutions. This is in line with the findings of Alm & Martinez-Vasquez (2007). Also, 8.6 percent of individuals employed by the government are more likely to pay taxes relative to the self-employed. This is because most of the self-employed individuals living in the urban areas operate in the private informal economy. They do not register with the appropriate government institutions and this results in non-payment of taxes (Danquah & Osei-Assibbey, 2018). In the same vein, relative to individuals living in the rural areas, those living in the urban areas are employed by the various government institutions and so their taxes are deducted at source.

Moreover, a low level of corruption increases the probability of tax compliance by 14.1 percent relative to a high level of corruption. This may be due to the fact that individuals living in the urban areas relative to those in the rural areas are able to assess the actions of the government and so detect corrupt acts of government. This confirms the results of Yesegat & Fjeldstad (2016) that perception of corruption reduces tax compliance. In addition, the probability of paying tax increases by 11.1 percent for individuals who obtain public services relative to those who do not obtain public services. This reflects the relative availability of public services in the urban areas than in rural areas. This supports the findings of Timmons

(2005) that different groups of individual's trade taxes for public services. It is however surprising that among urban dwellers, a higher level of education does not play a role in tax compliance. This could be that the highly educated in the urban areas assess the cost-benefit of tax compliance and since they are aware of all the possible opportunities of not complying, they do not comply because the benefits of noncompliance outweigh the cost.

With regard to the rural estimations, only the level of education positively and significantly influences tax compliance at 1 percent significant level. That is, being highly educated significantly increases the probability of paying tax by 12.3 percent. This implies that individuals in the rural areas compliance decision are determined mainly by their ability to read and understand the tax regulations. Furthermore, an individual with a high level of education is more likely to know what tax to pay, where to pay the tax and also assess the use of tax revenue by the government. The insignificance of trust in government in influencing individual's probability to pay tax in the rural area is indicative of the lack of contact with government institutions and public services. Since rural dwellers do not have access to public goods and services, especially services provided by government institutions, they cannot assess the performance of government and in effect trust in the government. Owing to this, they are less likely to be tax compliant.

Similar to the estimates of the full sample model, trust in government, being employed by the government, low level of corruption and safety significantly and positively influence the likelihood of paying tax in the urban areas, whereas only high level of education significantly and positively influences tax compliance in the rural area. The apparent difference in the locality disaggregated model is that whilst education significantly influences tax compliance in the rural area, it does not influence tax compliance significantly in the urban area. The level

of education could not be a determining factor of tax compliance in the urban areas probably because highly educated urban dwellers could not assess how useful tax revenues are being used by the government. Also, being employed by the government does not significantly explain tax compliance in the rural area. This indicates that comparing the rural area to the urban area, just a few individuals are employed by the government. This proportion is almost negligible thus does not have a significant influence on tax compliance.

#### **5.4 Chapter Summary**

This chapter described the data used for the estimations and further discusses the regression estimates. The empirical results suggest that tax compliance in Ghana is influenced by trust in government, being employed by the government, high level of education, low level of corruption and safety. On the other hand, factors such as age, sex, locality, being self-employed or employed by private firms, religion, socio-economic status and region do not significantly influence tax compliance. Comparing the full sample model with the locality disaggregated model, similar results hold for urban areas except for the high level of education. On the contrary, only a high level of education influences tax compliance for rural dwellers. Comparing the results in Models 1, 2 and 3, it is observed that the variables were not responsive to the different models specified. This implies that the prior effect in terms of significance and direction remains unchanged, so the findings are robust.

## **CHAPTER SIX**

### **SUMMARY, CONCLUSION AND POLICY RECOMMENDATION**

#### **6.1 Introduction**

This final chapter mainly summarizes the key findings and recommendations which will help in policy formulation. The chapter is organized as follows: Section 6.2 outlines the key findings. Section 6.3 states the recommendations for policy formulation. Section 6.4 highlights the limitations of the study, and Section 6.5 suggest areas to be investigated for future studies.

#### **6.2 Summary of Key Findings**

To achieve economic growth and development, the government must encourage the mobilization of domestic revenue. Tax compliance among individuals would contribute to an improvement in government revenue. This will enable the government to provide adequate public goods and services, and thus promote economic growth and development which will lead to the achievement of the Sustainable Development Goals (SDGs). Developing countries, like Ghana, still record a low tax revenue to GDP ratio. The tax-to-GDP ratio is still lower than the 25 percent threshold for Sub-Saharan African (AfDB, 2018). Thus, it is required that factors that influence tax compliance are examined.

In this study, we use the sixth round of the Afrobarometer survey and probit estimation to examine the effect of trust in government on tax compliance in Ghana. A locality disaggregated analysis on the effect of trust in government on tax compliance is also carried out. The findings show that tax compliance in Ghana is significantly influenced by trust in government, socio-demographic factors and government performance factors but with important variations across localities. Among the socio-demographic factors, high level of education and being employed with government institutions influences the probability to pay tax. Government performance factors such as low level of corruption and safety influence the probability to pay tax.

The results with regard to the locality disaggregated models of the effect of trust in government on tax compliance show that trust in government, being employed by the government, low level of corruption and safety, have a positive and significant influence on the probability to pay tax for individuals in the urban areas. On the other hand, only a high level of education significantly influences the probability to pay tax for individuals in the rural areas. Rural residents' probability to pay tax is not influenced by trust in government. Overall, comparing Models 1, 2 and 3, trust in government is essential in influencing tax compliance in Ghana whereas age, sex, locality, religion, socio-economic status, region, and services do not significantly influence tax compliance.

### **6.3 Recommendation for Policy Formulation**

Following from the findings, it is recommended that government institutions that have direct contact with individuals should be impartial in executing their roles as this builds up trust in government and in turn influence tax compliance. Coupled with that, the revenue authority

should be transparent in performing its duties. By doing this, citizens will perceive the tax administration and government to be worthy of trust. This trust in government will encourage tax compliance.

In addition, government institutions specifically the GRA intensify public education on citizens' tax responsibility, especially in the rural areas. Also, taxation should be included in the program of study of schools right from the basic to the tertiary levels. This will enlighten most people on taxation issues such as the type of taxes paid and what tax revenues are being used for. Educating individuals on the need to pay taxes and how government uses tax revenues, will enable individuals trust in government and thus, be more tax compliant.

The government should make efforts to reduce the level of corruption in the country. This is because a low level of corruption indicates that the government uses the tax revenue effectively, it builds up trust in government and consequently increases an individual's probability to pay taxes. Similarly, the government should ensure that the level of crime is reduced so that individuals feel safe in the country and trust in the government. Also, the low levels of crime in a country which translates into trust in government, attracts investors which will boost economic activities and provide income for individuals to pay taxes.

Also, the government should provide adequate public goods and services such as electricity, roads, schools, and hospitals. This will motivate individuals to pay taxes because they will benefit from using these public goods and services. The government's responsiveness to the expectations of citizens will increase trust in government and in effect increase tax compliance.

Lastly, the findings provide insights for the formulation of policies that are intended to improve tax compliance and facilitate the achievement of the SDGs. Thus, policymakers should be

responsive to the expectations of citizens and formulate policies that will boost trust in government. That is the outcome of policies should cause positive expectations for future well-being.

#### **6.4 Limitation of the Study**

This study examined the effect of trust in government on tax compliance, using the socio-demographic variables as control variables. It is possible for trust in government to be affected directly by socio-demographic factors which in turn influence tax compliance. Yet, this study did not consider the interaction effect of trust in government and the socio-demographics on tax compliance.

Also, a comprehensive data on the taxation is not readily available to the public. The Afrobarometer data permits only cross-sectional analyses for studies on taxation. The reason being that previous Afrobarometer surveys do not have adequate tax information. Hence, it does not permit the study of causal relationship and reverse causality. However, Afrobarometer data remains the best for national studies such as this.

#### **6.5 Suggestion for Further Studies**

While this study filled some gaps in previous research on tax compliance in Ghana, it has not taken into consideration the effect of socio-demographic factors on trust in government. Therefore, future research should investigate the interaction effect of trust in government and the socio-demographic factors on tax compliance.

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## APPENDICES

### Appendix i: Probit Model Tax\_Compliance of Goodness-of-Fit

Model	Full	Locality Disaggregated Model	
		Urban	Rural
Number of Observation	1343	762	581
Number of groups	10	10	10
Hosmer-Lemeshow's Chi2 (8)	9.28	12.83	7.86
Prob > Chi2	0.3195	0.1178	0.4472

### Appendix ii: Multicollinearity Test

Variable	VIF	SQRT		R
		VIF	Tolerance	Squared
Tax_Compliance	1.02	1.01	0.9796	0.0204
TrustGov	1.04	1.02	0.9628	0.0372
Age	1.01	1	0.9947	0.0053
Sex	1.09	1.04	0.9214	0.0786
Locality	1.25	1.12	0.7978	0.2022
Education	1.3	1.14	0.7676	0.2324
Employer	1.15	1.07	0.8719	0.1281
Religion	1.2	1.1	0.834	0.166
Socio-economic Status	1.43	1.19	0.7013	0.2987
Region category	1.23	1.11	0.8104	0.1896
Corruption	1.02	1.01	0.9817	0.0183
Safety	1.01	1.01	0.9859	0.0141
Service	1.03	1.01	0.973	0.027
Mean VIF	1.14			

**Appendix iii: Descriptive statistics of variables indicating the mean, standard deviation, and minimum, maximum and number of observation**

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Observation</b>
Tax Compliance	0.753	0.432	0	1	1343
TrustGov	0.786	0.411	0	1	1343
Age	48.098	94.889	18	98	1343
Sex	0.534	0.499	0	1	1343
Locality	0.567	0.496	0	1	1343
Education	0.617	0.486	0	1	1343
Employer	0.366	0.654	0	2	1343
Religion	1.777	0.470	0	2	1343
Socio-econ. Status	3.130	1.415	1	5	1343
Region category	1.261	0.676	0	2	1343
Corruption	0.079	0.270	0	1	1343
Safety	0.937	0.244	0	1	1343
Service	0.102	0.303	0	1	1343

**Table 5.2.1: Marginal effect estimates of the bivariate model of the effect of trust in government on tax compliance.**

<b>Variables</b>	<b>Full Model</b>	<b>Urban(Model 3)</b>		<b>Rural (Model 4)</b>	
<b>TrustGov</b> (base = no TrustGov)	0.061** (0.028)	0.065***	(0.035)	0.035	(0.047)
<b>Age</b>	0.000 (0.000)	0.000	(0.000)	-6.59e-06	(0.000)
<b>Sex</b> (base = Female)	-0.009 (0.028)	0.006	(0.031)	-0.031	(0.040)
<b>Locality</b> (base = Rural)	0.021 (0.027)	-		-	
Level of Education (base = Low Level)	0.086*** (0.027)	0.052	(0.035)	0.115**	(0.048)
<b>Type of Employer</b> (base = Self-employed)					
Private firm	-0.193 (0.034)	-0.029	(0.038)	-0.022	(0.073)
Government	0.068* (0.039)	0.073***	(0.044)	0.003	(0.089)
<b>Religion</b> (base = Traditional)					
Islam	0.006 (0.077)	0.107	(0.164)	-0.055	(0.086)
Christian	0.004 (0.075)	0.142	(0.157)	-0.073	(0.082)
<b>Socio-economic status</b> (base = Poorest)					
Poor	0.019 (0.039)	0.024	(0.065)	-0.006	(0.052)
Average	0.029 (0.037)	-0.001	(0.061)	0.031	(0.052)
Wealthy	-0.060 (0.045)	-0.064 (0.065)		-0.097 (0.074)	
Wealthiest	-0.027 (0.044)	-0.053	(0.074)	0.057	(0.065)
<b>Region Category</b> (base = Northern Belt)					
Middle Belt	0.023 (0.042)	-0.051	(0.057)	0.063	(0.059)
Southern Belt	-0.020 (0.045)	-0.084	(0.058)	0.183	(0.066)
<b>Government Performance</b>					
Level of Corruption (Base = High Corr.)	0.109** (0.047)	0.140**	(0.065)	0.066	(0.076)
Safety (base = Not Safe)	0.076 (0.053)	0.065	(0.059)	0.065	(0.076)
Public Services (base = No Public Service)	-0.252 (0.374)	-0.435*	(0.253)	0.081	(0.437)
Number of observations	1343	762		581	

Note: \*\*\* p<0.01, \*\* p<0.05, \*p<0.1; Robust standard errors are in parentheses

Source: Author's computation based on Afrobarometer (2014/2015)